CHAPTER 4. ACADEMIC STANDARDS AND ASSESSMENT

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§ 4.2. Purpose.

The purpose of this chapter is the School Code.

GENERAL PROVISIONS

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§ 4.3 Definitions.

The following words and terms, when used in this chapter, have the following meanings:

Academic standard—What a student should know and be able to do at a specific grade level.

Assessment—a valid and reliable measurement of student performance on academic standards.

AVTS—Area vocational-technical school.

Cooperative—A competency-based program that coordinates and integrates classroom instruction with a structured work-based employment experience designed for students.

Curriculum—the set of planned instruction aligned with the academic standards.

Department—the Department of Education of the Commonwealth.

Department of Education—The Department of Education of the Commonwealth.

Employment area—a geographic area where vocational-technical education program completers are most likely to be employed.

ESOL—English to speakers of other languages.


Academic standards are most likely to be employed in each subject area in which curriculum is planned, coordinated, and implemented in an integrated and coherent manner with the employer.

Cooperative vocational-technical education—A planned method of instruction developed through a signed cooperative arrangement among school representatives, students, and employers to provide secondary, post-secondary, and adult students with an opportunity to alternate in-school academic and vocational education with on-the-job experiences in the workforce.

Curriculum—A set of planned instruction aligned with the academic standards.

Employment area—A geographic area where vocational-technical education program completers are most likely to be employed.


Academic standards—What a student should know and be able to do at a specific grade level.

Educational standard—A valid and reliable measurement of student performance on academic standards.

Assessment—A valid and reliable measurement of student performance on academic standards.

AVTS—Area vocational-technical school.

Cooperative—A competency-based program that coordinates and integrates classroom instruction with a structured work-based employment experience designed for students.

Curriculum—A set of planned instruction aligned with the academic standards.

Department—the Department of Education of the Commonwealth.

Educational standard—A valid and reliable measurement of student performance on academic standards.

Assessment—A valid and reliable measurement of student performance on academic standards.

AVTS—Area vocational-technical school.

Cooperative—A competency-based program that coordinates and integrates classroom instruction with a structured work-based employment experience designed for students.

Curriculum—A set of planned instruction aligned with the academic standards.

For Kindergarten

are at least 5 years of age and completed prior to the school district's entry age

entered under contract from a school district that is open to children who

in a program operated by a school district or by a community

Philadelphia—A program operated by a school district or by a community

determined by the school entity

Keystone Exams—State-developed end-of-course exams. Designated exams will be used to determine, in part, a student's eligibility for high school graduation.

Local Assessment Validation Advisory Committee—An advisory committee established by the Department composed of up to two representatives each from the Department and Board, four representatives from the Pennsylvania School Boards Association and up to four additional members who are jointly selected by the Committee. The purpose of the Committee is to develop the criteria for the local validation process and the criteria for selection of approved validation entities.


PSSA—Pennsylvania System of School Assessment.

Parent or guardian—A person legally responsible for a student's care.

Pennsylvania Core Standards—Academic standards for English language arts and mathematics based upon a Nationwide, state-led process coordinated by the National Governors Association and the Council of Chief State School Officers and in collaboration with teachers, content experts and other education stakeholders.

Performance Level Advisory Committee—An advisory committee established by the Department to assist the Department in developing Keystone Exam performance level descriptors and performance level cut scores. The Committee includes teachers, principals, school board members, higher education officials, representatives of the United States Armed Forces, employers and others with at least 1/2 of its members selected from nominations made by Statewide teachers' unions and other education stakeholder organizations.

Planned instruction—Instruction offered by a school entity based upon a written plan to enable students to achieve the academic standards under § 4.12 (relating to academic standards) and any additional academic standards as required for graduation and after graduation.

Prekindergarten—A program operated by a school district or by a community

Work-force training programs—Projects designed to provide pre-work-force preparation programs in order to improve students' chances of succeeding in post-secondary education.

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§ 4.5

Validation criteria—Criteria for the local validation process and criteria for selection of approved validation entities.

Validation criteria

will be used to determine eligibility for high school graduation.

Keystone Exams—State-developed end-of-course exams. Designated exams will be used to determine eligibility for high school graduation.

Immediate unit—A regional educational service agency established under
School entity—A local public education provider (for example, public school district, charter school, A-VTS or intermediate unit).

School organization—The organization of a school district's programs into kindergarten, primary, intermediate, middle and high school programs, including programs operated at A-VTSs.

Secretary—The Secretary of Education of the Commonwealth.

State assessment—A valid and reliable measurement of student performance on a set of academic standards as measured by the Pennsylvania System of School Assessment or the Keystone Exams.

State Assessment Validation Advisory Committee—An advisory committee established by the Department to advise it on its plans to conduct a validity study of the Keystone Exams and review and provide feedback on study findings. The Committee is composed of up to two representatives each from the Department, Board, Pennsylvania State Education Association, American Federation of Teachers-Pennsylvania and up to four additional members who are jointly selected by the Committee.

Tech-prep program—A combined secondary and postsecondary program which leads to an associate degree or certificate and employment by providing technical preparation in engineering technology, applied science, mechanical, industrial, or practical art or trade, agriculture, health or business, including development of competence in mathematics, science, and communications through a sequential course of study.

Vocational-technical education—Programs under public supervision and control which provide an organized method of learning experiences designed to develop integrated academic and occupational skills, knowledge, attitudes, work habits and leadership ability for entry into and advancement within various levels of employment in occupational areas of agriculture, business and industry, health professions, public service, home economics and other areas.

Authority

The provisions of this § 4.3 amended under the Public School Code of 1949 (24 P.S. §§ 1-101—27-2702).

Source


Cross References

This section cited in 22 Pa. Code § 4.23 (relating to high school education); 22 Pa. Code § 4.28 (relating to special education); 22 Pa. Code § 338.2 (relating to definitions); and 22 Pa. Code § 339.1a (relating to definitions).
§ 4.4 General policies.

(a) It is the policy of the Board that the local curriculum be designed by school entities to achieve the academic standards under § 4.12 (relating to academic standards) and any additional academic standards as determined by the Board.

(b) It is the policy of the Board that local school entities have the greatest possible flexibility in curriculum planning consistent with providing quality education and in compliance with the School Code, including requirements for courses to be taught (24 P. S. §§ 15-1501 and 16-1605); subjects to be taught in the English language (24 P. S. § 15-1511); courses adapted to the age, development and needs of the pupils (24 P. S. § 15-1512); minimum school year of 180 days and minimum of 900 hours of instruction at the elementary level and 990 hours of instruction at the secondary level (24 P. S. §§ 15-1501 and 15-1504); employment of sufficient numbers of qualified professional employees (24 P. S. § 11-1106) and superintendents to enforce the curriculum requirements of State law (24 P. S. § 10-1005); and this part.

(c) Access to educational programs shall be provided without discrimination on the basis of a student's race, color, religion, disability, sexual orientation or national origin.

(d) School entities shall adopt policies to assure the parents of students of the availability of information about the curriculum, including academic standards, to be achieved, instructional materials and assessment techniques. School entities shall adopt policies to assure that parents or guardians have the following:

1. Access to information about the curriculum, including academic standards to be achieved, instructional materials and assessment techniques.
3. The right to have their children excused from specific instruction that conflicts with their religious beliefs, upon receipt by the school entity of a written request from the parent or guardians.
4. The right to review a State assessment in the school entity during convenient hours for parents and guardians, at least 2 weeks prior to their administration, at least 2 weeks prior to their administration, in a place that is accessible to parents and guardians, at least 2 weeks prior to their administration.
5. The right to exclude their children from research studies or surveys conducted by entities other than a school entity unless prior written consent has been obtained.

(e) The Department will provide support to school districts, AVTSs and charter schools, including cyber charter schools, in developing educational programs that enable students to attain academic standards under § 4.12. Department support will include:

1. Support for the development of educational programs, including educational programs, to be provided within the framework of the School Code, including those programs that provide students with additional academic standards as determined by the Board.
2. Support for the development of educational programs for students with disabilities and any additional academic standards as determined by the Board.
3. Support for the development of educational programs for students with disabilities and any additional academic standards as determined by the Board.
4. Support for the development of educational programs for students with disabilities and any additional academic standards as determined by the Board.
5. Support for the development of educational programs for students with disabilities and any additional academic standards as determined by the Board.
6. Support for the development of educational programs for students with disabilities and any additional academic standards as determined by the Board.
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4.11 Purpose of public education.

(a) This section and § 4.12 (relating to academic standards) describe the purpose of public education and its relationship with the academic standards.

(b) Public education prepares students to become self-directed, life-long learners.

Together with families and community institutions, public education fosters the intellectual and developmental needs and challenges them to develop the skills needed to lead independent lives.

(c) Public education provides accommodations for all levels of background and performance.

(d) The academic standards describe the knowledge and skills that students will be expected to demonstrate before graduating from a public school.

(e) To acquire knowledge and skills.

(f) The Department may not, and the Board will not, require school entities to utilize a Statewide curriculum or Statewide reading lists.

(g) Authority

(h) Cross References

(i) No. 474 May 14

No. 474 May 14

Academic Standards and Assessments
Achievement of high academic standards in public education is dependent upon the quality of instruction in schools and student effort supported by the involvement of family and community. Assessment in public education is designed to determine student attainment of State and local academic standards.

Public schools provide instruction throughout the curriculum so that students may develop knowledge and skills in the following areas:

1. English language arts.
5. Social studies (civics and government, geography, economics, and history).
6. Arts and humanities.
7. Health, safety, and physical education.
8. Career education and work.

Public education provides planned instruction to enable students to attain academic standards under § 4.12. Planned instruction consists of at least the following elements:

1. Objectives of a planned course, instructional unit, or interdisciplinary studies to be achieved by all students.
2. Content, including materials and activities, and estimated instructional time to be devoted to achieving the academic standards. Courses, instructional units, or interdisciplinary studies of varying lengths of time may be taught.
3. The relationship between the objectives of a planned course, instructional unit, or interdisciplinary studies and academic standards specified under § 4.12. Planned instruction consists of at least the following elements:
4. Procedures for measurement of the objectives of a planned course, instructional unit, or interdisciplinary studies to be achieved by all students.

Authority


Source


(a) School entities may develop, expand or improve existing academic standards in the following content areas:

1. Science and technology. Study of the natural world and facts, principles, theories and laws in the areas of biology, chemistry, physics and earth sciences. Technology is the application of science to enable societal development, including food and fiber production, manufacturing, building, transportation, communication, science processes, inquiry, investigation, analysis and problem solving.

2. Social studies (civics and government, geography, economics, and history).

3. Arts and humanities.

4. Health, safety, and physical education.

5. Career education and work.

6. Family and consumer science.

7. Social studies (civics and government, geography, economics, and history).


10. Mathematics.

11. English language arts.
gies. The Pennsylvania Core Standards for Reading in Science and Technology and the Pennsylvania Core Standards for Writing in Science and Technology will be an appendix to the Commonwealth's academic standards for Science and Technology upon publication in the Pennsylvania Bulletin.

(2) Environment and ecology. Understanding the components of ecological systems and their interrelationships with social systems and technologies. These components incorporate the disciplines of resource management, agricultural diversity, government and the impact of human actions on natural systems. This interaction leads to the study of watersheds, threatened and endangered species, pest management and the development of laws and regulations.

(3) Social studies.

(i) History. Study of the record of human experience including important events; interactions of culture, race and ideas; the nature of prejudice; change and continuity in political systems; effects of technology; importance of global-international perspectives; and the integration of geography, economics and civics studies on major developments in the history of the Commonwealth, the United States and the world.

(ii) Geography. Study of relationships among people, places and environments, of geographic tools and methods, characteristics of place, concept of region and physical processes.

(iii) Civics and government. Study of United States constitutional democracy, its values and principles, study of the Commonwealth and government including the study of principles, operations and documents of government, the rights and responsibilities of citizenship, how governments work and international relations.

(iv) Economics. Study of how individuals and societies choose to use resources to produce, distribute and consume goods and services. Knowledge of how economies work, economic reasoning and basic economic concepts, economic decision making, economic systems, the Commonwealth and the United States economy and international trade.

(v) Appendix. The Pennsylvania Core Standards for Reading in History and Social Studies and the Pennsylvania Core Standards in Writing for History and Social Studies will be an appendix to the Commonwealth's academic standards for History upon publication in the Pennsylvania Bulletin.

(4) Arts and humanities. Study of dance, theatre, music, visual arts, language and literature including forms of expression, historical and cultural context, critical and aesthetic judgment and production, performance or exhibition of work.

(5) Career education and work. Understanding career options in relation to individual interests, aptitudes and skills including the relationship between changes in society, technology, government and economy and their effect on individuals and careers. Development of knowledge and skills in job seeking and job retention, and for students completing vocational-tech programs, the skills to succeed in the occupation for which they are prepared.

(6) Health, safety and physical education. Study of concepts and skills that affect personal, family and community health and safety, nutrition, physical fitness, movement concepts and strategies, safety in physical activity settings, and leadership and cooperation in physical activities.

Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS
Family and consumer science.

Understanding the role of consumers as a foundation for managing available resources to provide for personal and family needs and to provide basic knowledge of child health and child care skills.

Through June 30, 2013: Reading, writing, speaking and listening.

(i)

Reading.
The application of phonemic awareness, phonics and word study, vocabulary, fluency and text comprehension in reading critically across subject areas; the interpretation and analysis of literary expression with analysis of the origins and structures of the English language and learning how to search a variety of texts to conduct research.

(ii)

Writing.
Narrative, informational and persuasive formal writing for an audience, including spelling and editing skills; and informal writing to capture and organize information for individual use.

(iii)

Speaking and listening.
Participation in conversation and formal speaking presentations.

(iv)

English Language Arts.
Upon publication in the Pennsylvania Bulletin, following full implementation of a transition plan to be developed by the Department in collaboration with education stakeholders, academic standards will be based on the Pennsylvania Core Standards for English Language Arts.

Mathematics.
The understanding of fundamental ideas and the development of proficient mathematical skills in numbers, computation, measurement, statistics and data analysis, probability and predictions, algebra and functions, geometry, trigonometry and concepts of calculus. Using this content, students will learn to think, reason and communicate mathematically. Students will learn to model real-world situations by creating appropriate representations of numerical quantities and plan and implement problem-solving strategies to answer the question in the context of the situation. Upon publication in the Pennsylvania Bulletin, following implementation of a transition plan to be developed by the Department in collaboration with education stakeholders, academic standards will be based on the Pennsylvania Core Standards for Mathematics.

(b) In designing educational programs, school entities shall provide for the attainment of the academic standards under subsections (a) and (c) and any additional standards as determined by the school entity. Attaining the academic standards in this section requires students to demonstrate the acquisition and application of knowledge.

(i)

Mathematics. The understanding of fundamental ideas and the development of proficient mathematical skills in numbers, computation, measurement, statistics and data analysis, probability and predictions, algebra and functions, geometry, trigonometry and concepts of calculus. Using this content, students will learn to think, reason and communicate mathematically. Students will learn to model real-world situations by creating appropriate representations of numerical quantities and plan and implement problem-solving strategies to answer the question in the context of the situation. Upon publication in the Pennsylvania Bulletin, following implementation of a transition plan to be developed by the Department in collaboration with education stakeholders, academic standards will be based on the Pennsylvania Core Standards for Mathematics.

(371078) No. 474 May 14

2014 Commonwealth of Pennsylvania
§ 4.12 Strategic Plans

(a) Upon expiration of its current strategic planning phase, each school entity shall submit to the Secretary for approval a professional education plan every 3 years as required under § 49.17(a) (relating to continuing professional education) for a planning period of 5 years prior to approval of the plan. A school entity shall make its professional education plan available for public inspection and comment for a minimum of 28 days prior to approval of the plan.

(b) Each school entity shall prepare and submit to the Secretary a professional education plan that includes:

1. An identification of the academic standards developed under this chapter that each school entity shall implement, including, but not limited to:
   - Pennsylvania Core Standards
   - Pennsylvania Assessments
   - Educational Improvement Act

(2) The department may not expand the collection of student data and, in accordance with section 1232g of the Family Educational Rights and Privacy Act of 1974 (20 U.S.C.A. § 1232g), may not collect personal family data due to the implementation of Pennsylvania Core Standards in Appendix A-2.

Authority


Cross References


§ 4.13 Academic Standards and Assessments

(a) School entities shall assess the attainment of academic standards developed under subsections (a) and (c) and any other academic standards that they develop under § 4.27(c) (relating to development of school educational plans and strategies) to plan for the implementation of the standards and to measure student progress toward meeting the standards required for high school graduation under this chapter.

(b) School entities shall develop and implement a system of standards for the education of children with disabilities that is consistent with the Pennsylvania System of School Assessment and includes, at a minimum, the following:

1. Pennsylvania Core Standards
2. Pennsylvania Assessments
3. Educational Improvement Act

(2) The Department may not expand the collection of student data and, in accordance with section 1232g of the Family Educational Rights and Privacy Act of 1974 (20 U.S.C.A. § 1232g), may not collect personal family data due to the implementation of Pennsylvania Core Standards in Appendix A-2.

Authority


Cross References

Upon expiration of its current strategic planning phase, each school entity shall submit to the Department for approval an induction plan every 6 years as required under § 49.16(a) (relating to approval of induction plans). A school entity shall make its induction plan available for public inspection and comment for a minimum of 28 days prior to approval of the plan by the school entity's governing board and submission of the plan to the Department.

Upon expiration of its current strategic planning phase, each school district shall develop and implement a comprehensive and integrated K-12 program of student services based on the needs of its students every 6 years as provided in § 12.41(a) (relating to student services). A school district shall make its student services plan available for public inspection and comment for a minimum of 28 days prior to approval of the plan by the school district's board of directors.

Upon expiration of its current strategic planning phase, each school district shall develop, submit to the Department for approval and implement a special education plan every 3 years as required under § 14.104 (relating to special education plans). A school district shall make its special education plan available for public inspection and comment for a minimum of 28 days prior to approval of the plan by the school district's board of directors and submission of the plan to the Department.

Upon expiration of its current strategic planning phase, each school district shall develop and implement a gifted education plan every 6 years as required under § 16.4 (relating to strategic plans). A school district shall make its gifted education plan available for public inspection and comment for a minimum of 28 days prior to approval of the plan by the school district's board of directors.


Cross References
This section is cited in 22 Pa. Code § 12.41 (relating to student services); 22 Pa. Code § 14.104 (relating to special education plans); 22 Pa. Code § 16.4 (relating to gifted education plans); 22 Pa. Code § 49.16 (relating to approval of induction plans); and 22 Pa. Code § 49.17 (relating to continuing professional education).

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CURRICULUM AND INSTRUCTION


School districts are not required to offer a prekindergarten program and prekindergarten education services. Upon approval of the plan by the school district's board of directors, a prekindergarten program shall be designed so that students complete the program prior to reaching the school district's entry age for kindergarten.


Authority
The provisions of this § 4.13 amend under sections 121, 2603-B and 2604-B of the Public School Code of 1949 (24 P. S. §§ 1-121, 26-2603-B and 26-2604-B).
The Secretary may approve a demonstration preschool program that does not meet all the requirements for the program when the Secretary:

(1) Determines the program's approach to learning opportunity for varying developmental levels of the students; be based on how young children develop and learn; include instruction to support each child's development in the areas of approaches to learning—creative expression, language and literacy, math, logic and science, social-personal development, and physical development and health; and must be open to children with disabilities.

(2) The Secretary will provide academic standards, appropriate for early learning at the prekindergarten level, as guidance for the use of school districts that offer prekindergarten programs.

(3) Curriculum and instruction in the prekindergarten program must be standards-based.

(4) Prekindergarten programs may be offered to all 3 and 4 year olds or may be targeted to children who are most in need of prekindergarten services who reside in the district. Targeted programs may serve children who are at risk of school failure because of limited English proficiency, community factors, economic disadvantage, but may not exclude or be limited exclusively to children with disabilities. If a program is limited to an attendance area, children with disabilities must live in that attendance area to participate in the program. An attendance area is the geographic area within a school district designated by the school board for the purpose of assigning students to a school.

(5) The Secretary will issue guidance to school districts on developmentally appropriate curriculum, instruction and assessments for prekindergarten.

(6) Each school district that provides prekindergarten shall design an assessment system that includes prekindergarten and uses a variety of assessment strategies, which may include one or more of the following:

- Prekindergarten programs must have a student/teacher ratio of no more than 20 students for one teacher and one teacher aide in a classroom (2 adults in a classroom for every 20 students). Programs of high quality ordinarily have a student/teacher ratio of 17 students for one teacher and one teacher aide in a classroom (2 adults for every 17 students). Programs operating under contract with community providers must comply with staffing qualifications as required by § 49.85(e) (relating to limitations).

(7) Beginning in the 2009-2010 school year, a teacher aide in a prekindergarten program shall meet one of the following criteria:

(i) Completion of at least 2 years of postsecondary study.
(ii) Possession of an associate's degree or higher.
(iii) Ability to meet a rigorous standard of quality and demonstrate through a formal process of local academic assessment of knowledge and demonstration of proficiency in a classroom.

(8) Beginning in the 2009-2010 school year, a teacher aide in a prekindergarten program shall meet one of the following criteria:

(i) Completion of at least 2 years of postsecondary study.
(ii) Possession of an associate's degree or higher.
(iii) Ability to meet a rigorous standard of quality and demonstrate through a formal process of local academic assessment of knowledge and demonstration of proficiency in a classroom.

(9) Meritorious prekindergarten programs may be approved by the Secretary if, in the Secretary's judgment, the program provides high quality learning opportunities for students and meets the following conditions:
(i) The school district has submitted to the Secretary a written request that provides justification for the waiver and includes a description of how the meritorious program will provide high quality learning opportunities for students.

(ii) The approval of the meritorious prekindergarten program is valid only for 1 school year.

(iii) Requests for renewals include evidence of positive student outcomes.

(9) A school district may make individual exceptions to the age of prekindergarten students based upon local policy to permit the enrollment of children under 3 years of age and 5 years of age or older.

(10) A school district planning to offer or contract with a community agency to offer a prekindergarten program shall develop an implementation plan that describes the program and its target population. The plan must identify the facilities, staffing needs and other resources that it will use to deliver the program. The school district shall consult with parents, community agencies and organizations, and child care, early intervention and head start representatives when developing the implementation plan. In years subsequent to the initial year of the program, the implementation plan must be submitted to the Department every 3 years or when the plan is amended, whichever is sooner. A school district shall make the implementation plan available for public inspection and comment for a minimum of 28 days prior to approval of the plan by the school district’s board of directors and submission of the plan to the Department.

(11) School district contracted prekindergarten programs operated by a community provider shall provide a lead teacher for each classroom who meets the following minimum qualifications:

(i) An associate’s degree or greater in early childhood education or child development.

(ii) For programs operating before December 16, 2006, lead teachers shall possess a bachelor’s degree and early childhood certificate as provided in § 49.85(a) on or before December 16, 2011.

(iii) For programs contracted after December 16, 2006, lead teachers shall possess a bachelor’s degree and early childhood certificate as provided in § 49.85 within 5 years from the date students first attend the prekindergarten program.

Authority

Source

Cross References
This section cited in 22 Pa. Code § 405.42 (relating to program day and developmentally appropriate instructional practices and activities).
§ 4.21 Elementary education: primary and intermediate levels.

(a) The primary program shall ordinarily be completed by children who are approximately 8 years of age. School districts, including charter schools, shall provide opportunities for individual rates of learning and social and emotional development that reflect differing rates of development and learning styles of young children.

(b) Curriculum and instruction in the primary program must be standards-based and focus on introducing young children to formal education, developing an awareness of the self in relation to others and the environment, and developing skills of communication, thinking and learning. Literacy skills, including phonemic awareness, phonological awareness, fluency, vocabulary and comprehension, will begin in prekindergarten and kindergarten, if offered, and developed appropriately for the primary grade level.

(c) The intermediate level program shall ordinarily be completed by children who are approximately 11 years of age.

(d) Standards-based curriculum and instruction in the intermediate level must enable all students to reach the proficient level on the local assessment system and the Statewide assessment system. Academic standards will guide the focus on learning specific subject matter content.

(e) Planned instruction aligned with academic standards in the following areas shall be provided to every student every year in the intermediate level program. Planned instruction may be provided as a separate course or as an instructional unit within another course or other interdisciplinary instructional activity:

(1) Language arts, integrating reading, writing, phonics, spelling, listening, speaking, literature and grammar, and information management, including library skills.

(2) Mathematics, including problem-solving and computation skills.

(3) Science and technology education, involving active learning experiences for students.

(4) Social studies (civics and government, economics, geography and history).

(5) Health, safety and physical education, including instruction in concepts and skills which affect personal health and safety, including alcohol, chemical and tobacco abuse, knowledge and practice of lifetime physical activities, principles of physical fitness and health, and knowledge and practice of personal, family, and community health and safety.

(6) Physical education, involving active learning experiences for students.

(7) The arts, including active learning experiences in art, music, dance and theatre.

(8) Social studies (civics and government, economics, geography and history).

(9) Mathematics, including problem-solving and computation skills.

(10) Science and technology education, involving active learning experiences for students.

(11) Language arts, integrating reading, writing, phonics, spelling, listening, speaking, literature and grammar, and information management, including library skills.

(12) Mathematics, including problem-solving and computation skills.

(13) Science and technology education, involving active learning experiences for students.

(14) Social studies (civics and government, economics, geography and history).

(15) Health, safety and physical education, including instruction in concepts and skills which affect personal health and safety, including alcohol, chemical and tobacco abuse, knowledge and practice of lifetime physical activities, principles of physical fitness and health, and knowledge and practice of personal, family, and community health and safety.

(16) Physical education, involving active learning experiences for students.

(17) The arts, including active learning experiences in art, music, dance and theatre.

(f) Planned instruction in the following areas shall be provided to every student every year in the intermediate level program. Planned instruction may be provided as a separate course or as an instructional unit within another course or other interdisciplinary instructional activity:

(1) Language arts, integrating reading, writing, phonics, spelling, listening, speaking, literature and grammar, and information management, including library skills.

(2) Mathematics, including problem-solving and computation skills.

(3) Science and technology education, involving active learning experiences for students.

(4) Social studies (civics and government, economics, geography and history).

(5) Health, safety and physical education, including instruction in concepts and skills which affect personal health and safety, including alcohol, chemical and tobacco abuse, knowledge and practice of lifetime physical activities, principles of physical fitness and health, and knowledge and practice of personal, family, and community health and safety.

(6) Physical education, involving active learning experiences for students.

(7) The arts, including active learning experiences in art, music, dance and theatre.
Language arts, integrating reading, writing, spelling, listening, speaking, literature and grammar.

Mathematics, including problem-solving and computation skills.

Science and technology, including instruction about agriculture and agricultural science.

Environment and ecology, including instruction about agriculture and agricultural science.

Social studies (civics and government, economics, geography and history).

The arts, including art, music, dance and theatre.

Understanding and use of library and other information sources.

Health, safety and physical education, including instruction in concepts and skills which affect personal, family and community health and safety, and skills which affect personal, family and community health and safety, and skills which affect personal, family and community health and safety.

Health, safety and physical education, including instruction in concepts and skills which affect personal, family and community health and safety.

Understanding and use of library and other information sources.

The arts, including art, music, dance and theatre.

Social studies (civics and government, economics, geography and history).

Science and technology, including instruction about agriculture and agricultural science.

Understanding and use of library and other information sources.

Science and technology, including instruction about agriculture and agricultural science.

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Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS

§ 4.22 Middle level education

This section cited in 22 Pa. Code § 4.27 (relating to physical education and athletics).

Cross References


The provisions of this § 4.22 amended under sections 121, 2601-B and 2604-B of the Public

Authority

§ 4.22
Career education, including exposure to various career options and the educational preparation necessary to achieve those options.

Technology education, emphasizing practical application of academic skills and problem-solving experiences facilitated by technology.

Family and consumer science, including principles of consumer behavior and basic knowledge of child health and child care skills.

This section does not preclude the teaching of other planned instruction designed to achieve a school entity’s academic standards.

School entities shall determine the most appropriate way to achieve the purposes under subsection (b) and any additional academic standards as determined by the school entity.

§ 4.23. High School Education

Instruction in the high school program must focus on the development of abilities needed to succeed in work and advanced education through planned instruction aligned with academic standards in the following areas:

(a) Language arts, integrating reading, writing, listening, speaking, literature and grammar.

(b) Mathematics, including problem-solving, mathematical reasoning, algebra, geometry and concepts of calculus.

(c) Science and technology, including participation in hands-on experiences that prepare students for college.

(d) Social studies, including government, economics, geography and history.

(e) Health education, including health, safety, and personal and family life education.

(f) Career education, including exposure to various career options and the educational preparation necessary to achieve those options.

(g) Physical education, including program-oriented, multi-dimensional reasoning, athletic.

(h) Art and music, including appreciation and understanding of art and music.

(i) Family and consumer science, including principles of consumer behavior and basic knowledge of child health and child care skills.

(j) Technology education, emphasizing practical application of academic skills and problem-solving experiences facilitated by technology.

(k) Career education, including exposure to various career options and the educational preparation necessary to achieve those options.

(l) Social studies, including government, economics, geography and history.

(m) Language arts, integrating reading, writing, listening, speaking, literature and grammar.

(n) Mathematics, including problem-solving, mathematical reasoning, algebra, geometry and concepts of calculus.
(a) The following planned instruction shall be made available to every student in the high school program:

(1) Vocational-technical education under §§ 4.3 and 4.31—4.35.

(2) Business education, including courses to assist students in developing business and information technology skills.

(3) World languages under § 4.25 (relating to languages).

(4) Technology education, incorporating technological problem-solving and the impact of technology on individuals and society.

(5) Family and consumer sciences, including knowledge of child health, child care, and family therapy skills.

(6) Health education and physical education, including instruction in health, safety, and physical activity settings, including studies in nutrition, physical fitness, personal health, and safety; and the role of physical education and health education in developing skills and abilities for personal, family, and community health and safety.

(7) The arts, including music, dance, theater, and humanities.

(8) Environmental and ecology, including scientific, social, political, and economic aspects of ecology.

(9) Health, safety, and physical education, including instruction in concepts and skills affecting personal, family, and community health and safety, nutrition, physical fitness, movement concepts, motor skill development, safety in physical activity settings, and the prevention of alcohol, chemical, and tobacco abuse.

(10) Family and consumer sciences, including knowledge of consumer behavior, including principles of consumer buying, use, and research.

(b) School districts, including a charter school, shall determine the most appropriate way to organize their high school programs to achieve the purposes of this §.
§ 4.24. High school graduation requirements.

(a) Approval.
High school graduation requirements and revisions to them shall be approved by a school entity's governing board by September 2, 2014, and a copy of the requirements shall be published and distributed to students, parents and guardians. Copies of the requirements also shall be available in each school building or on each school entity's publicly accessible web site. Changes to high school graduation requirements shall be published and distributed to students, parents and guardians and made available in each school building or on each school entity's publicly accessible web site immediately following approval by the governing board.

(b) Requirements through the 2015-2016 school year.
Each school district, charter school (including a cyber charter school), and AVTS, if applicable, shall specify requirements for graduation. Requirements through the 2015-2016 school year must include course completion and grades, completion of a culminating project, results of local assessments aligned with the academic standards and a demonstration of proficiency in English Language Arts and Mathematics on either the State assessments administered in grade 11 or 12 or local assessments aligned with academic standards and State assessments under § 4.51, § 4.51a, § 4.51b (relating to State assessment system; Pennsylvania System of School Assessment; and Keystone Exams) at the proficient level or better to graduate. The purpose of the culminating project is to assure that students are able to apply, analyze, synthesize and evaluate information and communicate significant knowledge and understanding.

(c) Requirements beginning in the 2016-2017 school year.
(1) General.
Beginning in the 2016-2017 school year, each school district, charter school (including a cyber charter school), and AVTS, if applicable, shall adopt and implement requirements for high school graduation that at minimum shall include:

(i) Course completion and grades.

(ii) Demonstration of proficiency as determined by the school district, charter school (including a cyber charter school), or AVTS, if applicable, in each of the State academic standards not assessed by a State assessment under § 4.52 (relating to local assessment system; Pennsylvania System of School Assessment; and Keystone Exams) at the proficient level or better.

(iii) Demonstration of proficiency or above in each of the following State academic standards: English Language Arts and Mathematics (Appendix A-2); Science and Technology and Environment and Ecology (Appendix B); English Language Arts; World Languages; and Physical Education.

(2) Graduation requirements through the 2016-2017 school year.
Each school entity's governing board shall approve graduation requirements for each school entity's publicly accessible school building or school entity's publicly accessible web site immediately following approval by the governing board.

(3) Graduation requirements through the 2015-2016 school year.
Each school entity's governing board shall approve graduation requirements for each school entity's publicly accessible school building or school entity's publicly accessible web site immediately following approval by the governing board.

(4) Appendix I. High school graduation requirements and revisions to them.
A school district, A VTS or charter school, including a cyber charter school, shall allow a student to take a Keystone Exam prior to taking the course associated with the exam's content provided that the student achieved a score of advanced on the most recent associated PSSA assessment administered to the student.

A school district, A VTS or charter school, including a cyber charter school, shall allow a student who transfers from another state to take a Keystone Exam prior to taking the course associated with the exam's content, provided that the student achieved a score comparable to the PSSA's advanced performance level on a comparable assessment administered by another state.

A school district, A VTS or charter school, including a cyber charter school, may allow a student who scores at the advanced level on a particular Keystone Exam prior to taking the course to be granted course credit for the course without having to complete the course.

Validated local assessments must meet the following standards:

1. Alignment with the following State academic standards: English Language Arts (Literature and Composition); Mathematics (Algebra I), Science and Technology, Environment and Ecology (Biology), and Civics and Government.

2. Performance local expectations and descriptions that describe the level of performance required to achieve proficiency comparable to the level of performance required to achieve proficiency on Keystone Exams.

3. Administration of the local assessment to all students, except for those exempted under subsection (g), regarding special education students, or gifted students as provided in § 16.32 (relating to GIEP).

4. Locally developed and administered assessments, which shall be validated and administered in a manner that maintains the validity of the assessment.

5. A school district, A VTS or charter school, including a cyber charter school, shall administer a Keystone Exam to all students who score at the advanced level on the Keystone Exam.

6. A school district, A VTS or charter school, including a cyber charter school, shall administer a Keystone Exam to all students who score at the advanced level on the Keystone Exam.

7. A school district, A VTS or charter school, including a cyber charter school, shall administer a Keystone Exam to all students who score at the advanced level on the Keystone Exam.

8. A school district, A VTS or charter school, including a cyber charter school, shall administer a Keystone Exam to all students who score at the advanced level on the Keystone Exam.

9. A school district, A VTS or charter school, including a cyber charter school, shall administer a Keystone Exam to all students who score at the advanced level on the Keystone Exam.

10. A school district, A VTS or charter school, including a cyber charter school, shall administer a Keystone Exam to all students who score at the advanced level on the Keystone Exam.
The Department will establish a list of entities approved to perform independent validations of local assessments in consultation with the Local Assessment Validation Advisory Committee as provided in § 4.52(f).

School boards shall only approve assessments that have been determined to meet the requirements of this subsection by an approved entity performing the independent validation. If a school district, A VTS or charter school, including a cyber charter school, uses a local assessment that has not been independently validated, the Secretary will direct the school entity to discontinue its use until the local assessment is approved through independent validation by an approved entity.

Completion of an Advanced Placement exam or International Baccalaureate exam that includes academic content comparable to the appropriate Keystone Exam at a score established by the Secretary to be comparable to the proficient level on the appropriate Keystone Exam.

Requirements beginning in the 2018-2019 school year.

Effective with the 2018-2019 school year, requirements in subsection (c)(1)(iii) must include a determination of proficiency in English Language Arts (Composition) (Appendix A-2).

Requirements beginning in the 2019-2020 school year.

Effective with the 2019-2020 school year, Civics and Government (Appendix C) is added to the academic standards in subsection (c)(1)(iii). The requirements in subsection (c)(1)(iii) must include a determination of proficiency in Civics and Government.

Career and technical education program students.

A student enrolled in a Department-approved career and technical education program may satisfy the requirements of subsections (d) and (e) upon completion of secondary level coursework in English Language Arts (Literature), Algebra I and Biology, in which a student demonstrates proficiency on the associated Keystone Exam, validated local assessment or project-based assessment, and achieves a score of competent or advanced on a Pennsylvania State Skills Assessment required under § 4.31(a) (relating to vocational-technical education) or Appendix A-2.

Children with disabilities who satisfactorily complete a special education program developed by an Individualized Education Program team under the Individuals with Disabilities Education Act and this part shall be granted and issued a regular high school diploma by the school district and the provisions of § 4.22 shall apply.

Demonstration of proficiency.

For purposes of this section, a student shall be deemed proficient in the State-assessed standards whenever the student demonstrates proficiency through any of the options in subsection (c)(1)(iii), regardless of the student’s grade level or age.
Beginning in the 2003-2004 school year, and through the 2012-2013 school year, PSSA scores in each assessed discipline shall be included on student transcripts. Beginning in the 2016-2017 school year, the performance level demonstrated in each of the academic standards in subsections (c)—(e) shall be included on student transcripts. The information presented on a transcript must include the highest performance level demonstrated by a student on the associated Keystone Exam, validated local assessment or project-based assessment at the time the transcript is produced.

Release of scores. This section does not allow for the release of individual Keystone Exam, validated local assessment or project-based assessment scores. This information is included in the transcript. The performance level demonstrated in each of the academic standards in subsections (c)—(e) shall be included in the transcript. Beginning in the 2003-2004 school year and through the 2012-2013 school year, PSSA scores in each assessed discipline shall be included on student transcripts.

Supplemental instruction. Beginning in the 2011-2012 school year, a student who does not demonstrate proficiency on a Keystone Exam or a locally validated assessment specified in subsection (c), (d) or (e) shall be offered supplemental instructional support by the student’s school district, A VTS or charter school, including a cyber charter school. The supplemental instructional support must be consistent with the student’s educational program and assist the student to attain proficiency in the State academic standards.

Out-of-state transfers. A school district, A VTS or charter school, including a cyber charter school, shall determine whether a student who transfers from an out-of-State school having demonstrated proficiency in coursework and assessments aligned with the academic standards assessed by each Keystone Exam may satisfy the requirements of subsections (c)—(e) subject to guidance developed by the Secretary.

Transition. To effect successful transition between requirements outlined in subsections (b) and (c) regarding requirements through the 2015-2016 school year and requirements beginning in the 2016-2017 school year, subsection (d) regarding requirements beginning in the 2018-2019 school year and subsection (e) regarding requirements beginning in the 2019-2020 school year, a student who will graduate in the 2016-2017 school year or thereafter, who successfully completes courses with academic content assessed under subsection (c), (d) or (e) in a school year that was not available at the time the course was completed, shall be deemed proficient for purposes of this section.

Authority

The provisions of this § 4.24 amended under § 4.51(f) and (g) of the act of June 29, 2002 (P. L. 524, No. 88); and sections 121, 2603-B and 2604-B of the Public School Code of 1949 (24 P. S. §§ 1-121, 26-2603-B and 26-2604-B).
IEP Compliance

Court determined that hearing officer, when reaching the conclusion that the student had completed the graduation requirements, failed to consider whether the requirements of the student's individualized education program (IEP) were fulfilled, as required by § 4.24(e). Because school district did not fulfill IEP obligation, it was required to pay tuition and fees for a transitional program after high school for one year, which the court found fulfilled the graduation requirements of § 4.24(e), Susquehanna Township School District v. Frances J., 823 A.2d 249, 255-56 (Pa.Cmwlth. 2003).
§ 4.27. Physical education and athletics.

(a) Physical education shall be taught as required under §§ 4.21(e)(6) and (f)(8), 4.22(c)(7) and 4.23(c)(8) (relating to elementary education: primary and intermediate levels; middle level education; and high school education).

(b) The physical education program must be adapted for students who are medically unable to participate in the regular physical education program.

(c) The physical education program shall provide coeducational instruction, except that separation by sex may be permitted in courses involving contact sports. Separation by sex may not be used to exclude students of either sex from participating in any physical education instruction.

(d) In addition to physical education instruction under subsections (a)—(c), students of both sexes shall have equal access in interscholastic and intramural athletic programs to all of the following:

1. School facilities.
2. Coaching and instruction.
4. Number of activities at each level of competition.
5. Equipment, supplies and services.
6. Funding appropriate to the sport.

(e) School districts may sponsor coeducational teams in interscholastic and intramural sports programs.

(f) School districts may sponsor coeducational teams in interscholastic and intramural sports programs. The number of activities at each level of competition and the scheduling of practice time and games shall be equitable.

§ 4.28. Special education.

(a) Under the Individuals with Disabilities Education Act and this part, children with disabilities shall be provided an education which enables them to be involved in and progress in the general curriculum under this chapter.

(b) Students who are gifted as defined in this part shall be provided an education which enables them to be involved in and progress in the general curriculum under this chapter.

(c) The educational program provided to children with disabilities shall be in accordance with their Individualized Education Programs under the Individuals with Disabilities Education Act and this part.

Authority


The provisions of this § 4.28 amended under section 2603-B of the Public School Code of 1949 (24 P. S. § 26-2603-B).

The provisions of this § 4.28 amended under section 2603-B of the Public School Code of 1949 (24 P. S. § 26-2603-B).

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The provisions of this § 4.28 amended under section 2603-B of the Public School Code of 1949 (24 P. S. § 26-2603-B).
§ 4.29. HIV/AIDS and other life-threatening and communicable diseases.

(a) Instruction regarding prevention of human immunodeficiency virus (HIV) infection/acquired immunodeficiency syndrome (AIDS) and other life-threatening and communicable diseases shall be given for primary, intermediate, middle school and high school education and shall follow the requirements of subsections (b) and (c).

(b) Educational materials and instruction shall be determined by the local school district and be appropriate to the age group being taught. The program of instruction must include information about the nature of the diseases, treatments and cures, methods of transmission and how infection can be prevented. The school district may omit instruction in the elementary grades on transmission of disease through sexual activity. Programs discussing transmission through sexual activity must stress that abstinence from sexual activity is the only completely reliable means of preventing sexual transmission. Programs must stress that avoidance of illegal drug use is the only completely reliable means of preventing transmission of disease through shared drug paraphernalia.

(c) A school entity shall excuse a pupil from HIV/AIDS instruction when the instruction conflicts with the religious beliefs or principles of the pupil or parent or guardian of the pupil, and when excusal is requested in writing. Prior to the commencement of instruction, a school district shall publicize that detailed curriculum outlines and curricular materials used in conjunction with the instruction are available to parents and guardians during normal school hours or at teacher-parent conferences. Curricular materials, if practical, shall be made available by the school entity for home instructional use by a parent or guardian if the student has been excused from the school entity's HIV/AIDS instruction.

Authority

The provisions of this § 4.29 amended under section 2603-B of the Public School Code of 1949 (24 P. S. § 26-2603-B).

Source

competency assessed by completion of the appropriate assessment under the Pennsylvania Skills Certificate Program or by completion of another occupational competency assessment approved by the Department. A student with a disability shall be provided appropriate accommodations when provided for in the student's individualized education program. Students shall also demonstrate proficiency in meeting academic standards as required under § 4.24 (relating to high school graduation requirements), including § 4.12(f) (relating to academic standards) and § 4.24(g) for students with disabilities with an individualized education program.

(b) Vocational-technical education courses may be taught at AVTSs or other high schools.

(c) Vocational-technical education programs must consist of a series of planned academic and vocational-technical education courses that are articulated with one another so that knowledge and skills are taught in a systematic manner. When appropriate, vocational-technical education programs must adopt, in program areas for which they are available, industry recognized skills standards and may also include cooperative vocational-technical education and participation in vocational student organizations to develop leadership skills.

(d) Vocational-technical education courses must include content based upon occupational analysis, clearly stated performance objectives deemed critical to successful employment and assessment of student competencies based upon performance standards.

(e) The record of a student enrolled in a vocational-technical education program must include the student's educational and occupational objectives and the results of the assessment of student competencies under subsection (d).

(f) Safety education, consisting of safety practices, accident prevention, occupational health habits and environmental concerns shall be integrated into the instruction and practices in vocational-technical education programs.

(g) School districts and AVTSs administering vocational-technical education programs shall develop written policies regarding admissions. Course announcements, guidance materials and other communications must convey the philosophy of equal access to students considering enrollment in the program. The policies must assure that when admissions to AVTSs must be limited, the admissions shall be on a nondiscriminatory basis.

Authority

The provisions of this § 4.31 amended under sections 121, 2603-B and 2604-B of the Public School Code of 1949 (24 P. S. §§ 1-121, 26-2603-B and 26-2604-B).

Source


Cross References

This section cited in 22 Pa. Code § 4.23 (relating to high school education); 22 Pa. Code § 4.24 (relating to high school graduation requirements); and 22 Pa. Code § 4.32 (relating to academic standards and assessment).
§ 4.32 Standards and reports.

(a) The Secretary is responsible for the promulgation of standards appropriate for implementing § 4.31 (relating to vocational-technical education). Present standards, to the extent that they are inconsistent, are superseded by this chapter.

(b) The Secretary will report annually to the Board on the status of vocational-technical education programs, including tech-prep and apprenticeship programs. Reports will include numbers and types of programs, numbers of students, post-program status of students, Statewide competency standards and assessment information.

§ 4.33 Advisory committees.

(a) A school district or AVTS administering or planning to administer vocational-technical education programs shall appoint a local advisory committee. Membership on the committee shall consist of business and industry representatives, public sector employers, agriculture, labor organizations, community organizations, postsecondary education institutions and the general public. The appointed advisory committee shall meet at least once each year and give advice to the board and the administration concerning the program of the school, including its general philosophy, academic and other standards, course offerings, support services, safety requirements and the skill needs of employers. An advisory committee may serve multiple institutions where employment areas overlap.

(b) An advisory committee, composed of chief school administrators representing participating school districts, shall represent the AVTS board and the administration concerning the educational program and policies of the AVTS.

(c) An occupational advisory committee shall be established for each vocational-technical education program or cluster of related programs offered by a school district or AVTS. The committee shall advise the board, the administration and the members of the committee of the need for training, equipment, instructional materials, safety requirements, program evaluation and other related matters and to verify that the programs meet industry standards and, if appropriate, licensing board criteria and that they prepare students with occupation related competencies.

Authority

The provisions of this § 4.33 amended under sections 121, 2603-B and 2604-B of the Public School Code of 1949 (24 P. S. §§ 1-121, 26-2603-B and 26-2604-B).

Source

§ 4.34 Programs and equipment.

(a) A satellite vocational-technical education program may be operated by an A VTS board in conformity with a memorandum of understanding adopted with the participating school district's board of school directors.

(b) Certified guidance personnel in each secondary school and A VTS shall be assigned responsibility to provide pupils with vocational-technical guidance services.

(c) Equipment will be deemed appropriate if it is compatible, insofar as practical, to that used in occupations or households for which vocational-technical education is provided.

§ 4.35 A VTSs.

(a) A VTS attendance areas shall conform to the plan of the State Board for Vocational Education. Boards of school directors may petition the State Board for Vocational Education for attendance area assignment or reassignment.

(b) The following provisions apply to the establishment of A VTSs:

(1) Where a single school district constitutes an attendance area, the board of school directors of that district may establish and operate an A VTS.

(2) A school district within an attendance area may establish an A VTS.

(3) Where more than one school district constitutes an attendance area, the appropriate intermediate unit may, and upon the request of any school district shall, call for an election by the boards of school directors within the attendance area to determine if an A VTS shall be established.

(c) The following provisions apply to the establishment and operation of A VTSs:

(1) The State Board for Vocational Education for Pennsylvania shall assist in establishing and operating the A VTS.

(2) The state board or its designee shall provide, as appropriate, technical assistance to the board of school directors of the school district or districts operating the A VTS.

(3) No school district may withdraw from an A VTS without the consent of each participating school district.
SCHEDULING AND LEARNING OPTIONS

§ 4.41. Scheduling.

(a) Kindergarten programs shall provide each kindergarten student with at least 2 1/2 hours of instruction each day for the full school term unless the school district, including charter schools, obtains prior Department approval for an alternative kindergarten program.

(b) A school district, including charter schools, shall obtain approval of the Department prior to scheduling 1/2-day sessions other than in kindergarten under subsection (a). A school district is not required to obtain approval of the Department prior to scheduling 1/2 day sessions for prekindergarten under subsection (e).

(c) A school district shall obtain approval of the Department prior to establishing a new school or changing school organization.

(d) Planned instruction offered in summer school may be designed as credit or noncredit offerings.

(e) School districts with prekindergarten programs shall provide prekindergarten students with at least 2 1/2 hours of instruction each day for the full school term unless the school district obtains prior Department approval for an alternative prekindergarten program.

Authority

The provisions of this § 4.41 amended under section 2603-B of the Public School Code of 1949 (24 P. S. § 26-2603-B).

Source


§ 4.42. Grade structure.

This chapter does not require educational programs to be organized in traditional grades according to students' chronological ages or academic achievement levels.

ASSESSMENT

§ 4.51. State assessment system.

(a) The State assessment system shall be designed to serve the following purposes:


2. Determine the degree to which school programs enable students to attain proficiency of academic standards under § 4.12 (relating to academic standards).

3. Provide information to State policymakers, including the General Assembly and the Board, on how effective schools are in promoting and demonstrating student proficiency of academic standards.

4. Provide information to the general public on school performance.

§ 4.41. Scheduling.

SCHEDULED AND LEARNING OPTIONS

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(1) Provide results to school entities based upon the aggregate performance of all students, for students with an Individualized Education Program (IEP) and for those without an IEP.

(2) Assess student proficiency in the Academic Standards for English Language Arts (Appendix A-2), Mathematics (Appendix A-2), Science and Technology and Environment and Ecology (Appendix B) and Civics and Government (Appendix C) for the purpose of determining, in part, a student's eligibility for high school graduation.

(b) The State assessment system must include PSSA assessments and Keystone Exams.

(c) Neither State assessments nor academic standards under § 4.12 may require students to hold or express particular attitudes, values or beliefs.

(d) The Department will make samples of State assessment questions, assessment formats and scoring guides available to the public after each administration of State assessments.

(e) To ensure that information regarding student performance is available to parents and teachers, State assessments developed under this section must include student names.

(f) Individual assessment results shall be used in planning instruction only by parents, teachers, administrators and guidance counselors with a need to know based upon local board policy on testing and in reporting academic progress.

(g) The Department and other Commonwealth entities are prohibited from collecting individual student test scores and may collect only aggregate test scores by school and district.

(h) The Board will authorize the expansion of the State assessment system through a revision of this chapter.

(i) The Board will not include National assessments as part of the State assessment system unless, upon consultation with teachers, counselors and parents representing students who have been identified under Chapter 14 (relating to special education services and programs), the Board determines the assessment is an appropriate means of assessing the academic progress of students identified under Chapter 14 (relating to students with disabilities), and the General Assembly authorizes the use of a National assessment.

(3) The Department may continue to participate in a consortium to develop an alternate assessment to measure the academic progress of students identified under Chapter 14 (relating to students with disabilities) as an alternative means of assessing the academic progress of students who have been identified under Chapter 14 (relating to students with disabilities), under procedures established by the Department.

(i) The Department will implement provisions for security of the State assessment system, including the following:

(1) Action by a professional employee or commissioned officer that is willfully designed to divulge test questions, falsify student scores or in some other manner compromise the integrity of the State assessment system as determined by the school district, A VTS or charter school, including a cyber charter school, shall be subject to disciplinary action under the Educator Discipline Act (24 P. S. §§ 2070.19—2070.18c).

(2) Cheating by students or employees other than those covered in paragraph (1) shall be subject to disciplinary action under the Educator Discipline Act.
Cheating or breaches of assessment security shall be reported to the Secretary as soon as detected. The Secretary is authorized to establish guidelines for the administration of the State assessment system. The Secretary will report each September to the Board and the General Assembly information and pertinent data regarding the State assessment system. The Secretary also will provide each school entity with information and pertinent data on the assessment system. The Secretary shall be responsible for ensuring that the State assessment system is administered in a manner that is consistent with the purposes of this section and that the results of the assessment system are useful to the Commonwealth and to the public. The Secretary shall be responsible for ensuring that the results of the assessment system are disseminated in a timely manner. The Secretary also shall be responsible for ensuring that the assessment system is administered in a manner that is consistent with the purposes of this section and that the results of the assessment system are useful to the Commonwealth and to the public.
responses to questions that demonstrate knowledge of each category of the standards for science and technology and environment and ecology. (4) Performance levels shall be advanced, proficient, basic and below basic. In consultation with educators, students, parents and citizens, the Department will develop and recommend to the Board for its approval specific criteria for advanced, proficient, basic and below basic levels of performance.

(b) The Department will develop or cause to be developed PSSA assessments based on Pennsylvania Core Standards in Mathematics and English Language Arts under § 4.12 (relating to academic standards) and contained in Appendix A-2 and academic standards in Science and Technology and Environment and Ecology under § 4.12 and contained in Appendix B. In developing PSSA assessments, the Department will consult with educators, students, parents and citizens regarding the specific methods of assessment.

(c) The PSSA assessments shall be administered annually and include assessments of the State academic standards in Mathematics and English Language Arts at grades 3 through 8, and in Science and Technology and Environment and Ecology at grades 4 and 8.

Authority

The provisions of this § 4.51a issued under sections 121, 2603-B and 2604-B of the Public School Code of 1949 (24 P. S. §§ 1-121, 26-2603-B and 26-2604-B).

Source


Cross References

This section cited in 22 Pa. Code § 4.21 (relating to elementary education: primary and intermediate levels) and 22 Pa. Code § 4.24 (relating to high school graduation requirements).

§ 4.51b Keystone Exams.

(a) The Department will develop or cause to be developed Keystone Exams as provided in this subsection. This subsection is intended by the Board to be a continuation of § 4.51(f) (relating to State assessment system) as published at 40 Pa.B. 240 (January 9, 2010) and referenced in section 102 of the School Code (24 P.S. § 1-102).

(1) Three assessments aligned with the Mathematics standards, contained in Appendix A-1, that assess academic content traditionally included in high school level Algebra I, Algebra II and Geometry courses.

(2) Two assessments aligned with select English Language Arts standards, contained in Appendix A-2 that assess academic content traditionally included in high school literature and composition courses.

(3) Three assessments aligned with select History and Civics and Government standards, contained in Appendix C, that assess academic content traditionally included in high school level American History, World History, Government and Civics courses.

(4) Two assessments aligned with select standards for Science and Technology and Environment and Ecology, contained in Appendix B, that assess academic content traditionally included in high school level Biology and Chemistry courses.

(b) Keystone Exams shall be offered at least three times each year: once each in the fall, spring and summer.
Keystone Exams shall be administered, reviewed and scored so that scores for candidates for graduation are provided to schools no later than 10 calendar days prior to graduation. A school district, A VTS or charter school, including a cyber charter school, may request the Department to approve alternative test administration and scoring time frames. The Department will publish guidelines and procedures for approving alternative test administration and scoring time frames on its web site. The guidelines will provide for approval of all requests unless the approval is contrary to standards of test validity and scoring.

A student shall be permitted to retake any Keystone Exam, or Keystone Exam module, in which the student did not score proficient or above at the next available testing date, so long as the student has participated in a satisfactory manner in supplemental instruction as provided under § 4.24(k) (relating to high school graduation requirements) and subsection (f). There is not a limit on the number of times a student who did not score proficient on a Keystone Exam is permitted to retake the Keystone Exam or Keystone Exam module. A student who has achieved a score of proficient or advanced on a Keystone Exam is not permitted to retake the exam.

Each Keystone Exam will be designed in modules that reflect distinct, related academic content that is common to the traditional progression of coursework to allow students who do not score proficient or above in the subject area to continue in their academic programs. A student who did not score proficient or above on a Keystone Exam module shall be provided supplemental instruction consistent with the educational program by the student’s school entity until the student can demonstrate proficiency in the subject area or the student begins a project-based assessment as provided under § 4.51c (relating to project-based assessment).

Performance levels for Keystone Exams shall be set at the advanced, proficient, basic and below basic levels. In consultation with the Performance Level Advisory Committee, the Department will develop and recommend to the Board for its approval performance level descriptors and performance level cut scores for the Keystone Exams and any alternative assessments developed to assess students with disabilities as permitted by the No Child Left Behind Act of 2001 (Pub. L. No. 107-110, 115 Stat. 1425). The Department will use widely-accepted psychometric procedures to establish the cut scores. Cut scores shall be presented at a public meeting of the Board for its review at least 2 weeks prior to scheduled Board action on the cut scores.

The Department will provide guidance to school districts, A VTSs and charter schools, including cyber charter schools, on how to administer and score Keystone Exams. The Department will provide guidance to school districts, A VTSs and charter schools, including cyber charter schools, on how to administer and score Keystone Exams. The Department will publish guidelines and procedures for approving alternative test administration and scoring time frames on its web site. The guidelines will provide for approval of all requests unless the approval is contrary to standards of test validity and scoring.

Beginning in the 2012-2013 school year, Keystone Exams in the following subjects will be developed by the Department and made available for use by school districts, A VTSs and charter schools for the purpose of assessing high school graduation requirements in § 4.24(c)(1)(iii):

- Algebra I
- Literature
- Biology
Subject to funding appropriated by the General Assembly for development of the exams and related project-based assessments and validation of related local assessments, Keystone Exams in the following subjects will be developed by the Department and made available for use by school districts, A VTSs and charter schools, including cyber charter schools, for the purpose of assessing high school graduation requirements in § 4.24(c)(1)(iii) in accordance with the following schedule:

School Year 2015-2016 English Composition
School Year 2016-2017 Civics and Government

(k) Subject to funding appropriated by the General Assembly for development of the exams, Keystone Exams in the following subjects will be developed by the Department and made available for voluntary use by school districts, A VTSs and charter schools, including cyber charter schools, in accordance with the following schedule:

School Year 2016-2017 Geometry
School Year 2017-2018 U.S. History
School Year 2018-2019 Algebra II
School Year 2019-2020 Chemistry
School Year 2020-2021 World History

(l) The Department will seek to have the Keystone Exams approved as the high school level single accountability system under the No Child Left Behind Act of 2001 (20 U.S.C. § 6311(2)(C)) of the No Child Left Behind Act of 2001. Upon approval of the Keystone Exams as the approved assessment system, the Keystone Exams will be used as the basis for determining annual accountability for schools and districts.

School Year 2015-2016 World History
School Year 2016-2017 English Composition
School Year 2017-2018 U.S. History
School Year 2018-2019 Algebra II
School Year 2019-2020 Chemistry

(m) The 11th grade PSSA exams in Reading, Writing, Algebra I and Literature will be discontinued upon implementation of the Keystone Exams as the approved assessment system. The Keystone Exams will be used as the basis for determining annual accountability for schools and districts.

Academic Standards and Assessments

School Year 2016-2017 English Composition
School Year 2017-2018 U.S. History
School Year 2018-2019 Algebra II
School Year 2019-2020 Chemistry

Subject to funding appropriated by the General Assembly for development of the exams and related project-based assessments and validation of related local assessments, Keystone Exams in the following subjects will be developed by the Department and made available for use by school districts, A VTSs and charter schools, including cyber charter schools, for the purpose of assessing high school graduation requirements in § 4.24(c)(1)(iii) in accordance with the following schedule:

School Year 2015-2016 English Composition
School Year 2016-2017 Civics and Government

(k) Subject to funding appropriated by the General Assembly for development of the exams, Keystone Exams in the following subjects will be developed by the Department and made available for voluntary use by school districts, A VTSs and charter schools, including cyber charter schools, in accordance with the following schedule:

School Year 2016-2017 Geometry
School Year 2017-2018 U.S. History
School Year 2018-2019 Algebra II
School Year 2019-2020 Chemistry
School Year 2020-2021 World History

(l) The Department will seek to have the Keystone Exams approved as the high school level single accountability system under the No Child Left Behind Act of 2001 (20 U.S.C. § 6311(2)(C)) of the No Child Left Behind Act of 2001. Upon approval of the Keystone Exams as the approved assessment system, the Algebra I and Literature exams will be used to determine adequate yearly progress. The Biology Keystone Exam will be used as the high school level science assessment, which is not a factor in determining adequate yearly progress.

School Year 2016-2017 English Composition
School Year 2017-2018 U.S. History
School Year 2018-2019 Algebra II
School Year 2019-2020 Chemistry
School Year 2020-2021 World History

(m) The 11th grade PSSA exams in Reading, Writing, Math and Science will be discontinued upon implementation of the Keystone Exams as the approved assessment system under section 1111(b)(2)(C) of the No Child Left Behind Act of 2001 (20 U.S.C.A. § 6311(2)(C)).

School Year 2015-2016 World History
School Year 2016-2017 English Composition
School Year 2017-2018 U.S. History
School Year 2018-2019 Algebra II
School Year 2019-2020 Chemistry

Subject to funding appropriated by the General Assembly for development of the exams and related project-based assessments and validation of related local assessments, Keystone Exams in the following subjects will be developed by the Department and made available for use by school districts, A VTSs and charter schools, including cyber charter schools, for the purpose of assessing high school graduation requirements in § 4.24(c)(1)(iii) in accordance with the following schedule:

School Year 2015-2016 English Composition
School Year 2016-2017 Civics and Government

(k) Subject to funding appropriated by the General Assembly for development of the exams, Keystone Exams in the following subjects will be developed by the Department and made available for voluntary use by school districts, A VTSs and charter schools, including cyber charter schools, in accordance with the following schedule:

School Year 2016-2017 Geometry
School Year 2017-2018 U.S. History
School Year 2018-2019 Algebra II
School Year 2019-2020 Chemistry
School Year 2020-2021 World History

(l) The Department will seek to have the Keystone Exams approved as the high school level single accountability system under the No Child Left Behind Act of 2001 (20 U.S.C. § 6311(2)(C)) of the No Child Left Behind Act of 2001. Upon approval of the Keystone Exams as the approved assessment system, the Algebra I and Literature exams will be used to determine adequate yearly progress. The Biology Keystone Exam will be used as the high school level science assessment, which is not a factor in determining adequate yearly progress.

School Year 2016-2017 English Composition
School Year 2017-2018 U.S. History
School Year 2018-2019 Algebra II
School Year 2019-2020 Chemistry
School Year 2020-2021 World History

(m) The 11th grade PSSA exams in Reading, Writing, Math and Science will be discontinued upon implementation of the Keystone Exams as the approved assessment system under section 1111(b)(2)(C) of the No Child Left Behind Act of 2001 (20 U.S.C.A. § 6311(2)(C)).
§ 4.51c. Project-based assessment.

(a) The Department will develop a project-based assessment system that is aligned with the modules of the Keystone Exams in Literature, Algebra I, Biology, Composition, and Civics and Government for students who are unable to demonstrate proficiency on a Keystone Exam or module, or if § 4.4(d)(4) (relating to general policies) applies.

(b) The project-based assessment system shall be administered by schools and scored by Statewide panels composed of teachers, principals, and curriculum specialists assembled by the Department. The Statewide review panels shall score student projects according to scoring protocols and rubrics developed by the Department.

(c) A student in grade 12 who has not demonstrated proficiency on a Keystone Exam or module may qualify to participate in one or more project-based assessments if the student has met the following conditions:

(1) Has taken the course.

(2) Has met the attendance requirements of the school district.

(3) Has participated in satisfactory academic instruction provided by the school district.

$4.51c. Project-based Assessments

A student to whom § 4.4(d)(4) applies may qualify to participate in one or more project-based assessments if the student has met the following conditions:

1. Has taken the course.
2. Has met the attendance requirements of the school district, A VTS or charter school, including a cyber charter school.

§ 4.51d. Waivers

A chief school administrator, in his sole discretion, may waive the requirements in § 4.24 (relating to high school graduation requirements) on a case-by-case basis for good cause. Waivers may be granted for a student in grade 12 who was unsuccessful in completing a project-based assessment or a Keystone Exam in § 4.24. Successful completion of a project-based assessment aligned to the Keystone Exam or module on which a student did not demonstrate proficiency shall satisfy the requirements that students achieve proficiency on the Keystone Exams in § 4.24.

Prior to granting a waiver, a chief school administrator shall certify that

1. Has met the local requirements of the school district, A VTS or charter school, including a cyber charter school, for graduation, except for demonstration of proficiency of the requirements in § 4.24(c)(1)(iii)(A) for which the waiver is being requested.

Cross References

(ii) Has not demonstrated proficiency on a Keystone Exam or Keystone Exam module.

(iii) If the student is required to participate in supplemental instruction under § 4.24(k) and § 4.51b(f) (relating to Keystone Exams), has participated in a satisfactory manner in supplemental instructional services consistent with the degree to which students are achieving academic standards.

(a) Each school entity shall design an assessment system to do the following:

(2) If a chief school administrator is considering granting waivers for more than 10% of students in the graduating class of a school district, A VTS or charter school, including a cyber charter school, because the students were not successful in completing a project-based assessment as provided in § 4.51c, the chief school administrator shall submit an action plan for approval by the Secretary no later than 10 calendar days prior to graduation. The action plan must identify improvements the school district, A VTS or charter school, including a cyber charter school, will implement for each course associated with the Keystone Exam content for which the waivers were granted.

(b) The chief school administrator of each school district, A VTS and charter school, including a cyber charter school, shall annually report to the Department the number of waivers granted to students in the most recent graduating class, and the Department will annually report to the Board the number of waivers granted by each school district, A VTS and charter school, including a cyber charter school.

(5) The waiver process described in this section does not confer an individual right on any student.

(6) Disapproval of the action plan required under paragraph (2) does not result in an adjudication.

(7) The decision of a chief school administrator concerning a waiver request is not an adjudication.

(8) Disapproval of the action plan required under paragraph (2) does not confer an individual right on any student relative to a waiver determination made by a chief school administrator.

Authority

The provisions of this § 4.51d issued under sections 121, 2603-B and 2604-B of the Public School Code of 1949 (24 P. S. §§ 1-121, 26-2603-B and 26-2604-B).

Source

Provide information requested by the Department regarding the achievement of academic standards, but which does not include student names, identification numbers or individually identifiable information.

Provide summary information, including results of assessments under this section, to the general public regarding the achievement of students, but which does not include student names, identification numbers or individually identifiable information.

(b) The local assessment system shall be approved by the board of school directors, at minimum, once every 6 years and implemented no later than 1 year after the approval date.

(c) The local assessment system shall be designed to include a variety of assessment strategies which may include:

(1) Written work by students.

(2) Scientific experiments conducted by students.

(3) Works of art or musical, theatrical or dance performances by students.

(4) Other demonstrations, performances, products or projects by students related to specific academic standards.

(5) Examinations developed by teachers to assess specific academic standards.

(6) Nationally-available achievement tests.

(7) Diagnostic assessments.

(8) Evaluations of portfolios of student work related to achievement of academic standards.

(9) Other measures as appropriate, which may include standardized tests.

(d) Individual test information shall be maintained in a student's educational record in a manner consistent with section 444 of the Family Educational Rights and Privacy Act of 1974 (20 U.S.C.A. § 1232g) and 34 CFR Part 99 (relating to family educational rights and privacy).

(e) Children with disabilities shall be included in the local assessment system, with appropriate accommodations, when necessary. As appropriate, the school district, including a charter school, including a cyber charter school, or A.V.T.S. shall develop and maintain a local assessment system for children with disabilities. The local assessment system shall be used in accordance with the individualized education program of each child. The assessment shall be conducted in a manner that does not adversely affect the child's performance.

(f) The Department will establish a Local Assessment Validation Advisory Committee. The Committee will develop the criteria for the local validation process and criteria for selection of approved validation entities as provided in § 4.24(c)(1)(iii)(B) (relating to high school graduation requirements). The Department in consultation with the Committee will develop the criteria for the local assessment system. The Committee will develop criteria for the selection of approved validation entities as provided in § 4.24(c)(1)(iii)(B) (relating to high school graduation requirements). The Department, in consultation with the Committee, will develop the criteria for the local assessment system. The Department will post the approved criteria, selection criteria and list of approved entities on its web site.

(371107) No. 474 May 14
Authority
The provisions of this § 4.52 amended under sections 121, 2603-B and 2604-B of the Public School Code of 1949 (24 P. S. §§ 1-121, 26-2603-B and 26-2604-B).

Source

Cross References

SCHOOL PROFILES
§ 4.61. School profiles.
(a) School profiles developed by the Secretary will include information as required under section 220 of the School Code (24 P. S. § 2-220).
(b) The Secretary will prescribe procedures for reporting State assessment data to schools and communities.
(c) The Secretary will make available to the public, and report to the public with the same frequency and in the same detail as for children who are nondisabled, all data as required under the Individuals with Disabilities Education Act.

Authority
The provisions of this § 4.61 amended under sections 121, 2603-B and 2604-B of the Public School Code of 1949 (24 P. S. §§ 1-121, 26-2603-B and 26-2604-B).

Source

PROVISIONS RELATING TO OTHER THAN PUBLIC SCHOOLS
§ 4.71. Certification by principal of nonpublic nonlicensed school.
Elementary or secondary nonpublic nonlicensed schools, shall, within 30 days of beginning classes, file a notarized certificate with the Secretary as required by section 1327(b)(1) and (2) of the School Code (24 P. S. § 13-1327(b)(1) and (2)) in the form prescribed by the Secretary.

Authority
The provisions of this § 4.71, concerning certification by principal of nonpublic nonlicensed school, approved at 22 Pa. Code § 1.121, 26-2603-B and 26-2604-B.

Source
The provisions of this § 4.71, concerning certification by principal of nonpublic nonlicensed school, approved at 22 Pa. Code § 1.121, 26-2603-B and 26-2604-B.

PROVISIONS RELATING TO OTHER THAN PUBLIC SCHOOLS
§ 4.72. Credentials other than the high school diploma.
The requirements for a Commonwealth secondary school diploma are as follows:
(1) The Commonwealth secondary school diploma may be issued to an applicant who is a resident of this Commonwealth and does not possess a sec-

Authority
The provisions of this § 4.72, concerning credentials other than the high school diploma, approved at 22 Pa. Code § 1.121, 26-2603-B and 26-2604-B.
a student by all public schools and institutions in the Commonwealth upon the expenditure of
the satisfactory completion of a minimum of 1 full year or 30 semester hours
(2) Credit earned by a public school in this Commonwealth shall be accepted
the satisfactory completion of a minimum of 1 full year or 30 semester hours
(2) In addition to the provisions of paragraph (1), the Commonwealth sec-
to meet the requirements for the Commonwealth secondary school
education administered by the education agency of the state to which the
required examinations may be waived by the Commonwealth upon the recommendation of the
(3) The Department will not ordinarily issue a diploma until after the high
school class of which the applicant was a member has been graduated. This
This section cited in 22 Pa. Code § 4.74 (relating to students in special situations).
§ 4.73. Correspondence schools.
An applicant 18 years of age or older will be issued a Certificate of Preliminary
(371109) No. 474 May 14

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Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS

§ 4.74. Students in special situations.
(3) In addition to the provisions of paragraph (1), the Commonwealth sec-
(4) A foreign student without educational credentials may earn the Common-

§ 4.73. Correspondence schools.
An applicant 18 years of age or older will be issued a Certificate of Preliminary
(1) An employer who requires a high school equivalency credential for
(2) A graduate of a secondary school in another state who meets the requirements for
(3) Credit granted by a public school in this Commonwealth shall be accepted

§ 4.72. Students in special situations.

(2) In addition to the provisions of paragraph (1), the Commonwealth sec-
(3) The Department will not ordinarily issue a diploma until after the high

4-44

(3) In addition to the provisions of paragraph (1), the Commonwealth sec-
(2) In addition to the provisions of paragraph (1), the Commonwealth sec-

§ 4.81. Allegations of deficiencies.

(a) The Secretary will receive and investigate allegations of curriculum deficiencies from professional employees, commissioned officers, parents of students or other residents of a school entity.

(b) The Secretary will notify the school entity's superintendent or chief executive of the allegations and may require the superintendent or chief executive to submit one or more of the following:

1. Relevant descriptions of planned instruction.
2. A series of written articulated courses of instructional units.
3. Relevant student assessment information.
4. Information on staff assignments.
5. Other information pertinent to investigating a specific allegation.

(c) If the Secretary determines that a curriculum deficiency exists, the school entity shall be required to submit to the Secretary for approval a plan to correct the deficiency.

(d) Within 1 year of the implementation of a corrective action plan under subsection (c), the Secretary will review the actions taken to correct the deficiency. If the deficiency remains uncorrected, the Secretary will send a formal notice of deficiency to the governing board of the school entity, and the notice shall be announced at the meeting of the school entity's governing board immediately following its receipt.

(e) If the school entity does not take appropriate actions to correct the deficiency after the notice of deficiency is announced, the Secretary will take action under State law.

Authority

The provisions of this § 4.81 amended under the Public School Code of 1949 (24 P. S. 26-2603-B).

Source


Notes of Decisions

Inapplicable Offense

Educator's argument that the offensive conduct of manufacturing of grades was a curriculum deficiency that should be resolved under the Academic Standards and Assessment Chapter of the Administrative Code is misplaced. The conduct is properly prosecuted under the Teacher Certification Law.


§ 4.82. Exceptions.

(a) The Secretary may grant exceptions to specific provisions of this chapter when it is necessary to adapt them to the curriculum needs of individual school entities or to facilitate transition to the revised provisions of this chapter. Specific exceptions may be made for school entities that develop or implement academic standards that are comparable to or exceed those found in § 4.12 (relating to academic standards). Exceptions must be in writing and include relevant information supporting the need for the exception.

(b) The request for an exception must be in writing and include relevant information supporting the need for the exception.

(c) The exception will be valid for a limited term not to exceed 2 years.

(d) The request for an exception must be in writing and include relevant information supporting the need for the exception.

(e) The exception will be valid for a limited term not to exceed 2 years.

(f) Relevant descriptions of planned instruction.

(g) Relevant student assessment information.

(h) Relevant staff assignments information.

(i) Revisions on instructional units.

(j) Revisions on academic standards.
The request shall be made prior to initiating the action requiring approval and shall have the prior approval of the board of school directors.

(b) The Secretary will report annually to the Board on the nature and status of requests for exceptions under this section.

Authority
The provisions of this § 4.82 amended under the Public School Code of 1949 (24 P. S. 26-2603-B).

Source
The provisions of this § 4.82 amended February 15, 2008, effective February 16, 2008, 38 Pa.B. 872. Immediately preceding text appears at serial pages (286559) to (286560).

§ 4.83. [Reserved].

Source

B) The provisions of this § 4.82 amended under the Public School Code of 1949 (24 P. S. 26-2603-B).

of requests for exceptions under this section.

The Secretary will report annually to the Board on the nature and status of approval and shall not have the prior approval of the board of school directors.

The request shall be made prior to initiating the action requiring
APPENDIX A
[Reserved]

Source
The provisions of this Appendix A adopted January 15, 1999, effective January 16, 1999, 29 Pa.B. 399; reserved by correction July 19, 2013, effective June 30, 2013, replaced by Appendix A-1, 43 Pa.B. 4079, unless otherwise noted. Immediately preceding text appears at serial pages (252345) to (252422) and (286561) to (286562).

APPENDIX A-1
[Reserved]

Source
The provisions of this Appendix A-1 renumbered from Appendix B adopted October 15, 2010, effective July 1, 2013, 40 Pa.B. 5903; correction published at 43 Pa.B. 4079; reserved February 28, 2014, effective March 1, 2014, 44 Pa.B. 1131, unless otherwise noted. Immediately preceding text appears at serial pages (367438) and (353099) to (353316).

APPENDIX A-2
Pennsylvania Core Standards for English Language Arts and Mathematics

APPENDIX A-2

Pennsylvania Core Standards for English Language Arts

INTRODUCTION
These standards describe what students should know and be able to do with the English language, prekindergarten through Grade 12. The standards provide the English language proficiency through Grade 12. The standards provide the English language proficiency through Grade 12.

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APPENDIX A-2

APPENDIX A-2

APPENDIX A-2
Standard 1: Foundational Skills begin at prekindergarten and focus on early childhood, with some standards reflected through Grade 5. These foundational skills are necessary and important early in life and develop in concert with the kindergarten readiness standards. With a focus on college and career readiness, the English Language Arts Standards also provide parents and community members with information about what students should know and be able to do as they progress through the educational program and at graduation.

The English Language Arts Standards also provide parents and community members with information about what students should know and be able to do as they progress through the educational program and at graduation.

Note: The Aligned Eligible Content is displayed with the standard statement. On the Standard Aligned System portal, it is a live link.

With a focus on college and career readiness, the English Language Arts Standards also provide parents and community members with information about what students should know and be able to do as they progress through the educational program and at graduation.

Note: The Aligned Eligible Content is displayed with the standard statement. On the Standard Aligned System portal, it is a live link.

With a focus on college and career readiness, the English Language Arts Standards also provide parents and community members with information about what students should know and be able to do as they progress through the educational program and at graduation.

Note: The Aligned Eligible Content is displayed with the standard statement. On the Standard Aligned System portal, it is a live link.
TABLE OF CONTENTS

Foundational Skills (Pre K-5) ..................................... 1.1
Students gain a working knowledge of concepts of print, alphabetic principle, and other basic conventions. These foundational skills are not an end in and of themselves; rather, students apply them as effective readers.

- Book Handling
- Print Concepts
- Phonological Awareness
- Phonics and Word Recognition
- Fluency

Reading Informational Text ....................................... 1.2
Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

- Key Ideas and Details
- Craft and Structure
- Integration of Knowledge and Ideas
- Vocabulary Acquisition and Use
- Range of Reading

Reading Literature ............................................... 1.3
Students read and respond to works of literature—with emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

- Key Ideas and Details
- Craft and Structure
- Integration of Knowledge and Ideas
- Vocabulary Acquisition and Use
- Range of Reading

Writing ........................................................ 1.4
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

- Informative/Explanatory
- Opinion/Argumentative
- Narrative
- Response to Literature
- Production and Distribution of Writing
- Technology and Publication
- Conducting Research
- Credibility, Reliability, and Validity of Sources
- Range of Writing

Speaking and Listening ........................................... 1.5
Students present appropriately in formal speaking situations, listen critically, and respond intelligently as individuals or in group discussions.

- Comprehension and Collaboration
- Presentation of Knowledge and Ideas
- Integration of Knowledge and Ideas
- Conventions of Standard English
## 1.1 Foundational Skills

Students gain a working knowledge of concepts of print, alphabetic principle, and other basic conventions.

<table>
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<th>Grade K</th>
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### Foundational Skills

Students gain a working knowledge of concepts of print, alphabetic principle, and other basic conventions.

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<td>CC.1.1.K.B</td>
<td>Intentionally Blank</td>
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</tr>
<tr>
<td>Identify basic features of print.</td>
<td>Demonstrate understanding of the organization and basic features of print.</td>
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</tr>
<tr>
<td>• Differentiate between numbers and letters and words.</td>
<td>• Follow words left to right, top to bottom, and page by page.</td>
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<tr>
<td>• Recognize and name some uppercase and lowercase letters of the alphabet.</td>
<td>• Recognize that spoken words are represented in written language by specific sequences of letters.</td>
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<tr>
<td></td>
<td>• Understand that words are separated by spaces in print.</td>
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<tr>
<td></td>
<td>• Recognize and name all uppercase and lowercase letters of the alphabet.</td>
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</tbody>
</table>
## Foundational Skills

Students gain a working knowledge of concepts of print, alphabetic principle, and other basic conventions.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
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</thead>
<tbody>
<tr>
<td><strong>Phonological Awareness</strong></td>
<td><strong>Phonological Awareness</strong></td>
<td><strong>Phonological Awareness</strong></td>
<td><strong>Phonological Awareness</strong></td>
<td><strong>Phonological Awareness</strong></td>
<td><strong>Phonological Awareness</strong></td>
<td><strong>Phonological Awareness</strong></td>
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<tr>
<td>CC.1.1.PK.C</td>
<td>CC.1.1.K.C</td>
<td>CC.1.1.1.C</td>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
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</tr>
<tr>
<td>Demonstrate understanding of spoken words, syllables, and sounds (phonemes).</td>
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<td>Demonstrate understanding of spoken words, syllables, and sounds (phonemes).</td>
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<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
</tr>
<tr>
<td>• Recognize rhyming words and when two or more words begin with the same sound (alliteration).</td>
<td>• Count, pronounce, blend, and segment syllables in spoken words.</td>
<td>• Distinguish long from short vowel sounds in spoken single-syllable words.</td>
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<tr>
<td>• Count syllables in spoken words.</td>
<td>• Blend and segment onsets and rimes of single-syllable spoken words.</td>
<td>• Count, pronounce, blend, and segment syllables in spoken and written words.</td>
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</tr>
<tr>
<td>• Segment single-syllable spoken words.</td>
<td>• Isolate and pronounce the initial, medial vowel, and final sound (phonemes) in the three-phoneme (CVC) words.</td>
<td>• Orally produce single-syllable words, including consonant blends and digraphs.</td>
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<tr>
<td>• Isolate and pronounce initial sounds.</td>
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</tbody>
</table>
### 1.1 Foundational Skills

Students gain a working knowledge of concepts of print, alphabetic principle, and other basic conventions.

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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words.</td>
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<td></td>
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<td></td>
<td>• Add or substitute individual sounds (phonemes) in one-syllable words to make new words.</td>
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</tbody>
</table>

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### Foundational Skills

Students gain a working knowledge of concepts of print, alphabetic principle, and other basic conventions.

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<tbody>
<tr>
<td><strong>CC.1.1.PK.D</strong></td>
<td><strong>CC.1.1.K.D</strong></td>
<td><strong>CC.1.1.1.D</strong></td>
<td><strong>CC.1.1.2.D</strong></td>
<td><strong>CC.1.1.3.D</strong></td>
<td><strong>CC.1.1.4.D</strong></td>
<td><strong>CC.1.1.5.D</strong></td>
</tr>
<tr>
<td>Develop beginning phonics and word skills.</td>
<td>Know and apply grade-level phonics and word analysis skills in decoding words.</td>
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</tr>
<tr>
<td>Associate some letters with their names and sounds.</td>
<td>Demonstrate basic knowledge of one-to-one letter-sound correspondence.</td>
<td>Identify common consonant diagraphs, final-e, and common vowel teams.</td>
<td>Decode one- and two-syllable words with common patterns.</td>
<td>Read grade-level words with inflectional endings.</td>
<td>Decode multisyllabic words.</td>
<td>Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology to read accurately unfamiliar multisyllabic words.</td>
</tr>
<tr>
<td>Identify familiar words and environmental print.</td>
<td>Associate the long and short sounds with common spellings for the five major vowels.</td>
<td>Decode two-syllable words with long vowels and words with common prefixes and suffixes.</td>
<td>Read grade-appropriate irregularly spelled words.</td>
<td>Read grade-appropriate irregularly spelled words.</td>
<td>Read grade-appropriate irregularly spelled words.</td>
<td>Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology to read accurately unfamiliar multisyllabic words.</td>
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<tr>
<td></td>
<td>Read grade-level high-frequency sight words with automaticity.</td>
<td>Read grade-level high-frequency sight words and words with inconsistent but common spelling-sound correspondences.</td>
<td>Read grade-appropriate irregularly spelled words.</td>
<td>Read grade-appropriate irregularly spelled words.</td>
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<td></td>
<td>• Read grade-appropriate irregularly spelled words.</td>
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</tbody>
</table>

### Fluency

- **Intentionally Blank**
- **CC.1.1.1.E** Read emergent-reader text with purpose and understanding.
- **CC.1.1.2.E** Read with accuracy and fluency to support comprehension.
- **CC.1.1.3.E** Read on-level text with purpose and understanding.
- **CC.1.1.4.E** Read on-level text orally with accuracy, appropriate rate, and expression on successive readings.
- **CC.1.1.5.E** Read with accuracy and fluency to support comprehension.

- **CC.1.1.1.E** Read emergent-reader text with purpose and understanding.
- **CC.1.1.2.E** Read with accuracy and fluency to support comprehension.
- **CC.1.1.3.E** Read on-level text with purpose and understanding.
- **CC.1.1.4.E** Read on-level text orally with accuracy, appropriate rate, and expression on successive readings.
- **CC.1.1.5.E** Read with accuracy and fluency to support comprehension.

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- **CC.1.1.4.E** Read on-level text orally with accuracy, appropriate rate, and expression on successive readings.
- **CC.1.1.5.E** Read with accuracy and fluency to support comprehension.
### Reading Informational Text

Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Key Ideas and Details</strong></td>
<td><strong>Main Idea</strong></td>
<td></td>
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</tr>
<tr>
<td>CC.1.2.PK.A</td>
<td>With prompting and support, retell key details of text that support a provided main idea.</td>
<td>CC.1.2.K.A</td>
<td>With prompting and support, identify the main idea and retell key details of text.</td>
<td>CC.1.2.1.A</td>
<td>Identify the main idea and retell key details of text.</td>
<td>CC.1.2.2.A</td>
</tr>
<tr>
<td>CC.1.2.3.A</td>
<td>Determine the main idea of a text and explain how it is supported by key details; summarize the text.</td>
<td>E03.B-K.1.1.2</td>
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<tr>
<td><strong>Key Ideas and Details</strong></td>
<td><strong>Text Analysis</strong></td>
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</tr>
<tr>
<td>CC.1.2.PK.B</td>
<td>Answer questions about a text.</td>
<td>CC.1.2.K.B</td>
<td>With prompting and support, answer questions about key details in a text.</td>
<td>CC.1.2.1.B</td>
<td>Ask and answer questions about key details in a text.</td>
<td>CC.1.2.2.B</td>
</tr>
<tr>
<td>CC.1.2.3.B</td>
<td>Refer to details and examples in text to support what the text says explicitly and make inferences.</td>
<td>E03.B-K.1.1.1</td>
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<tr>
<td>E04.B-K.1.1.1</td>
<td>Cite textual evidence by quoting accurately from the text to explain what the text says explicitly and make inferences.</td>
<td>E05.B-K.1.1.1</td>
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</tbody>
</table>
## 1.2 Reading Informational Text

Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

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<tbody>
<tr>
<td><strong>Key Ideas and Details</strong></td>
<td><strong>Text Analysis</strong></td>
<td><strong>Craft and Structure</strong></td>
<td><strong>Point of View</strong></td>
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</tr>
<tr>
<td>CC.1.2.PK.C</td>
<td>With prompting and support, make connections between information in a text and personal experiences.</td>
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<td>Intentionally Blank</td>
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<tr>
<td>CC.1.2.K.C</td>
<td>With prompting and support, make a connection between two individuals, events, ideas, or pieces of information in a text.</td>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
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<tr>
<td>CC.1.2.1.C</td>
<td>Describe the connection between two individuals, events, ideas, or pieces of information in a text.</td>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
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<tr>
<td>CC.1.2.2.C</td>
<td>Describe the connection between a series of events, concepts, or steps in a procedure within a text.</td>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
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<tr>
<td>CC.1.2.3.C</td>
<td>Explain how a series of events, concepts, or steps in a procedure is connected within a text, using language that pertains to time, sequence, and cause/effect.</td>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
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<tr>
<td>CC.1.2.4.C</td>
<td>Explain events, procedures, ideas, or concepts in a text, including what happened and why, based on specific information in the text.</td>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
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</tr>
<tr>
<td>CC.1.2.5.C</td>
<td>Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a text based on specific information in the text.</td>
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<td>Intentionally Blank</td>
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<tr>
<td>E03.B-K.1.1.3</td>
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<td>E03.B-C.2.1.1</td>
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<td>E04.B-K.1.1.3</td>
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<td>E05.B-C.2.1.1</td>
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Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

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<tr>
<td><strong>Craft and Structure</strong></td>
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<tr>
<td>Text Structure</td>
<td>CC.1.2.PK.E Identify the front cover, back cover, and title page of a book.</td>
<td>CC.1.2.K.E Identify parts of a book (title, author) and parts of a text (beginning, end, details).</td>
<td>CC.1.2.1.E Use various text features and search tools to locate key facts or information in a text.</td>
<td>CC.1.2.2.E Use text features and search tools to locate and interpret information.</td>
<td>CC.1.2.3.E Use text structure to interpret information (e.g., chronology, comparison, cause/effect, problem/solution).</td>
<td>CC.1.2.4.E Use text structure, in and among texts, to interpret information (e.g., chronology, comparison, cause/effect, problem/solution).</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>CC.1.2.PK.F With prompting and support, answer questions about unfamiliar words read aloud from a text.</td>
<td>CC.1.2.K.F With prompting and support, ask and answer questions about unknown words in a text.</td>
<td>CC.1.2.1.F Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.</td>
<td>CC.1.2.2.F Determine the meaning of words and phrases as they are used in grade-level text including multiple-meaning words.</td>
<td>CC.1.2.3.F Determine the meaning of words and phrases as they are used in grade-level text, distinguishing literal from nonliteral meaning as well as shades of meaning among related words.</td>
<td>CC.1.2.4.F Determine the meaning of words and phrases as they are used in grade-level text, including interpretation of figurative language.</td>
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</table>
### Grade Pre K

**Integration of Knowledge and Ideas**

**Diverse Media**

- **CC.1.2.PK.G**  
  With prompting and support, answer questions to connect illustrations to the written word.

### Grade K

**Integration of Knowledge and Ideas**

**Diverse Media**

- **CC.1.2.K.G**  
  Answer questions to describe the relationship between illustrations and the text in which they appear.

### Grade 1

**Integration of Knowledge and Ideas**

**Diverse Media**

- **CC.1.2.1.G**  
  Use the illustrations and details in a text to describe its key ideas.

### Grade 2

**Integration of Knowledge and Ideas**

**Diverse Media**

- **CC.1.2.2.G**  
  Explain how graphic representations contribute to and clarify a text.

### Grade 3

**Integration of Knowledge and Ideas**

**Diverse Media**

- **CC.1.2.3.G**  
  Use information gained from text features to demonstrate understanding of a text.

### Grade 4

**Integration of Knowledge and Ideas**

**Diverse Media**

- **CC.1.2.4.G**  
  Interpret various presentations of information within a text or digital source and explain how the information contributes to an understanding of the text in which it appears.

### Grade 5

**Integration of Knowledge and Ideas**

**Diverse Media**

- **CC.1.2.5.G**  
  Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
1.2 Reading Informational Text

Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

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<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluating Arguments</td>
<td>Intentionally Blank</td>
<td>CC.1.2.K.H With prompting and support, identify the reasons an author gives to support points in a text.</td>
<td>CC.1.2.1.H Identify the reasons an author gives to support points in a text.</td>
<td>CC.1.2.2.H Describe how reasons support specific points the author makes in a text.</td>
<td>CC.1.2.3.H Describe how an author connects sentences and paragraphs in a text to support particular points.</td>
<td>E03.B-C.3.1.1</td>
<td></td>
</tr>
<tr>
<td>Analysis Across Texts</td>
<td>CC.1.2.PK.1 With prompting and support, identify basic similarities and differences between two texts read aloud on the same topic.</td>
<td>CC.1.2.K.I With prompting and support, identify basic similarities and differences between two texts (read or read aloud) on the same topic.</td>
<td>CC.1.2.1.I Identify basic similarities in and differences between two texts on the same topic.</td>
<td>CC.1.2.2.I Compare and contrast the most important points presented by two texts on the same topic.</td>
<td>CC.1.2.3.I Compare and contrast the most important points and key details presented in two texts on the same topic.</td>
<td>E03.B-C.3.1.2</td>
<td></td>
</tr>
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</table>

CC.1.2.4.H Explain how an author uses reasons and evidence to support particular points in a text through reasons and evidence.
CC.1.2.5.H Determine how an author supports particular points in a text through reasons and evidence.

E03.B-C.3.1.1
E04.B-C.3.1.1
E05.B-C.3.1.1

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4-57
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<tr>
<td><strong>Vocabulary Acquisition and Use</strong></td>
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<tr>
<td>CC.1.2.PK.J</td>
<td>Use new vocabulary and phrases acquired in conversations and being read to.</td>
<td>CC.1.2.K.J</td>
<td>Use words and phrases acquired through conversations, reading, and being read to, and responding to texts.</td>
<td>CC.1.2.1.J</td>
<td>Acquire and use grade-appropriate conversational, general academic, and domain-specific words and phrases.</td>
<td>CC.1.2.2.J</td>
<td>Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships.</td>
</tr>
<tr>
<td>CC.1.2.3.J</td>
<td>Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic.</td>
<td>E04.B-V.4.1.1 E04.B-V.4.1.2.</td>
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<tr>
<td>CC.1.2.4.J</td>
<td>Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships.</td>
<td>E05.B-V.4.1.1 E05.B-V.4.1.2.</td>
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</table>
## 1.2 Reading Informational Text

Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vocabulary Acquisition and Use</strong></td>
<td><strong>Range of Reading</strong></td>
<td><strong>Range of Reading</strong></td>
<td><strong>Range of Reading</strong></td>
<td><strong>Range of Reading</strong></td>
<td><strong>Range of Reading</strong></td>
<td><strong>Range of Reading</strong></td>
</tr>
<tr>
<td>With prompting and support, clarify unknown words or phrases read aloud.</td>
<td>Determine or clarify the meaning of unknown or multiple-meaning words and phrases based on grade-level reading and content.</td>
<td>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content.</td>
<td>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing from a range of strategies and tools.</td>
<td>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.</td>
<td>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.</td>
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</tr>
<tr>
<td>CC.1.2.PK.L</td>
<td>CC.1.2.K.L</td>
<td>CC.1.2.K.L</td>
<td>CC.1.2.K.L</td>
<td>CC.1.2.K.L</td>
<td>CC.1.2.K.L</td>
<td>CC.1.2.K.L</td>
</tr>
<tr>
<td>With prompting and support, actively engage in group reading activities with purpose and understanding.</td>
<td>Actively engage in group reading activities with purpose and understanding.</td>
<td>Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.</td>
<td>Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.</td>
<td>Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.</td>
<td>Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.</td>
<td></td>
</tr>
<tr>
<td>E03.B-V.4.1.1</td>
<td>E04.B-V.4.1.1</td>
<td>E05.B-V.4.1.1</td>
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</tbody>
</table>
### 1.3 Reading Literature

Students read and respond to works of literature—with emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key Ideas and Details</strong></td>
<td><strong>Theme</strong></td>
<td><strong>Text Analysis</strong></td>
<td><strong>Theme</strong></td>
<td><strong>Text Analysis</strong></td>
<td><strong>Theme</strong></td>
<td><strong>Text Analysis</strong></td>
</tr>
<tr>
<td>CC.1.3.PK.A</td>
<td>With prompting and support, retell a familiar story in sequence with picture support.</td>
<td>CC.1.3.K.A</td>
<td>With prompting and support, retell familiar stories including key details.</td>
<td>CC.1.3.1.A</td>
<td>Retell stories, including key details, and demonstrate understanding of their central message or lesson.</td>
<td>CC.1.3.2.A</td>
</tr>
<tr>
<td>CC.1.3.K.B</td>
<td>Answer questions about a particular story (who, what, how, when, and where).</td>
<td>CC.1.3.1.B</td>
<td>Ask and answer questions about key details in a text.</td>
<td>CC.1.3.2.B</td>
<td>Ask and answer questions such as who, what, where, when, why, and how to demonstrate understanding of key details in a text.</td>
<td>CC.1.3.3.B</td>
</tr>
<tr>
<td>CC.1.3.3.A</td>
<td>Determine a theme of a text from details in the text; summarize the text.</td>
<td>E04.A-K.1.1.2</td>
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<tr>
<td>CC.1.3.5.A</td>
<td>Determine a theme of a text from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.</td>
<td>E05.A-K.1.1.2</td>
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</tr>
<tr>
<td>CC.1.3.5.B</td>
<td>Cite textural evidence by quoting accurately from the text to explain what the text says explicitly and make inferences.</td>
<td>E05.A-K.1.1.1</td>
<td></td>
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</tbody>
</table>
### 1.3 Reading Literature

Students read and respond to works of literature—with emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Key Ideas and Details</th>
<th>Literary Elements</th>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CC.1.3.PK.C</strong></td>
<td>With prompting and support, answer questions to identify characters, settings, and major events in a story.</td>
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<tr>
<td><strong>CC.1.3.K.C</strong></td>
<td>Describe characters, settings, and major events in a story.</td>
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<tr>
<td><strong>CC.1.3.1.C</strong></td>
<td>Describe how characters in a story respond to major events and challenges.</td>
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<tr>
<td><strong>CC.1.3.2.C</strong></td>
<td>Describe characters in a story and explain how their actions contribute to the sequence of events.</td>
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<tr>
<td><strong>CC.1.3.3.C</strong></td>
<td>Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text.</td>
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<tr>
<td><strong>CC.1.3.4.D</strong></td>
<td>Compare and contrast an event or topic told from two different points of view.</td>
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<tr>
<td><strong>CC.1.3.5.D</strong></td>
<td>Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.</td>
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</table>

**Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS**

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(371129) No. 474 May 14
# 1.3 Reading Literature

Students read and respond to works of literature—with emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Pre K</th>
<th>K</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td><strong>Craft and Structure</strong></td>
<td><strong>Text Structure</strong></td>
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<tr>
<td>CC.1.3.PK.E</td>
<td>With prompting and support, recognize common types of text.</td>
<td>CC.1.3.K.E</td>
<td>Recognize common types of text.</td>
<td>CC.1.3.1.E</td>
<td>Explain major differences between books that tell stories and books that give information, drawing on a wide reading or range of text types.</td>
<td>CC.1.3.2.E</td>
<td>Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.</td>
</tr>
</tbody>
</table>

| **Craft and Structure** | **Vocabulary** |
| CC.1.3.PK.F | Answer questions about unfamiliar words read aloud from a story. | CC.1.3.K.F | Ask and answer questions about unknown words in a text. | CC.1.3.1.F | Identify words and phrases in stories or poems that suggest feelings or appeal to the senses. | CC.1.3.2.F | Describe how words and phrases supply rhythm and meaning in a story, poem, or song. | CC.1.3.3.F | Determine the meaning of words and phrases as they are used in grade-level text, distinguishing literal from nonliteral meaning as well as shades of meaning among related words. | CC.1.3.4.F | Determine the meaning of words and phrases as they are used in grade-level text, including figurative language. | CC.1.3.5.F | Determine the meaning of words and phrases as they are used in grade-level text, including interpretation of figurative language. |

E03.A-V.4.1.1  
E04.A-V.4.1.1  
E05.A-V.4.1.1
### 1.3 Reading Literature

Students read and respond to works of literature—with emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

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<tr>
<th></th>
<th>Grade Pre K</th>
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<tbody>
<tr>
<td><strong>Integration of Knowledge and Ideas</strong></td>
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<tr>
<td>Sources of Information</td>
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<tr>
<td>CC.1.3.PK.G</td>
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<tr>
<td>Describe pictures in books using details.</td>
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<td>CC.1.3.K.G</td>
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<tr>
<td>Make connections between the illustrations and the text in a story (read or read aloud).</td>
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<td>CC.1.3.1.G</td>
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<td>Use illustrations and details in a story to describe characters, setting, or events.</td>
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<tr>
<td>CC.1.3.2.G</td>
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<td>Use information from illustrations and words, in print or digital text, to demonstrate understanding of characters, setting, or plot.</td>
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<tr>
<td>CC.1.3.3.G</td>
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<tr>
<td>Explain how specific aspects of a text’s illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).</td>
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<tr>
<td>CC.1.3.4.G</td>
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<tr>
<td>Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text.</td>
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<tr>
<td>CC.1.3.5.G</td>
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<tr>
<td>Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).</td>
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<tr>
<td><strong>Text Analysis</strong></td>
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<td>CC.1.3.PK.H</td>
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<tr>
<td>Answer questions to compare and contrast the adventures and experiences of characters in familiar stories.</td>
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<tr>
<td>CC.1.3.K.H</td>
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<td>Compare and contrast the adventures and experiences of characters in familiar stories.</td>
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<td>CC.1.3.1.H</td>
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<tr>
<td>Compare and contrast the adventures and experiences of characters in stories.</td>
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<td>CC.1.3.2.H</td>
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<tr>
<td>Compare and contrast two or more versions of the same story by different authors or from different cultures.</td>
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<tr>
<td>CC.1.3.3.H</td>
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<tr>
<td>Compare and contrast similar themes, settings, and plots of stories written by the same author about the same or similar characters.</td>
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<td>E03.A-C.3.1.1</td>
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<td>CC.1.3.4.H</td>
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<tr>
<td>Compare and contrast similar themes, topics, and patterns of events in literature, including texts from different cultures.</td>
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<td>E04.A-C.3.1.1</td>
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<tr>
<td>CC.1.3.5.H</td>
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<tr>
<td>Compare and contrast texts in the same genre on their approaches to similar themes and topics as well as additional literary elements.</td>
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<td>E05.A-C.3.1.1</td>
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</tbody>
</table>
## 1.3 Reading Literature

Students read and respond to works of literature—with emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Vocab Acquisition and Use Strategies</th>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.1.3.PK.I With prompting and support, clarify unknown words or phrases read aloud.</td>
<td>CC.1.3.K.I Determine or clarify the meaning of unknown multiple-meaning words and phrases based upon grade-level reading and content.</td>
<td>CC.1.3.1.I Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing from a range of strategies and tools.</td>
<td>CC.1.3.2.I Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.</td>
<td>CC.1.3.3.I Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.</td>
<td>CC.1.3.4.I Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.</td>
<td>CC.1.3.5.I Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.</td>
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</tbody>
</table>

## E03.A-V.4.1.1

| E04.A-V.4.1.1 | E05.A-V.4.1.1 |
1.3 Reading Literature

Students read and respond to works of literature—with emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Vocabulary Acquisition and Use</th>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
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<tbody>
<tr>
<td>CC.1.3.PK.J</td>
<td>Use new vocabulary and phrases acquired in conversations and being read to.</td>
<td>CC.1.3.K.J</td>
<td>Use words and phrases acquired through conversations, reading, and being read to, and responding to texts.</td>
<td>CC.1.3.1.J</td>
<td>Use words and phrases acquired through conversations, reading, and being read to, and responding to texts, including words that signal connections and relationships between the words and phrases.</td>
<td>CC.1.3.2.J</td>
<td>Acquire and use grade-appropriate conversational, general academic, and domain-specific words and phrases.</td>
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<tr>
<td>CC.1.3.3.J</td>
<td>Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships.</td>
<td>CC.1.3.4.K</td>
<td>Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic.</td>
<td>CC.1.3.5.K</td>
<td>Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships.</td>
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<table>
<thead>
<tr>
<th>Range of Reading</th>
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<td>CC.1.3.PK.K</td>
<td>With prompting and support, actively engage in group reading activities with purpose and understanding.</td>
<td>CC.1.3.K.K</td>
<td>Actively engage in group reading activities with purpose and understanding.</td>
<td>CC.1.3.1.K</td>
<td>Read and comprehend literature on grade level, reading independently and proficiently.</td>
<td>CC.1.3.2.K</td>
<td>Read and comprehend literary fiction on grade level, reading independently and proficiently.</td>
</tr>
<tr>
<td>CC.1.3.3.K</td>
<td>Read and comprehend literary fiction on grade level, reading independently and proficiently.</td>
<td>CC.1.3.4.K</td>
<td>Read and comprehend literary fiction on grade level, reading independently and proficiently.</td>
<td>CC.1.3.5.K</td>
<td>Read and comprehend literary fiction on grade level, reading independently and proficiently.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 1.4 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informative/Explanatory</td>
<td>CC.1.4.PK.A</td>
<td>Draw/dictate to compose informative/explanatory texts examining a topic.</td>
<td>CC.1.4.K.A</td>
<td>Use a combination of drawing, dictating, and writing to compose informative/explanatory texts.</td>
<td>CC.1.4.1.A</td>
<td>Write informative/explanatory texts to examine a topic and convey ideas and information.</td>
<td>CC.1.4.2.A</td>
</tr>
<tr>
<td>Informative/Explanatory Focus</td>
<td>CC.1.4.PK.B</td>
<td>With prompting and support, draw/dictate about one specific topic.</td>
<td>CC.1.4.K.B</td>
<td>Use a combination of drawing, dictating, and writing to focus on one specific topic.</td>
<td>CC.1.4.1.B</td>
<td>Identify and write about one specific topic.</td>
<td>CC.1.4.2.B</td>
</tr>
</tbody>
</table>
## 1.4 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
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<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Informative/Explanatory</strong></td>
<td><strong>Content</strong></td>
<td><strong>CC.1.4.PK.C</strong> With prompting and support, generate ideas and details to convey information that relates to the chosen topic.</td>
<td><strong>CC.1.4.K.C</strong> With prompting and support, generate ideas and details to convey information that relates to the chosen topic.</td>
<td><strong>CC.1.4.1.C</strong> Develop the topic with two or more facts.</td>
<td><strong>CC.1.4.2.C</strong> Develop the topic with facts and/or definitions.</td>
<td><strong>CC.1.4.3.C</strong> Develop the topic with facts, definitions, details, and illustrations, as appropriate.</td>
</tr>
</tbody>
</table>

*No. 474 May 14*
## 1.4 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade</th>
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<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre K</td>
<td>K</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>CC.1.4.PK.D</td>
<td>With prompting and support, make logical connections between drawing and dictation.</td>
<td>CC.1.4.K.D</td>
<td>Make logical connections between drawing and dictation/ writing.</td>
<td>CC.1.4.1.D</td>
<td>Group information and provide some sense of closure.</td>
<td>CC.1.4.2.D</td>
</tr>
<tr>
<td>CC.1.4.3.D</td>
<td>Create an organizational structure that includes information grouped and connected logically with a concluding statement or section.</td>
<td>E03.C.1.2.1</td>
<td>E03.C.1.2.3</td>
<td>E03.C.1.2.4</td>
<td>E04.C.1.2.1</td>
<td>E04.C.1.2.3</td>
</tr>
<tr>
<td>CC.1.4.4.D</td>
<td>Group related information logically linking ideas within and across categories of information using words, phrases, and clauses; provide a concluding statement or section; include formatting when useful to aiding comprehension.</td>
<td>E03.C.1.2.1</td>
<td>E03.C.1.2.3</td>
<td>E03.C.1.2.4</td>
<td>E04.C.1.2.1</td>
<td>E04.C.1.2.3</td>
</tr>
<tr>
<td>CC.1.4.5.D</td>
<td>Group related information logically linking ideas within and across categories of information using words, phrases, and clauses; provide a concluding statement or section; include formatting when useful to aiding comprehension.</td>
<td>E03.C.1.2.1</td>
<td>E03.C.1.2.3</td>
<td>E03.C.1.2.4</td>
<td>E04.C.1.2.1</td>
<td>E04.C.1.2.3</td>
</tr>
</tbody>
</table>
Writing  
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentionally Blank</td>
<td>CC.1.4.K.E With prompting and support, illustrate using details and dictate/write using descriptive words.</td>
<td>CC.1.4.1.E Choose words and phrases for effect.</td>
<td>CC.1.4.2.E Choose words and phrases for effect.</td>
<td>CC.1.4.3.E Use precise language and domain-specific vocabulary to inform about or explain the topic. E03.D.2.1.1</td>
<td>CC.1.4.4.E Use precise language and domain-specific vocabulary to inform about or explain the topic. E03.D.2.1.1</td>
<td>CC.1.4.5.E Write with an awareness of style. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Use sentences of varying length. E04.C.1.2.4 E04.D.2.1.1 E04.D.2.1.3 E04.E.1.1.4 E05.C.1.2.4 E05.C.1.2.5 E05.D.2.1.1 E05.D.2.1.2 E05.D.2.1.3 E05.D.2.1.4 E05.E.1.1.3 E05.E.1.1.4 E05.E.1.1.5</td>
</tr>
</tbody>
</table>
### Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentionally Blank</td>
<td>CC.1.4.K.F Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
<td>CC.1.4.1.F Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
<td>CC.1.4.2.F Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
<td>CC.1.4.3.F Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
<td>CC.1.4.4.F Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
<td>CC.1.4.5.F Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
</tr>
<tr>
<td></td>
<td>• Capitalize the first word in a sentence and the pronoun I.</td>
<td>• Capitalize dates and names of people.</td>
<td>• Capitalize proper nouns.</td>
<td>• Use commas and apostrophes appropriately.</td>
<td>• Use commas and apostrophes appropriately.</td>
<td>• Use commas and apostrophes appropriately.</td>
</tr>
<tr>
<td></td>
<td>• Recognize and use end punctuation.</td>
<td>• Use end punctuation; use commas in dates and words in series.</td>
<td>• Spell words drawing on common spelling patterns, phonemic awareness, and spelling conventions.</td>
<td>• Consult reference material as needed.</td>
<td>• Consult reference material as needed.</td>
<td>• Consult reference material as needed.</td>
</tr>
<tr>
<td></td>
<td>• Spell simple words phonetically.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Informative/Explanatory Conventions of Language**

- CC.1.4.1.F
- CC.1.4.2.F
- CC.1.4.3.F
- CC.1.4.4.F
- CC.1.4.5.F

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**Conventions of Language**

- CC.1.4.1.F Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
- CC.1.4.2.F Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
- CC.1.4.3.F Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
- CC.1.4.4.F Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
- CC.1.4.5.F Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
### 1.4 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Opinion/Argumentative</th>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus</strong></td>
<td>Intentionally Blank</td>
<td>CC.1.4.K.H</td>
<td>Form an opinion by choosing between two given topics.</td>
<td>CC.1.4.1.H</td>
<td>Identify the topic and state an opinion.</td>
<td>CC.1.4.2.H</td>
<td>Introduce the topic and state an opinion on the topic.</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Intentionally Blank</td>
<td>CC.1.4.K.I</td>
<td>Support the opinion with reasons.</td>
<td>CC.1.4.1.I</td>
<td>Support the opinion with reasons related to the opinion.</td>
<td>CC.1.4.2.I</td>
<td>Support an opinion with reasons that include details connected to the opinion.</td>
</tr>
</tbody>
</table>

**CC.1.4.1.G** Use a combination of drawing, dictating, and writing to compose opinion pieces on familiar topics.

**CC.1.4.2.G** Write opinion pieces on familiar topics or texts.

**CC.1.4.3.G** Write opinion pieces on familiar topics or texts.
### 1.4 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentionally Blank</td>
<td>CC.1.4.K.J Make logical connections between drawing and writing.</td>
<td>CC.1.4.1.J Create an organizational structure that includes reasons and provides some sense of closure.</td>
<td>CC.1.4.2.J Create an organizational structure that includes reasons and includes a concluding statement.</td>
<td>CC.1.4.3.J Create an organizational structure that includes reasons linked in a logical order with a concluding statement or section.</td>
<td>CC.1.4.4.J Create an organizational structure that includes related ideas grouped to support the writer’s purpose and linked in a logical order with a concluding statement or section related to the opinion.</td>
<td>CC.1.4.5.J Create an organizational structure that includes related ideas grouped to support the writer’s purpose; link opinion and reasons using words, phrases, and clauses; provide a concluding statement or section related to the opinion.</td>
</tr>
</tbody>
</table>

**Opinion/Argumentative Organization**

- E03.C.1.1.1
- E03.C.1.1.3
- E03.C.1.1.4
- E04.C.1.1.1
- E04.C.1.1.3
- E04.C.1.1.4
- E04.E.1.1.1
- E04.E.1.1.3
- E04.E.1.1.5
- E05.C.1.1.1
- E05.C.1.1.3
- E05.C.1.1.5
- E05.E.1.1.1
- E05.E.1.1.3
- E05.E.1.1.6
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Style</th>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opinion/Argumentative</td>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
<td>CC.1.4.1.K Use a variety of words and phrases.</td>
<td>CC.1.4.2.K Use a variety of words and phrases to appeal to the audience.</td>
<td>CC.1.4.3.K Use a variety of words and sentence types to appeal to the audience.</td>
<td>CC.1.4.4.K Choose words and phrases to convey ideas precisely.</td>
<td>CC.1.4.5.K Write with an awareness of style.</td>
</tr>
</tbody>
</table>
1.4 Writing
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
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<th>Grade 3</th>
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<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentionally Blank</td>
<td>CC.1.4.1.K.L</td>
<td>CC.1.4.2.L</td>
<td>CC.1.4.3.L</td>
<td>CC.1.4.4.L</td>
<td>CC.1.4.5.L</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
<td>Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
<td>Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
<td>Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
<td>Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Capitalize the first word in a sentence and the pronoun I.</td>
<td>• Capitalize dates and names of people.</td>
<td>• Capitalize proper nouns.</td>
<td>• Use commas and apostrophes appropriately.</td>
<td>• Use commas and apostrophes appropriately.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Recognize and use end punctuation.</td>
<td>• Recognize and use end punctuation.</td>
<td>• Use commas and apostrophes appropriately.</td>
<td>• Spell words drawing on common spelling patterns, phonemic awareness, and spelling conventions.</td>
<td>• Spell words drawing on common spelling patterns.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Spell simple words phonetically.</td>
<td>• Spell simple words phonetically.</td>
<td>• Spell words drawing on common spelling patterns, phonemic awareness, and spelling conventions.</td>
<td>• Consult reference material as needed.</td>
<td>• Consult reference material as needed.</td>
<td></td>
</tr>
</tbody>
</table>

CC.1.4.1.K.L
Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling. Capitalize the first word in a sentence and the pronoun I.

CC.1.4.1.K.L
Recognize and use end punctuation.

CC.1.4.1.K.L
Spell simple words phonetically.

CC.1.4.1.K.L
Spell words drawing on common spelling patterns, phonemic awareness, and spelling conventions.

CC.1.4.1.K.L
Consult reference material as needed.
### 1.4 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
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<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dictate narratives to describe real or imagined experiences or events.</td>
<td>Use a combination of drawing, dictating, and writing to compose narratives that describe real or imagined experiences or events.</td>
<td>Write narratives to develop real or imagined experiences or events.</td>
<td>Write narratives to develop real or imagined experiences or events.</td>
<td>Write narratives to develop real or imagined experiences or events.</td>
<td>Write narratives to develop real or imagined experiences or events.</td>
<td></td>
</tr>
<tr>
<td>Establish who and what the narrative will be about.</td>
<td>Establish who and what the narrative will be about.</td>
<td>Establish a situation and introduce a narrator and/or characters.</td>
<td>Establish a situation and introduce a narrator and/or characters.</td>
<td>Establish the reader by establishing a situation and introducing a narrator and/or characters.</td>
<td>Establish the reader by establishing a situation and introducing a narrator and/or characters.</td>
<td></td>
</tr>
</tbody>
</table>

---

**Narrative Focus**

**CC.1.4.PK.M**
Dictate narratives to describe real or imagined experiences or events.

**CC.1.4.K.M**
Use a combination of drawing, dictating, and writing to compose narratives that describe real or imagined experiences or events.

**CC.1.4.1.M**
Write narratives to develop real or imagined experiences or events.

**CC.1.4.2.M**
Write narratives to develop real or imagined experiences or events.

**CC.1.4.3.M**
Write narratives to develop real or imagined experiences or events.

**CC.1.4.4.M**
Write narratives to develop real or imagined experiences or events.

**CC.1.4.5.M**
Write narratives to develop real or imagined experiences or events.

**Establish who and what the narrative will be about.**

**Establish a situation and introduce a narrator and/or characters.**

**Establish the reader by establishing a situation and introducing a narrator and/or characters.**
## Writing
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Narrative Content</strong></td>
<td><strong>CC.1.4.PK.O</strong></td>
<td>Describe experiences and events.</td>
<td><strong>CC.1.4.K.O</strong></td>
<td>Include thoughts and feelings to describe experiences and events.</td>
<td><strong>CC.1.4.1.O</strong></td>
<td>Include thoughts and feelings to describe experiences and events to show the response of characters to situations.</td>
</tr>
</tbody>
</table>
### Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
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<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.1.4.PK.P</td>
<td>CC.1.4.K.P</td>
<td>CC.1.4.1.P</td>
<td>CC.1.4.2.P</td>
<td>CC.1.4.3.P</td>
<td>CC.1.4.4.P</td>
<td>CC.1.4.5.P</td>
</tr>
<tr>
<td>Recount a single event and tell about the events in the order in which they occurred.</td>
<td>Recount a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.</td>
<td>Recount two or more appropriately sequenced events, using temporal words to signal event order and provide some sense of closure.</td>
<td>Organize a short sequence of events, using temporal words to signal event order; provide a sense of closure.</td>
<td>Organize an event sequence that unfolds naturally, using temporal words and phrases to signal event order; provide a sense of closure.</td>
<td>Organize an event sequence that unfolds naturally, using a variety of transitional words and phrases to manage the sequence of events; provide a conclusion that follows from the narrated experiences and events.</td>
<td>Organize an event sequence that unfolds naturally, using a variety of transitional words and phrases to manage the sequence of events; provide a conclusion that follows from the narrated experiences and events.</td>
</tr>
</tbody>
</table>

**Narrative Organization**

**E03.C.1.3.1**

**E03.C.1.3.3**

**E03.C.1.3.4**

**E04.C.1.3.1**

**E04.C.1.3.3**

**E04.C.1.3.5**

**E05.C.1.3.1**

**E05.C.1.3.3**

**E05.C.1.3.5**
### 1.4 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Narrative Style</th>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
<td>CC.1.4.1.Q</td>
<td>CC.1.4.2.Q</td>
<td>CC.1.4.3.Q</td>
<td>CC.1.4.4.Q</td>
<td>CC.1.4.5.Q</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use a variety of words and phrases.</td>
<td>Choose words and phrases for effect.</td>
<td>Choose words and phrases for effect.</td>
<td>Choose words and phrases to convey ideas precisely.</td>
<td>Write with an awareness of style.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>E03.D.2.1.1</td>
<td>E03.D.2.1.1</td>
<td>E03.D.2.1.1</td>
<td>E04.C.1.3.4</td>
<td>E04.C.1.3.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>E05.C.1.3.4</td>
<td>E05.D.2.1.1</td>
<td>E05.D.2.1.2</td>
<td>E05.D.2.1.3</td>
<td>E05.D.2.1.4</td>
<td></td>
</tr>
</tbody>
</table>
### 1.4 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Narrative of Language</th>
<th>Conventions of Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre K</td>
<td>Intentionally Blank</td>
<td>CC.1.4.K.R Demonstrates appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
</tr>
<tr>
<td>K</td>
<td></td>
<td>CC.1.4.1.R Demonstrates a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
</tr>
<tr>
<td>Grade 1</td>
<td></td>
<td>CC.1.4.2.R Demonstrates a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
</tr>
<tr>
<td>Grade 2</td>
<td></td>
<td>CC.1.4.3.R Demonstrates a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
</tr>
<tr>
<td>Grade 3</td>
<td></td>
<td>CC.1.4.4.R Demonstrates a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
</tr>
<tr>
<td>Grade 4</td>
<td></td>
<td>CC.1.4.5.R Demonstrates a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
</tr>
</tbody>
</table>

- **Grade Pre K**: Intentionally Blank
- **Grade K**: CC.1.4.K.R

  - Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
  - Capitalize first word in sentence and pronoun I.
  - Recognize and use end punctuation.
  - Spell simple words phonetically.

- **Grade 1**: CC.1.4.1.R

  - Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
  - Capitalize dates and names of people.
  - Use end punctuation; use commas in dates and words in series.
  - Spell words drawing on common spelling patterns.

- **Grade 2**: CC.1.4.2.R

  - Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
  - Capitalize proper nouns.

- **Grade 3**: CC.1.4.3.R

  - Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.

- **Grade 4**: CC.1.4.4.R

  - Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.

- **Grade 5**: CC.1.4.5.R

  - Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.
1.4 Writing
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
<td>Intentionally Blank</td>
<td><strong>CC.1.4.3.S</strong></td>
<td><strong>CC.1.4.4.S</strong></td>
<td><strong>CC.1.4.5.S</strong></td>
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<tr>
<td></td>
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<td></td>
<td>Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade-level reading standards for literature and informational texts.</td>
<td>Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade-level reading standards for literature and informational texts.</td>
<td>Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade-level reading standards for literature and informational texts.</td>
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</tbody>
</table>
1.4 Writing
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

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<tbody>
<tr>
<td><strong>Production and Distribution of Writing</strong></td>
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<tr>
<td><strong>Writing Process</strong></td>
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<tr>
<td>CC.1.4.PK.T With guidance and support from adults and peers, respond to questions and suggestions, add details as needed.</td>
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<tr>
<td>CC.1.4.K.T With guidance and support from adults and peers, focus on a topic, respond to questions and suggestions from peers and add details to strengthen writing as needed.</td>
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<tr>
<td>CC.1.4.1.T With guidance and support from adults and peers, focus on a topic, respond to questions and suggestions from peers and add details to strengthen writing as needed.</td>
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<tr>
<td>CC.1.4.2.T With guidance and support from adults, develop and strengthen writing as needed by planning, revising, and editing.</td>
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<tr>
<td>CC.1.4.3.T With guidance and support from adults, develop and strengthen writing as needed by planning, revising, and editing.</td>
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<tr>
<td>CC.1.4.4.T With guidance and support from adults, develop and strengthen writing as needed by planning, revising, and editing.</td>
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<tr>
<td>CC.1.4.5.T With guidance and support from adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.</td>
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</tbody>
</table>
### Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Technology and Publication</th>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intentionally Blank</td>
<td>CC.1.4.K.U</td>
<td>With guidance and support, explore a variety of digital tools to produce and publish writing or in collaboration with peers.</td>
<td>CC.1.4.1.U</td>
<td>With guidance and support, use a variety of digital tools to produce and publish writing including in collaboration with peers.</td>
<td>CC.1.4.2.U</td>
<td>With guidance and support, use a variety of digital tools to produce and publish writing including in collaboration with peers.</td>
</tr>
</tbody>
</table>
### 1.4 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
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<th>Grade 2</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Conducting Research</strong></td>
<td><strong>Conducting Research</strong></td>
<td><strong>Conducting Research</strong></td>
<td><strong>Conducting Research</strong></td>
<td><strong>Conducting Research</strong></td>
<td><strong>Conducting Research</strong></td>
<td><strong>Conducting Research</strong></td>
</tr>
<tr>
<td>Ask questions about topics of personal interest to gain information; with teacher guidance and support, locate information on the chosen topic.</td>
<td>Participate in individual or shared research projects on a topic of interest.</td>
<td>Participate in individual or shared research and writing projects.</td>
<td>Conduct short research projects that build knowledge about a topic.</td>
<td>Conduct short research projects that build knowledge through investigation of different aspects of a topic.</td>
<td>Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Credibility, Reliability, and Validity of Sources</strong></th>
<th><strong>Credibility, Reliability, and Validity of Sources</strong></th>
<th><strong>Credibility, Reliability, and Validity of Sources</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.1.4.PK.W</td>
<td>CC.1.4.K.W</td>
<td>CC.1.4.1.W</td>
</tr>
<tr>
<td>With guidance and support, recall information from experiences or books.</td>
<td>With guidance and support, recall information from experiences or gather information from provided sources to answer a question.</td>
<td>With guidance and support, recall information from experiences or gather information from provided sources to answer a question.</td>
</tr>
<tr>
<td>CC.1.4.1.W</td>
<td>CC.1.4.2.W</td>
<td>CC.1.4.3.W</td>
</tr>
<tr>
<td>Recall information from experiences or gather information from provided sources to answer a question.</td>
<td>Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.</td>
<td>Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.</td>
</tr>
<tr>
<td>CC.1.4.4.W</td>
<td>CC.1.4.5.W</td>
<td></td>
</tr>
<tr>
<td>Recall relevant information from experiences or gather relevant information from print and digital sources.</td>
<td>Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.</td>
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</tr>
</tbody>
</table>
1.4 Writing
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

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<th>Grade 5</th>
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</thead>
<tbody>
<tr>
<td>Intentionally Blank</td>
<td>CC.1.4.K.X Write routinely over short time frames.</td>
<td>CC.1.4.1.X Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
<td>CC.1.4.2.X Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
<td>CC.1.4.3.X Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
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<td>CC.1.4.5.X Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
</tr>
<tr>
<td>Grade</td>
<td>Comprehension and Collaboration</td>
<td>Collaborative Discussion</td>
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<tr>
<td>Pre K</td>
<td><strong>CC.1.5.PK.A</strong>&lt;br&gt;Participate in collaborative conversations with peers and adults in small and larger groups.</td>
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<tr>
<td>K</td>
<td><strong>CC.1.5.K.A</strong>&lt;br&gt;Participate in collaborative conversations with peers and adults in small and larger groups.</td>
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<tr>
<td>1</td>
<td><strong>CC.1.5.1.A</strong>&lt;br&gt;Participate in collaborative conversations with peers and adults in small and larger groups.</td>
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<td>2</td>
<td><strong>CC.1.5.2.A</strong>&lt;br&gt;Participate in collaborative conversations with peers and adults in small and larger groups.</td>
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<tr>
<td>3</td>
<td><strong>CC.1.5.3.A</strong>&lt;br&gt;Engage effectively in a range of collaborative discussions on grade-level topics and texts, building on others’ ideas and expressing their own clearly.</td>
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<td>4</td>
<td><strong>CC.1.5.4.A</strong>&lt;br&gt;Engage effectively in a range of collaborative discussions on grade-level topics and texts, building on others’ ideas and expressing their own clearly.</td>
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<td>5</td>
<td><strong>CC.1.5.5.A</strong>&lt;br&gt;Engage effectively in a range of collaborative discussions on grade-level topics and texts, building on others’ ideas and expressing their own clearly.</td>
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</tbody>
</table>
1.5 Speaking and Listening

Students present appropriately in formal speaking situations, listen critically, and respond intelligently as individuals or in group discussions.

<table>
<thead>
<tr>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
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</thead>
<tbody>
<tr>
<td><strong>Comprehension and Collaboration</strong></td>
<td><strong>Critical Listening</strong></td>
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<tr>
<td>CC.1.5.PK.B</td>
<td>Ask and answer questions about key details in a text read aloud or information presented orally or through other media.</td>
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<tr>
<td>CC.1.5.K.B</td>
<td>Answer questions about key details in a text read aloud or information presented orally or through other media.</td>
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<tr>
<td>CC.1.5.1.B</td>
<td>Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.</td>
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<tr>
<td>CC.1.5.2.B</td>
<td>Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.</td>
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<tr>
<td>CC.1.5.3.B</td>
<td>Determine the main ideas and supporting details of a text read aloud or information presented in diverse media formats, including visually, quantitatively, and orally.</td>
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<tr>
<td>CC.1.5.4.B</td>
<td>Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</td>
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<tr>
<td>CC.1.5.5.B</td>
<td>Summarize the main points of written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</td>
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</tbody>
</table>
# Speaking and Listening

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<td><strong>Comprehension and Collaboration</strong></td>
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<tr>
<td><strong>Evaluating Information</strong></td>
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<td>CC.1.5.PK.C</td>
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<tr>
<td>Respond to what a speaker says in order to follow directions, seek help, or gather information.</td>
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<td>CC.1.5.K.C</td>
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<tr>
<td>Ask and answer questions in order to seek help, get information, or clarify something that is not understood.</td>
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<td>CC.1.5.1.C</td>
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<tr>
<td>Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.</td>
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<tr>
<td>CC.1.5.2.C</td>
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<tr>
<td>Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.</td>
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<td>CC.1.5.3.C</td>
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<tr>
<td>Ask and answer questions about information from a speaker, offering appropriate detail.</td>
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<tr>
<td>CC.1.5.4.C</td>
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<tr>
<td>Identify the reasons and evidence a speaker provides to support particular points.</td>
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<tr>
<td>CC.1.5.5.C</td>
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<tr>
<td>Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.</td>
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</tbody>
</table>
### 1.5 Speaking and Listening
Students present appropriately in formal speaking situations, listen critically, and respond intelligently as individuals or in group discussions.

<table>
<thead>
<tr>
<th>Presentations of Knowledge and Ideas</th>
<th>Purpose, Audience, and Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Pre K</td>
<td>CC.1.5.PK.D</td>
</tr>
<tr>
<td>Grade K</td>
<td>CC.1.5.K.D</td>
</tr>
<tr>
<td>Grade 1</td>
<td>CC.1.5.1.D</td>
</tr>
<tr>
<td>Grade 2</td>
<td>CC.1.5.2.D</td>
</tr>
<tr>
<td>Grade 3</td>
<td>CC.1.5.3.D</td>
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<tr>
<td>Grade 4</td>
<td>CC.1.5.4.D</td>
</tr>
<tr>
<td>Grade 5</td>
<td>CC.1.5.5.D</td>
</tr>
</tbody>
</table>

**CC.1.5.PK.D**
Using simple sentences, share stories, familiar experiences, and interests, speaking clearly enough to be understood by most audiences.

**CC.1.5.K.D**
Share stories, familiar experiences, and events with relevant details, expressing ideas and feelings clearly.

**CC.1.5.1.D**
Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.

**CC.1.5.2.D**
Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.

**CC.1.5.3.D**
Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details; speak clearly with adequate volume, appropriate pacing, and clear pronunciation.

**CC.1.5.4.D**
Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly with adequate volume, appropriate pacing, and clear pronunciation.

**CC.1.5.5.D**
Report on a topic or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly with adequate volume, appropriate pacing, and clear pronunciation.
<table>
<thead>
<tr>
<th>1.5 Speaking and Listening</th>
<th>Students present appropriately in formal speaking situations, listen critically, and respond intelligently as individuals or in group discussions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Pre K</td>
<td>Grade K</td>
</tr>
<tr>
<td>Presentation of Knowledge and Ideas</td>
<td>CC.1.5.PK.E</td>
</tr>
<tr>
<td>Integration of Knowledge and Ideas Multimedia</td>
<td>Intentionally Blank</td>
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</tbody>
</table>
1.5 Speaking and Listening
Students present appropriately in formal speaking situations, listen critically, and respond intelligently as individuals or in group discussions.

<table>
<thead>
<tr>
<th>Conventions of Standard English</th>
<th>Grade Pre K</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.1.5.PK.G</td>
<td>CC.1.5.K.G</td>
<td>CC.1.5.1.G</td>
<td>CC.1.5.2.G</td>
<td>CC.1.5.3.G</td>
<td>CC.1.5.4.G</td>
<td>CC.1.5.5.G</td>
<td></td>
</tr>
<tr>
<td>Demonstrate command of the conventions of standard English when speaking, based on prekindergarten level and content.</td>
<td>Demonstrate command of the conventions of standard English when speaking, based on kindergarten level and content.</td>
<td>Demonstrate command of the conventions of standard English when speaking, based on Grade 1 level and content.</td>
<td>Demonstrate command of the conventions of standard English when speaking, based on Grade 2 level and content.</td>
<td>Demonstrate command of the conventions of standard English when speaking, based on Grade 3 level and content.</td>
<td>Demonstrate command of the conventions of standard English when speaking, based on Grade 4 level and content.</td>
<td>Demonstrate command of the conventions of standard English when speaking, based on Grade 5 level and content.</td>
<td></td>
</tr>
</tbody>
</table>
Pennsylvania Core Standards for English Language Arts

Grades 6-12

INTRODUCTION

These standards describe what students should know and be able to do at each grade level in English Language Arts. The English Language Arts Standards also provide parents and community members with information about what students should know and be able to do as they progress through school. These standards reflect research, best practices, and professional consensus about the English Language Arts curriculum, instruction, and assessment needed to prepare all students for college and career success.

**Academic Standards and Assessments**

By providing instruction in English Language Arts, schools are helping students develop the knowledge, skills, and dispositions needed to succeed in college and careers. These standards provide the foundation for instruction and student learning essential for success in all academic areas. These standards reflect the latest research and best practices in English Language Arts.
They progress through the educational program and at graduation. With a clearly defined target provided by the standards, parents, students, educators, and community members become partners in learning. Each standard implies an end-of-year goal—with the understanding that exceeding the standard is an even more desirable end goal.

Note: The Aligned Eligible Content is displayed with the standard statement. On Standard Aligned System portal, it is a live link.

**TABLE OF CONTENTS**

- **Foundational Skills (Pre K-5)** .................................... 1.1
  - Students gain a working knowledge of concepts of print, alphabetic principle, and other basic conventions. These foundational skills are not an end in and of themselves; rather, students apply them as effective readers.
    - Book Handling
    - Print Concepts
    - Phonological Awareness
    - Phonics and Word Recognition
    - Fluency

- **Reading Informational Text** .................................... 1.2
  - Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.
    - Key Ideas and Details
    - Craft and Structure
    - Integration of Knowledge and Ideas
    - Vocabulary Acquisition and Use
    - Range of Reading

- **Reading Literature** ............................................ 1.3
  - Students read and respond to works of literature—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.
    - Key Ideas and Details
    - Craft and Structure
    - Integration of Knowledge and Ideas
    - Vocabulary Acquisition and Use
    - Range of Reading

- **Writing** ........................................................ 1.4
  - Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.
    - Informative/Explanatory
    - Opinion/Argumentative
    - Narrative
    - Response to Literature
    - Production and Distribution of Writing
    - Technology and Publication
    - Conducting Research
    - Credibility, Reliability, and Validity of Sources
    - Range of Writing

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Note: The 6-8th Grade Content is displayed with the standard statement. These foundational skills are not an end in and of themselves; rather, students apply them as effective readers.

- **Range of Writing**
  - Communication, Reliability, and Validity of Sources
  - Conducting Research
  - Credibility, Reliability, and Validity of Sources

**TABLE OF CONTENTS**

- **6-8th Grade (F-K-5)**
  - Foundational Skills (Pre K-5)
    - Students gain a working knowledge of concepts of print, alphabetic principle, and other basic conventions. These foundational skills are not an end in and of themselves; rather, students apply them as effective readers.
      - Book Handling
      - Print Concepts
      - Phonological Awareness
      - Phonics and Word Recognition
      - Fluency

- **Reading Informational Text**
  - Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.
    - Key Ideas and Details
    - Craft and Structure
    - Integration of Knowledge and Ideas
    - Vocabulary Acquisition and Use
    - Range of Reading

- **Reading Literature**
  - Students read and respond to works of literature—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.
    - Key Ideas and Details
    - Craft and Structure
    - Integration of Knowledge and Ideas
    - Vocabulary Acquisition and Use
    - Range of Reading

- **Writing**
  - Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.
    - Informative/Explanatory
    - Opinion/Argumentative
    - Narrative
    - Response to Literature
    - Production and Distribution of Writing
    - Technology and Publication
    - Conducting Research
    - Credibility, Reliability, and Validity of Sources
    - Range of Writing
Students present appropriately in formal speaking situations, listen critically, and respond intelligently to individuals or in group discussions. Speaking and Listening: Comprehension of Knowledge and Ideas; Presentation of Knowledge and Ideas; Collaboration and Collaboration; Conventions of Standard English.
# 1.2 Reading Informational Text

Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Key Ideas and Details</th>
<th>Main Idea</th>
<th>Text Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 6</td>
<td>CC.1.2.6.A</td>
<td>Determine the central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments. E06.B-K.1.1.2</td>
</tr>
<tr>
<td>Grade 7</td>
<td>CC.1.2.7.A</td>
<td>Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text. E07.B-K.1.1.2</td>
</tr>
<tr>
<td>Grade 8</td>
<td>CC.1.2.8.A</td>
<td>Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text. E08.B-K.1.1.2</td>
</tr>
<tr>
<td>Grades 9-10</td>
<td>CC.1.2.9-10.A</td>
<td>Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</td>
</tr>
<tr>
<td>Grades 11-12</td>
<td>CC.1.2.11-12.A</td>
<td>Determine and analyze the relationship between two or more central ideas of a text, including the development and interaction of the central ideas; provide an objective summary of the text.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Ideas and Details</th>
<th>Text Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 6</td>
<td>CC.1.2.6.B</td>
</tr>
<tr>
<td>Grade 7</td>
<td>CC.1.2.7.B</td>
</tr>
<tr>
<td>Grade 8</td>
<td>CC.1.2.8.B</td>
</tr>
<tr>
<td>Grades 9-10</td>
<td>CC.1.2.9-10.B</td>
</tr>
<tr>
<td>Grades 11-12</td>
<td>CC.1.2.11-12.B</td>
</tr>
</tbody>
</table>

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### 1.2 Reading Informational Text

Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Key Ideas and Details</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grades 9-10</th>
<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text Analysis</td>
<td>CC.1.2.6.C</td>
<td>CC.1.2.7.C</td>
<td>CC.1.2.8.C</td>
<td>CC.1.2.9-10.C</td>
<td>CC.1.2.11-12.C</td>
</tr>
<tr>
<td></td>
<td>Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text.</td>
<td>Analyze the interactions between individuals, events, and ideas in a text.</td>
<td>Analyze how a text makes connections among and distinctions between individuals, ideas, or events.</td>
<td>Apply appropriate strategies to analyze, interpret, and evaluate how an author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.</td>
<td>Analyze the interaction and development of a complex set of ideas, sequence of events, or specific individuals over the course of the text.</td>
</tr>
<tr>
<td></td>
<td>E06.B-K.1.1.3</td>
<td>E07.B-K.1.1.3</td>
<td>E08.B-K.1.1.3</td>
<td>L.N.1.1.3</td>
<td>L.N.1.3.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L.N.2.3.3</td>
<td>L.N.2.3.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L.N.2.4.1</td>
<td>L.N.2.4.3</td>
</tr>
</tbody>
</table>
## 1.2 Reading Informational Text
Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
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<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Craft and Structure</strong></td>
<td><strong>Craft and Structure</strong></td>
<td><strong>Craft and Structure</strong></td>
<td><strong>Craft and Structure</strong></td>
<td><strong>Craft and Structure</strong></td>
</tr>
<tr>
<td><strong>Point of View</strong></td>
<td><strong>Point of View</strong></td>
<td><strong>Point of View</strong></td>
<td><strong>Point of View</strong></td>
<td><strong>Point of View</strong></td>
</tr>
<tr>
<td>CC.1.2.6.D</td>
<td>CC.1.2.7.D</td>
<td>CC.1.2.8.D</td>
<td>CC.1.2.9-10.D</td>
<td>CC.1.2.11-12.D</td>
</tr>
<tr>
<td>Determine an author’s point of view or purpose in a text and explain how it is conveyed in the text.</td>
<td>Determine an author’s point of view or purpose in a text and analyze how the author distinguishes his or her position from that of others.</td>
<td>Determine an author’s point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.</td>
<td>Determine an author’s particular point of view and analyze how rhetoric advances the point of view.</td>
<td>Evaluate how an author’s point of view or purpose shapes the content and style of a text.</td>
</tr>
<tr>
<td>E06.B-C.2.1.1</td>
<td>E07.B-C.2.1.1</td>
<td>E08.B-C.2.1.1</td>
<td>L.N.2.3.6</td>
<td></td>
</tr>
<tr>
<td><strong>Text Structure</strong></td>
<td><strong>Text Structure</strong></td>
<td><strong>Text Structure</strong></td>
<td><strong>Text Structure</strong></td>
<td><strong>Text Structure</strong></td>
</tr>
<tr>
<td>CC.1.2.6.E</td>
<td>CC.1.2.7.E</td>
<td>CC.1.2.8.E</td>
<td>CC.1.2.9-10.E</td>
<td>CC.1.2.11-12.E</td>
</tr>
<tr>
<td>Analyze the structure of the text through the use of paragraphs, chapters, or sections.</td>
<td>Analyze the structure of the text through evaluation of the author’s use of graphics, charts, and the major sections of the text.</td>
<td>Analyze the structure of the text through evaluation of the author’s use of specific sentences and paragraphs to develop and refine a concept.</td>
<td>Analyze in detail how an author’s ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text.</td>
<td>Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.</td>
</tr>
<tr>
<td>E06.B-C.2.1.2</td>
<td>E07.B-C.2.1.2</td>
<td>E08.B-C.2.1.2</td>
<td>L.N.1.1.3</td>
<td>L.N.1.3.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>L.N.2.4.1</td>
<td>L.N.2.4.3</td>
</tr>
</tbody>
</table>
### 1.2 Reading Informational Text

Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grades 9-10</th>
<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Craft and Structure Vocabulary</strong></td>
<td><strong>Integration of Knowledge and Ideas Diverse Media</strong></td>
<td><strong>Craft and Structure Vocabulary</strong></td>
<td><strong>Integration of Knowledge and Ideas Diverse Media</strong></td>
<td><strong>Craft and Structure Vocabulary</strong></td>
</tr>
<tr>
<td>CC.1.2.6.F Determine the meaning of words and phrases as they are used in grade-level reading and content, including interpretation of figurative language in context. E06.B-V.4.1.1 E06.B-V.4.1.2</td>
<td>CC.1.2.6.G Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.</td>
<td>CC.1.2.7.F Determine the meaning of words and phrases as they are used in grade-level reading and content, including interpretation of figurative, connotative, and technical meanings. E07.B-V.4.1.1 E07.B-V.4.1.2 E07.B-C.2.1.3</td>
<td>CC.1.2.7.G Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium’s portrayal of the subject (e.g., how the delivery of a speech affects the impact of the words).</td>
<td>CC.1.2.8.F Analyze the influence of the words and phrases in a text including figurative, connotative, and technical meanings, and how they shape meaning and tone. E08.B-V.4.1.1 E08.B-V.4.1.2 E08.B-C.2.1.3</td>
</tr>
<tr>
<td>CC.1.2.8.F Analyze how words and phrases shape meaning and tone in texts. C.C.1.2.9-10.F Analyze various accounts of a subject told in different mediums (e.g., a person’s life story in both print and multimedia), determining which details are emphasized in each account. L.N.2.2.3</td>
<td>CC.1.2.8.G Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.</td>
<td>CC.1.2.9-10.G Analyze how words and phrases shape meaning and tone in texts. L.N.1.1.4</td>
<td>CC.1.2.11-12.F Evaluate how words and phrases shape meaning and tone in texts.</td>
<td>CC.1.2.11-12.G Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.</td>
</tr>
</tbody>
</table>
### 1.2 Reading Informational Text

Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grades 9-10</th>
<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Integration of Knowledge and Ideas</strong></td>
<td><strong>Evaluating Arguments</strong></td>
<td><strong>Analyze seminal texts based upon reasoning, premises, purposes, and arguments.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluate an author’s argument by examining claims and determining if they are supported by evidence.</td>
<td>Evaluate an author’s argument, reasoning, and specific claims for the soundness of the argument and the relevance of the evidence.</td>
<td>Evaluate an author’s argument, reasoning, and specific claims for the soundness of the arguments and the relevance of the evidence.</td>
<td>Delineate and evaluate the argument and specific claims in a text, assessing the validity of reasoning and relevance of evidence.</td>
<td>Analyze seminal texts based upon reasoning, premises, purposes, and arguments.</td>
</tr>
<tr>
<td>E06.B-C.3.1.1</td>
<td>E07.B-C.3.1.1</td>
<td>E08.B-C.3.1.1</td>
<td>L.N.2.5.4</td>
<td>L.N.2.5.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Integration of Knowledge and Ideas</th>
<th><strong>Analysis Across Texts</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.1.2.6.I</td>
<td>CC.1.2.7.I</td>
</tr>
<tr>
<td>Examine how two authors present similar information in different types of text.</td>
<td>Analyze how two or more authors present and interpret facts on the same topic.</td>
</tr>
<tr>
<td>E06.B-C.3.1.2</td>
<td>E07.B-C.3.1.2</td>
</tr>
<tr>
<td>Analyze two or more texts that provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.</td>
<td>Analyze seminal U.S. documents of historical and literary significance, including how they address related themes and concepts.</td>
</tr>
<tr>
<td>E08.B-C.3.1.2</td>
<td>L.N.2.5.4</td>
</tr>
<tr>
<td>Analyze foundational U.S. and world documents of historical, political, and literary significance for their themes, purposes, and rhetorical features.</td>
<td></td>
</tr>
</tbody>
</table>
### 1.2 Reading Informational Text

Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Vocabulary Acquisition and Use</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grades 9-10</th>
<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.1.2.6.J</td>
<td>Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.</td>
<td>E06.B-V.4.1.1</td>
<td>E07.B-V.4.1.1</td>
<td>E08.B-V.4.1.1</td>
<td>E08.B-V.4.1.2</td>
</tr>
<tr>
<td>CC.1.2.7.J</td>
<td>Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.</td>
<td>E07.B-V.4.1.1</td>
<td>E08.B-V.4.1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC.1.2.8.J</td>
<td>Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.</td>
<td>E08.B-V.4.1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC.1.2.9-10.J</td>
<td>Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college- and career-readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.</td>
<td>L.N.1.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC.1.2.11-12.J</td>
<td>Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college- and career-readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.</td>
<td>L.N.1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

L.N.1.2.1
### 1.2 Reading Informational Text

Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grades 9-10</th>
<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.</td>
<td>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.</td>
<td>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.</td>
<td>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.</td>
<td></td>
</tr>
<tr>
<td>E06.B-V.4.1.1</td>
<td>E07.B-V.4.1.1</td>
<td>E08.B-V.4.1.1</td>
<td>L.N.1.2.1</td>
<td>L.N.1.2.2</td>
</tr>
<tr>
<td>L.N.1.2.3</td>
<td>L.N.1.2.4</td>
<td></td>
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</tbody>
</table>

### Range of Reading

<table>
<thead>
<tr>
<th>CC.1.2.6.L</th>
<th>CC.1.2.7.L</th>
<th>CC.1.2.8.L</th>
<th>CC.1.2.9-10.L</th>
<th>CC.1.2.11-12.L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.</td>
<td>Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.</td>
<td>Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.</td>
<td>Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.</td>
<td>Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.</td>
</tr>
</tbody>
</table>
## 1.3 Reading Literature

Students read and respond to works of literature—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

<table>
<thead>
<tr>
<th>Key Ideas and Details</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grades 9-10</th>
<th>Grades 11-12</th>
</tr>
</thead>
</table>
| Theme                 | CC.1.3.6.A  
Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.  
E06.A-K.1.1.2 | CC.1.3.7.A  
Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text.  
E07.A-K.1.1.2 | CC.1.3.8.A  
Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text.  
E08.A-K.1.1.2 | CC.1.3.9-10.A  
Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.  
L.F.1.1.2  
L.F.1.3.1  
L.F.1.3.2  
L.F.2.3.4 | CC.1.3.11-12.A  
Determine and analyze the relationship between two or more themes or central ideas of a text, including the development and interaction of the themes; provide an objective summary of the text.  
L.F.1.1.2  
L.F.1.3.1  
L.F.1.3.2  
L.F.2.3.4 |
# Reading Literature

Students read and respond to works of literature—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

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<tr>
<td><strong>Key Ideas and Details</strong></td>
<td><strong>Text Analysis</strong></td>
<td><strong>Literary Elements</strong></td>
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<td><strong>Literary Elements</strong></td>
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<tr>
<td>CC.1.3.6.B</td>
<td>Cite textual evidence to support analysis of what the text says explicitly, as well as inferences and/or generalizations drawn from the text.</td>
<td>CC.1.3.6.C</td>
<td>Describe how a particular story or drama’s plot unfolds in a series of episodes, as well as how the characters respond or change as the plot moves toward a resolution.</td>
<td>E06.A-K.1.1.1</td>
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<tr>
<td>E06.A-K.1.1.1</td>
<td>CC.1.3.7.B</td>
<td>CC.1.3.7.C</td>
<td>Analyze how particular elements of a story or drama interact and how setting shapes the characters or plot.</td>
<td>E07.A-K.1.1.3</td>
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<td></td>
<td>CC.1.3.8.B</td>
<td>CC.1.3.8.C</td>
<td>Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.</td>
<td>E08.A-K.1.1.3</td>
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<td>CC.1.3.9-10.B</td>
<td>CC.1.3.9-10.C</td>
<td>Analyze how complex characters develop over the course of a text, interact with other characters, and advance the plot or develop the theme.</td>
<td>L.F.1.1.3, L.F.2.3.1, L.F.2.3.4</td>
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<td></td>
<td>CC.1.3.11-12.B</td>
<td>CC.1.3.11-12.C</td>
<td>Analyze the impact of the author’s choices regarding how to develop and relate elements of a story or drama.</td>
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**CC.1.3.6.B**
Cite textual evidence to support analysis of what the text says explicitly, as well as inferences and/or generalizations drawn from the text.

**E06.A-K.1.1.1**
Cite several pieces of textual evidence to support analysis of what the text says explicitly, as well as inferences, conclusions, and/or generalizations drawn from the text.

**E07.A-K.1.1.1**
Cite the textual evidence that most strongly supports an analysis of what the text says explicitly, as well as inferences, conclusions, and/or generalizations drawn from the text.

**E08.A-K.1.1.1**
Cite strong and thorough textual evidence to support analysis of what the text says explicitly, as well as inferences and conclusions based on an author’s explicit assumptions and beliefs about a subject.

**L.F.1.1.1, L.F.1.3.1, L.F.2.1.2**
Cite strong and thorough textual evidence to support analysis of what the text says explicitly, as well as inferences and conclusions based on an author’s implicit and explicit assumptions and beliefs.
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<td>CC.1.3.6.D</td>
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<td>CC.1.3.8.D</td>
<td>CC.1.3.9-10.D</td>
<td>CC.1.3.11-12.D</td>
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<tr>
<td>Determine an author’s purpose in a text and explain how it is conveyed in a text.</td>
<td>Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.</td>
<td>Analyze how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.</td>
<td>Determine the point of view of the text and analyze the impact the point of view has on the meaning of the text.</td>
<td>Evaluate how an author’s point of view or purpose shapes the content and style of a text.</td>
</tr>
<tr>
<td>E06.A-C.2.1.1</td>
<td>E07.A-C.2.1.1</td>
<td>E08.A-C.2.1.1</td>
<td>L.F.2.3.6</td>
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<tr>
<td><strong>Text Structure</strong></td>
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<td>CC.1.3.11-12.E</td>
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<tr>
<td>Analyze how the structure of a text contributes to the development of theme, setting, and plot.</td>
<td>Analyze how the structure or form of a text contributes to its meaning.</td>
<td>Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.</td>
<td>Analyze how an author’s choices concerning how to structure a text, order events within it, and manipulate time create an effect.</td>
<td>Evaluate the structure of texts including how specific sentences, paragraphs, and larger portions of the texts relate to each other and the whole.</td>
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<tr>
<td>E06.A-C.2.1.2</td>
<td>E07.A-C.2.1.2</td>
<td>E08.A-C.2.1.2</td>
<td>L.F.1.1.3</td>
<td>L.F.2.3.2</td>
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<td>L.F.2.3.3</td>
<td>L.F.2.5.3</td>
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<td>Integration of Knowledge and Ideas</td>
<td>Craft and Structure Vocabulary</td>
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<td><strong>CC.1.3.6.G</strong></td>
<td>Determine the meaning of words and phrases as they are used in grade-level reading and content, including interpretation of figurative meanings.</td>
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<td><strong>CC.1.3.7.G</strong></td>
<td>Determine the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by directors and actors.</td>
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<td><strong>CC.1.3.8.G</strong></td>
<td>Analyze the representation of a subject or a key scene in two different artistic media, including what is emphasized or absent in each treatment.</td>
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<td><strong>CC.1.3.9-10.G</strong></td>
<td>Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play; recorded novel or poem), evaluating the extent to which each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)</td>
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**Craft and Structure Vocabulary**

| **CC.1.3.6.F**                  | Determine the meaning of words and phrases as they are used in grade-level reading and content, including interpretation of figurative language in context. |
| **CC.1.3.7.F**                  | Analyze the influence of the words and phrases in a text, including figurative and connotative meanings and how they shape meaning and tone. |
| **CC.1.3.8.F**                  | Analyze how words and phrases shape meaning and tone in texts. |
| **CC.1.3.9-10.F**               | Evaluate how words and phrases shape meaning and tone in texts. |

**Integration of Knowledge and Ideas**

| **CC.1.3.6.E**                  | Compare and contrast the experiences of reading a story, drama, or poem to listening to or viewing an audio, video, or live performance of the same text, analyzing the extent to which the medium shapes the experience of reading or watching. |
| **CC.1.3.7.E**                  | Compare and contrast a written story, drama, or poem to its audio, filmed, staged, or multimediaversion, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, or camera focus and angles). |
| **CC.1.3.8.E**                  | Analyze the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by directors and actors. |
| **CC.1.3.9-10.E**               | Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play; recorded novel or poem), evaluating the extent to which each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.) |
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<tr>
<td><strong>Integration of Knowledge and Ideas</strong>&lt;br&gt;<strong>CC.1.3.6.H</strong>&lt;br&gt;Compare and contrast texts in different forms or genres in terms of their approaches to similar themes and topics as well as their use of additional literary elements.&lt;br&gt;E06.A-C.3.1.1</td>
<td><strong>CC.1.3.7.H</strong>&lt;br&gt;Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.&lt;br&gt;E07.A-C.3.1.1</td>
<td><strong>CC.1.3.8.H</strong>&lt;br&gt;Analyze how a modern work of fiction draws on themes, patterns of events, or character types from traditional works, including describing how the material is rendered new.&lt;br&gt;E08.A-C.3.1.1</td>
<td><strong>CC.1.3.9-10.H</strong>&lt;br&gt;Analyze how an author draws on and transforms themes, topics, character types, and/or other text elements from source material in a specific work.&lt;br&gt;L.F.2.2.2&lt;br&gt;L.F.2.4.1</td>
<td><strong>CC.1.3.11-12.H</strong>&lt;br&gt;Demonstrate knowledge of foundational works of literature that reflect a variety of genres in the respective major periods of literature, including how two or more texts from the same period treat similar themes or topics.</td>
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| **Vocabulary Acquisition and Use**<br>**CC.1.3.6.I**<br>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.<br>E06.A-V.4.1.1 | **CC.1.3.7.I**<br>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.<br>E07.A-V.4.1.1 | **CC.1.3.8.I**<br>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.<br>E08.A-V.4.1.1 | **CC.1.3.9-10.I**<br>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools.<br>L.F.1.2.1<br>L.F.1.2.2<br>L.F.1.2.3<br>L.F.1.2.4 | **CC.1.3.11-12.I**<br>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools. |
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<td>CC.1.3.6.J</td>
<td>Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.</td>
<td>CC.1.3.7.J</td>
<td>Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.</td>
<td>CC.1.3.8.J</td>
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<td><strong>Range of Reading</strong></td>
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<td>CC.1.3.6.K</td>
<td>Read and comprehend literary fiction on grade level, reading independently and proficiently.</td>
<td>CC.1.3.7.K</td>
<td>Read and comprehend literary fiction on grade level, reading independently and proficiently.</td>
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<tr>
<td>CC.1.3.11-12.J</td>
<td>Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college- and career-readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.</td>
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<tr>
<td>L.F.1.2.1</td>
<td>L.F.1.2.2</td>
<td>L.F.1.2.3</td>
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### Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

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<tr>
<td><strong>Informative/Explanatory</strong></td>
<td>CC.1.4.6.A Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information clearly.</td>
<td>CC.1.4.7.A Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information clearly.</td>
<td>CC.1.4.8.A Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information clearly.</td>
<td>CC.1.4.9-10.A Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately.</td>
<td>CC.1.4.11-12.A Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately.</td>
</tr>
<tr>
<td><strong>Informative/Explanatory Focus</strong></td>
<td>CC.1.4.6.B Identify and introduce the topic for the intended audience. E06.C.1.2.1 E06.E.1.1.1</td>
<td>CC.1.4.7.B Identify and introduce the topic clearly, including a preview of what is to follow. E07.C.1.2.1 E07.E.1.1.1</td>
<td>CC.1.4.8.B Identify and introduce the topic clearly, including a preview of what is to follow. E08.C.1.2.1 E08.E.1.1.1</td>
<td>CC.1.4.9-10.B Write with a sharp, distinct focus identifying topic, task, and audience. C.E.1.1.1</td>
<td>CC.1.4.11-12.B Write with a sharp, distinct focus identifying topic, task, and audience.</td>
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<td>Develop and analyze the topic with relevant facts, definitions, concrete details, quotations, or other information and examples; include graphics and multimedia when useful to aiding comprehension.</td>
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<td>Develop and analyze the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples; include graphics and multimedia when useful to aiding comprehension.</td>
<td>Develop and analyze the topic with relevant, well-chosen, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic; include graphics and multimedia when useful to aiding comprehension.</td>
<td>Develop and analyze the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic; include graphics and multimedia when useful to aiding comprehension.</td>
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<tr>
<td>E06.C.1.2.2</td>
<td>E07.C.1.2.2</td>
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<td>Organize ideas, concepts, and information using strategies such as definition, classification, comparison/contrast, and cause/effect; use appropriate transitions to clarify the relationships among ideas and concepts; provide a concluding statement or section; include formatting when useful to aiding comprehension.</td>
<td>Organize ideas, concepts, and information into broader categories; use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts; provide a concluding statement or section; include formatting when useful to aiding comprehension.</td>
<td>Organize ideas, concepts, and information to make important connections and distinctions; use appropriate and varied transitions to link the major sections of the text; include formatting when useful to aiding comprehension; provide a concluding statement or section.</td>
<td>Organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a whole; use appropriate and varied transitions and syntax to link the major sections of the text; provide a concluding statement or section that supports the information presented; include formatting when useful to aiding comprehension.</td>
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<td><strong>CC.1.4.9-10.E</strong></td>
<td><strong>CC.1.4.11-12.E</strong></td>
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<td>Write with an awareness of the stylistic aspects of composition. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Use sentences of varying lengths and complexities. • Develop and maintain a consistent voice. • Establish and maintain a formal style.</td>
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<td>Write with an awareness of the stylistic aspects of composition. • Use precise language and domain-specific vocabulary to manage the complexity of the topic. • Establish and maintain a formal style and objective tone while attending to the norms of the discipline in which they are writing.</td>
<td>Write with an awareness of the stylistic aspects of composition. • Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. • Establish and maintain a formal style and objective tone while attending to the norms of the discipline in which they are writing.</td>
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<td>E06.C.1.2.4</td>
<td>E07.C.1.2.4</td>
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| **CC.1.4.6.F**
Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling. | **CC.1.4.7.F**
Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling. | **CC.1.4.8.F**
Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling. | **CC.1.4.9-10.F**
Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling. | **CC.1.4.11-12.F**
Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling. |
| E06.D.1.1.1 | E06.D.1.1.2 | E06.D.1.1.3 | E06.D.1.1.4 | E06.D.1.1.5 |
| E06.D.1.1.6 | E06.D.1.1.7 | E06.D.1.1.8 | E06.D.1.2.1 | E06.D.1.2.2 |
| E06.D.1.2.3 | E07.D.1.1.1 | E07.D.1.1.2 | E07.D.1.1.3 | E07.D.1.1.4 |
| E07.D.1.1.5 | E07.D.1.1.6 | E07.D.1.1.7 | E07.D.1.1.8 | E07.D.1.1.9 |
| E07.D.1.2.1 | E07.D.1.2.2 | E07.D.1.2.3 | E07.D.1.2.4 | E07.D.1.2.5 |
| E07.D.1.2.6 | E07.D.1.2.7 | E07.D.1.2.8 | E07.D.1.2.9 | E07.D.1.2.10 |
| E07.D.1.2.16 | E07.D.1.2.17 | E07.D.1.2.18 | E07.D.1.2.19 | E07.D.1.2.20 |
| E07.D.1.2.21 | E07.D.1.2.22 | E07.D.1.2.23 | E07.D.1.2.24 | E07.D.1.2.25 |
## Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grades 9-10</th>
<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write arguments to support claims.</td>
<td>Write arguments to support claims.</td>
<td>Write arguments to support claims.</td>
<td>Write arguments to support claims in an analysis of substantive topics.</td>
<td>Write arguments to support claims in an analysis of substantive topics.</td>
</tr>
</tbody>
</table>

### Opinion/Argumentative Focus

| E06.C.11.1 | E07.C.11.1 | E08.C.11.1 | E08.C.11.1 | E08.C.11.1 |
| Introduce and state an opinion on a topic. | Introduce and state an opinion on a topic. | Introduce and state an opinion on a topic. | Write with a sharp, distinct focus identifying topic, task, and audience. | Write with a sharp, distinct focus identifying topic, task, and audience. |
| E06.E.11.1 | E07.E.11.1 | E08.E.11.1 | • Introduce the precise claim. | • Introduce the precise, knowledgeable claim. |
| Introduce the precise claim. | |
| C.P.11.1 | | |

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## Writing

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<tbody>
<tr>
<td><strong>Opinion/Argumentative Content</strong></td>
<td><strong>Opinion/Argumentative Content</strong></td>
<td><strong>Opinion/Argumentative Content</strong></td>
<td><strong>Opinion/Argumentative Content</strong></td>
<td><strong>Opinion/Argumentative Content</strong></td>
</tr>
<tr>
<td>CC.1.4.6.I Use clear reasons and relevant evidence to support claims, using credible sources and demonstrating an understanding of the topic. E06.C.1.1.2 E06.E.1.1.2</td>
<td>CC.1.4.7.I Acknowledge alternate or opposing claims and support claim with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic. E07.C.1.1.2 E07.E.1.1.2</td>
<td>CC.1.4.8.I Acknowledge and distinguish the claim(s) from alternate or opposing claims and support claim with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic. E08.C.1.1.2 E08.E.1.1.2</td>
<td>CC.1.4.9-10.I Distinguish the claim(s) from alternate or opposing claims; develop claim(s) fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience’s knowledge level and concerns. C.P.1.1.2 C.P.1.1.3</td>
<td>CC.1.4.11-12.I Distinguish the claim(s) from alternate or opposing claims; develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience’s knowledge level, concerns, values, and possible biases.</td>
</tr>
</tbody>
</table>
### Writing

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<tr>
<td>Organize the claim(s) with clear reasons and evidence clearly; clarify relationships among claim(s) and reasons by using words, phrases, and clauses; provide a concluding statement or section that follows from the argument presented.</td>
<td>Organize the claim(s) with clear reasons and evidence clearly; clarify relationships among claim(s) and reasons by using words, phrases, and clauses to create cohesion; provide a concluding statement or section that follows from and supports the argument presented.</td>
<td>Organize the claim(s) with clear reasons and evidence clearly; clarify relationships among claim(s), counterclaims, reasons, and evidence; use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims; provide a concluding statement or section that follows from and supports the argument presented.</td>
<td>Create organization that logically sequences claim(s), counterclaims, reasons, and evidence; use words, phrases, and clauses as well as varied syntax to link the major sections of the text to create cohesion and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims; provide a concluding statement or section that follows from and supports the argument presented.</td>
<td>Create organization that logically sequences claim(s), counterclaims, reasons, and evidence; use words, phrases, and clauses as well as varied syntax to link the major sections of the text to create cohesion and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims; provide a concluding statement or section that follows from and supports the argument presented.</td>
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<td>E06.C.1.1.1</td>
<td>E06.C.1.1.3</td>
<td>E06.C.1.1.5</td>
<td>E06.E.1.1.1</td>
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<td>E08.E.1.1.1</td>
<td>E08.E.1.1.3</td>
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<tr>
<td>Write with an awareness of the stylistic aspects of composition. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Use sentences of varying lengths and complexities. • Develop and maintain a consistent voice. • Establish and maintain a formal style.</td>
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<td>Write with an awareness of the stylistic aspects of composition. • Use precise language and domain-specific vocabulary to manage the complexity of the topic. • Establish and maintain a formal style and objective tone while attending to the norms of the discipline in which they are writing.</td>
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<tr>
<td>E06.C.1.1.4</td>
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<tr>
<td>CC.1.4.6.L</td>
<td>CC.1.4.7.L</td>
<td>CC.1.4.8.L</td>
<td>CC.1.4.9-10.L</td>
<td>CC.1.4.11-12.L</td>
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<td>E08.D.1.1.3</td>
<td>C.P.3.1.2</td>
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<td>E07.D.1.1.4</td>
<td>E08.D.1.1.4</td>
<td>C.P.3.1.3</td>
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<td>E08.D.1.1.6</td>
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<td>E08.D.1.1.7</td>
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<td>E08.D.1.1.10</td>
<td>E08.D.1.1.10</td>
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</table>
### 1.4 Writing
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
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<tr>
<th>Narrative Focus</th>
<th>Grade 6</th>
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<th>Grades 9-10</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Narrative</strong></td>
<td><strong>CC.1.4.6.M</strong> Write narratives to develop real or imagined experiences or events.</td>
<td><strong>CC.1.4.7.M</strong> Write narratives to develop real or imagined experiences or events.</td>
<td><strong>CC.1.4.8.M</strong> Write narratives to develop real or imagined experiences or events.</td>
<td><strong>CC.1.4.9-10.M</strong> Write narratives to develop real or imagined experiences or events.</td>
<td><strong>CC.1.4.11-12.M</strong> Write narratives to develop real or imagined experiences or events.</td>
</tr>
<tr>
<td><strong>Narrative Focus</strong></td>
<td><strong>CC.1.4.6.N</strong> Engage and orient the reader by establishing a context and introducing a narrator and/or characters. E06.C.1.3.1</td>
<td><strong>CC.1.4.7.N</strong> Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters. E07.C.1.3.1</td>
<td><strong>CC.1.4.8.N</strong> Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters. E08.C.1.3.1</td>
<td><strong>CC.1.4.9-10.N</strong> Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple points of view, and introducing a narrator and/or characters.</td>
<td><strong>CC.1.4.11-12.N</strong> Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple points of view, and introducing a narrator and/or characters.</td>
</tr>
</tbody>
</table>
1.4 Writing

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</tr>
</thead>
<tbody>
<tr>
<td>CC.1.4.6.O</td>
<td>E06.C.1.3.2</td>
<td>Use narrative techniques such as dialogue, description, and pacing to develop experiences, events, and/or characters; use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events.</td>
<td>E07.C.1.3.2</td>
<td>E08.C.1.3.2</td>
<td>Use narrative techniques such as dialogue, description, reflection, and pacing to develop experiences, events, and/or characters; use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.</td>
</tr>
<tr>
<td>CC.1.4.7.O</td>
<td>E06.C.1.3.4</td>
<td>Use narrative techniques such as dialogue, description, and pacing to develop experiences, events, and/or characters; use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events.</td>
<td>E07.C.1.3.4</td>
<td>E08.C.1.3.4</td>
<td>Use narrative techniques such as dialogue, description, reflection, and pacing to develop experiences, events, and/or characters; use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.</td>
</tr>
<tr>
<td>CC.1.4.8.O</td>
<td>E06.C.1.3.2</td>
<td>Use narrative techniques such as dialogue, description, reflection, and pacing to develop experiences, events, and/or characters; use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.</td>
<td>E07.C.1.3.2</td>
<td>E08.C.1.3.2</td>
<td>Use narrative techniques such as dialogue, description, reflection, multiple plotlines, and pacing to develop experiences, events, and/or characters; use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, settings, and/or characters.</td>
</tr>
<tr>
<td>CC.1.4.9-10.O</td>
<td>E06.C.1.3.4</td>
<td>Use narrative techniques such as dialogue, description, reflection, multiple plotlines, and pacing to develop experiences, events, and/or characters; use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, settings, and/or characters.</td>
<td>E07.C.1.3.4</td>
<td>E08.C.1.3.4</td>
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<td>CC.1.4.11-12.O</td>
<td>E06.C.1.3.2</td>
<td>Use narrative techniques such as dialogue, description, reflection, multiple plotlines, and pacing to develop experiences, events, and/or characters; use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, settings, and/or characters.</td>
<td>E07.C.1.3.2</td>
<td>E08.C.1.3.2</td>
<td>Use narrative techniques such as dialogue, description, reflection, multiple plotlines, and pacing to develop experiences, events, and/or characters; use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, settings, and/or characters.</td>
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<tr>
<td></td>
<td>Organize an event sequence that unfolds naturally and logically, using a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another; provide a conclusion that follows from the narrated experiences and events.</td>
<td>Organize an event sequence that unfolds naturally and logically, using a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another; provide a conclusion that follows from and reflects on the narrated experiences and events.</td>
<td>Organize an event sequence that unfolds naturally and logically, using a variety of transition words, phrases, and clauses to convey sequence, signal shifts from one time frame or setting to another and show the relationships among experiences and events; provide a conclusion that follows from and reflects on the narrated experiences or events.</td>
<td>Create a smooth progression of experiences or events using a variety of techniques to sequence events so that they build on one another to create a coherent whole; provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.</td>
<td>Create a smooth progression of experiences or events using a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome; provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.</td>
</tr>
<tr>
<td></td>
<td>E06.C.1.3.1 E06.C.1.3.3 E06.C.1.3.5</td>
<td>E07.C.1.3.1 E07.C.1.3.3 E07.C.1.3.5</td>
<td>E08.C.1.3.1 E08.C.1.3.3 E08.C.1.3.5</td>
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<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Narrative Style</strong></td>
<td><strong>CC.1.4.6.Q</strong></td>
<td><strong>CC.1.4.7.Q</strong></td>
<td><strong>CC.1.4.8.Q</strong></td>
<td><strong>CC.1.4.9-10.Q</strong></td>
</tr>
<tr>
<td></td>
<td>Write with an awareness of the stylistic aspects of writing.</td>
<td>Write with an awareness of the stylistic aspects of writing.</td>
<td>Write with an awareness of the stylistic aspects of writing.</td>
<td>Write with an awareness of the stylistic aspects of writing.</td>
</tr>
<tr>
<td></td>
<td>• Vary sentence patterns for meaning, reader/listener interest, and style.</td>
<td>• Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.</td>
<td>• Use verbs in the active and passive voice and in the conditional and subjunctive mood to achieve particular effects.</td>
<td>• Use parallel structure.</td>
</tr>
<tr>
<td></td>
<td>• Use precise language.</td>
<td>• Use sentences of varying lengths and complexities.</td>
<td>• Use sentences of varying lengths and complexities.</td>
<td>• Use parallel structure.</td>
</tr>
<tr>
<td></td>
<td>• Develop and maintain a consistent voice.</td>
<td>• Use precise language.</td>
<td>• Create tone and voice through precise language.</td>
<td>• Use various types of phrases and clauses to convey meaning and add variety and interest.</td>
</tr>
<tr>
<td></td>
<td>E06.C.1.3.4</td>
<td>E07.C.1.3.4</td>
<td>E08.C.1.3.4</td>
<td>E08.D.2.1.1</td>
</tr>
<tr>
<td></td>
<td>E06.D.2.1.1</td>
<td>E07.D.2.1.1</td>
<td>E08.D.2.1.2</td>
<td>E08.D.2.1.2</td>
</tr>
<tr>
<td></td>
<td>E06.D.2.1.2</td>
<td>E07.D.2.1.2</td>
<td>E08.D.2.1.3</td>
<td>E08.D.2.1.3</td>
</tr>
<tr>
<td></td>
<td>E06.D.2.1.3</td>
<td>E07.D.2.1.3</td>
<td>E08.D.2.1.4</td>
<td>E08.D.2.1.4</td>
</tr>
<tr>
<td></td>
<td>E06.D.2.1.4</td>
<td>E07.D.2.1.4</td>
<td>E08.D.2.1.5</td>
<td>E08.D.2.1.5</td>
</tr>
<tr>
<td></td>
<td>E06.D.2.1.5</td>
<td>E07.D.2.1.5</td>
<td>E08.D.2.1.6</td>
<td>E08.D.2.1.6</td>
</tr>
</tbody>
</table>

**CC.1.4.11-12.Q**

Write with an awareness of the stylistic aspects of writing.

• Use parallel structure.
• Use various types of phrases and clauses to convey specific meanings and add variety and interest.
• Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
### Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grades 9-10</th>
<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>E06.D.1.1.1</td>
<td>E07.D.1.1.1</td>
<td>E08.D.1.1.1</td>
<td>Demonstrate a grade-appropriate command of the conventions of standard English grammar, usage, capitalization, punctuation, and spelling.</td>
<td></td>
</tr>
<tr>
<td>E06.D.1.1.2</td>
<td>E07.D.1.1.2</td>
<td>E08.D.1.1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E06.D.1.1.3</td>
<td>E07.D.1.1.3</td>
<td>E08.D.1.1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E06.D.1.1.4</td>
<td>E07.D.1.1.4</td>
<td>E08.D.1.1.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E06.D.1.1.5</td>
<td>E07.D.1.1.5</td>
<td>E08.D.1.1.5</td>
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<tr>
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<td>E07.D.1.1.6</td>
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<td>E06.D.1.1.7</td>
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<td>E06.D.1.1.8</td>
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<tr>
<td>E06.D.1.2.1</td>
<td>E07.D.1.1.9</td>
<td>E08.D.1.1.9</td>
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<td></td>
</tr>
<tr>
<td>E06.D.1.2.2</td>
<td>E07.D.1.2.1</td>
<td>E08.D.1.1.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E06.D.1.2.3</td>
<td>E07.D.1.2.2</td>
<td>E08.D.1.1.11</td>
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<td></td>
</tr>
<tr>
<td>E06.D.1.2.3</td>
<td>E07.D.1.2.3</td>
<td>E08.D.1.2.1</td>
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<tr>
<td>E07.D.1.2.4</td>
<td>E07.D.1.2.4</td>
<td>E08.D.1.2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E07.D.1.2.4</td>
<td>E07.D.1.2.5</td>
<td>E08.D.1.2.3</td>
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# 1.4 Writing

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</tr>
</thead>
<tbody>
<tr>
<td>Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade-level reading standards for literature and literary nonfiction.</td>
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<td>E07.E.1.1.1</td>
<td>E08.E.1.1.1</td>
<td>E08.E.1.1.1</td>
<td>E08.E.1.1.1</td>
</tr>
<tr>
<td>E06.E.1.1.2</td>
<td>E07.E.1.1.2</td>
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<td>E06.E.1.1.3</td>
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<td>E08.E.1.1.5</td>
</tr>
<tr>
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<td>E07.E.1.1.6</td>
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<td>E08.E.1.1.6</td>
</tr>
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</table>
## 1.4 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

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<th>Grade 8</th>
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<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.1.4.6.T</td>
<td>With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.</td>
<td>CC.1.4.7.T</td>
<td>With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</td>
<td>CC.1.4.8.T</td>
</tr>
<tr>
<td>CC.1.4.6.U</td>
<td>Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three pages in a single sitting.</td>
<td>CC.1.4.7.U</td>
<td>Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.</td>
<td>CC.1.4.8.U</td>
</tr>
<tr>
<td>CC.1.4.9-10.U</td>
<td>Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</td>
<td>CC.1.4.9-10.U</td>
<td>Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments and information.</td>
<td>CC.1.4.11-12.U</td>
</tr>
</tbody>
</table>
### 1.4 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Conducting Research</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grades 9-10</th>
<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.</td>
<td>Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.</td>
<td>Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</td>
<td>Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</td>
<td>Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</td>
<td></td>
</tr>
</tbody>
</table>
## Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Credibility, Reliability, and Validity of Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CC.1.4.6.W</strong></td>
</tr>
<tr>
<td><strong>CC.1.4.7.W</strong></td>
</tr>
<tr>
<td><strong>CC.1.4.8.W</strong></td>
</tr>
<tr>
<td><strong>CC.1.4.9-10.W</strong></td>
</tr>
<tr>
<td><strong>CC.1.4.11-12.W</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Range of Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CC.1.4.6.X</strong></td>
</tr>
<tr>
<td><strong>CC.1.4.7.X</strong></td>
</tr>
<tr>
<td><strong>CC.1.4.8.X</strong></td>
</tr>
<tr>
<td><strong>CC.1.4.9-10.X</strong></td>
</tr>
<tr>
<td><strong>CC.1.4.11-12.X</strong></td>
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<tr>
<td></td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td><strong>1.5 Speaking and Listening</strong></td>
</tr>
<tr>
<td><strong>Students present appropriately in formal speaking situations, listen critically, and respond intelligently as individuals or in group discussions.</strong></td>
</tr>
<tr>
<td><strong>Comprehension and Collaboration</strong></td>
</tr>
<tr>
<td><strong>Collaborative Discussion</strong></td>
</tr>
<tr>
<td>Engage effectively in a range of collaborative discussions, on grade-level topics, texts, and issues, building on others’ ideas and expressing their own clearly.</td>
</tr>
<tr>
<td><strong>Critical Listening</strong></td>
</tr>
<tr>
<td>Delineate a speaker’s argument and specific claims by identifying specific reasons and evidence and recognize arguments or claims not supported by factual evidence.</td>
</tr>
<tr>
<td>Evaluate a speaker’s perspective, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.</td>
</tr>
</tbody>
</table>
## 1.5 Speaking and Listening

Students present appropriately in formal speaking situations, listen critically, and respond intelligently as individuals or in group discussions.

<table>
<thead>
<tr>
<th></th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grades 9-10</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Comprehension and Collaboration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluating Information</td>
<td>CC.1.5.6.C</td>
<td>CC.1.5.7.C</td>
<td>CC.1.5.8.C</td>
<td>CC.1.5.9-10.C</td>
<td>CC.1.5.11-12.C</td>
</tr>
<tr>
<td>Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Presentation of Knowledge and Ideas</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purpose, Audience, and Task</td>
<td>CC.1.5.6.D</td>
<td>CC.1.5.7.D</td>
<td>CC.1.5.8.D</td>
<td>CC.1.5.9-10.D</td>
<td>CC.1.5.11-12.D</td>
</tr>
<tr>
<td>Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.</td>
<td></td>
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</tr>
</tbody>
</table>

Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
### 1.5 Speaking and Listening

Students present appropriately in formal speaking situations, listen critically, and respond intelligently as individuals or in group discussions.

<table>
<thead>
<tr>
<th></th>
<th>Grade 6</th>
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<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Presentation of Knowledge and Ideas</strong></td>
<td><strong>Context</strong></td>
<td><strong>Context</strong></td>
<td><strong>Context</strong></td>
<td><strong>Context</strong></td>
<td><strong>Context</strong></td>
</tr>
<tr>
<td><strong>CC.1.5.6.E</strong></td>
<td>Adapt speech to a variety of contexts and tasks.</td>
<td>Adapt speech to a variety of contexts and tasks.</td>
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<td>Adapt speech to a variety of contexts and tasks.</td>
</tr>
<tr>
<td><strong>CC.1.5.7.E</strong></td>
<td><strong>Integration of Knowledge and Ideas</strong></td>
<td><strong>Multimedia</strong></td>
<td><strong>Multimedia</strong></td>
<td><strong>Multimedia</strong></td>
<td><strong>Multimedia</strong></td>
</tr>
<tr>
<td><strong>CC.1.5.6.F</strong></td>
<td>Include multimedia components and visual displays in presentations to clarify information.</td>
<td>Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.</td>
<td>Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.</td>
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</tr>
<tr>
<td><strong>CC.1.5.7.F</strong></td>
<td><strong>Multimedia</strong></td>
<td><strong>Multimedia</strong></td>
<td><strong>Multimedia</strong></td>
<td><strong>Multimedia</strong></td>
<td><strong>Multimedia</strong></td>
</tr>
<tr>
<td><strong>CC.1.5.8.F</strong></td>
<td>Integrate multimedia and visual displays into presentations to add interest, clarify information, and strengthen claims and evidence.</td>
<td>Integrate multimedia and visual displays into presentations to add interest, clarify information, and strengthen claims and evidence.</td>
<td>Integrate multimedia and visual displays into presentations to add interest, clarify information, and strengthen claims and evidence.</td>
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</tr>
<tr>
<td><strong>CC.1.5.9-10.F</strong></td>
<td><strong>Multimedia</strong></td>
<td><strong>Multimedia</strong></td>
<td><strong>Multimedia</strong></td>
<td><strong>Multimedia</strong></td>
<td><strong>Multimedia</strong></td>
</tr>
<tr>
<td><strong>CC.1.5.11-12.F</strong></td>
<td>Make strategic use of digital media in presentations to add interest and enhance understanding of findings, reasoning, and evidence.</td>
<td>Make strategic use of digital media in presentations to add interest and enhance understanding of findings, reasoning, and evidence.</td>
<td>Make strategic use of digital media in presentations to add interest and enhance understanding of findings, reasoning, and evidence.</td>
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<th>Grades 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventions of Standard English</td>
<td>CC.1.5.6.G Demonstrate command of the conventions of standard English when speaking based on Grade 6 level and content.</td>
<td>CC.1.5.7.G Demonstrate command of the conventions of standard English when speaking based on Grade 7 level and content.</td>
<td>CC.1.5.8.G Demonstrate command of the conventions of standard English when speaking based on Grade 8 level and content.</td>
<td>CC.1.5.9-10.G Demonstrate command of the conventions of standard English when speaking based on Grades 9-10 level and content.</td>
<td>CC.1.5.11-12.G Demonstrate command of the conventions of standard English when speaking based on Grades 11-12 level and content.</td>
</tr>
</tbody>
</table>

Pennsylvania Core Standards for Mathematics

Grades PreK—High School

INTRODUCTION

The Pennsylvania Core Standards in Mathematics in grades PreK-5 lay a solid foundation in whole numbers, addition, subtraction, multiplication, division, fractions, and decimals. Taken together, these elements support a student’s ability to learn and apply more demanding math concepts and procedures. The middle school and high school standards call on students to practice applying mathematical ways of thinking to real world issues and challenges; they prepare students to think and reason mathematically. Additionally, they set a rigorous definition of college and career readiness by demanding that students develop a depth of understanding and ability to apply mathematics to novel situations, as college students and employees regularly do. Although the standards are not a curriculum or a prescribed series of activities, school entities will use them to develop a local school curriculum that will meet local students’ needs.

This document includes PA Core Standards for Mathematical Content and Mathematical Practice. The mathematics standards define what students should understand and be able to do. Mathematical Practice Standards describes the habits of mind required to reach a level of mathematical proficiency.
Standards cannot be viewed or addressed in isolation, as each standard depends upon or may lead into multiple standards across grades; thus, it is imperative that educators are familiar with both the standards that come before and those that follow a particular grade level. These revised standards reflect instructional shifts that cannot occur without the integrated emphasis on content and practice.

Standards are overarching statements of what a proficient math student should know and be able to do. The Pennsylvania Assessment Anchors and Eligible Content closely align with the revised standards and are an invaluable source for greater detail.

<table>
<thead>
<tr>
<th>Standards for Mathematical Content</th>
<th>Standards for Mathematical Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Numbers and Operations</td>
<td></td>
</tr>
<tr>
<td>A) Counting and Cardinality</td>
<td>• Make sense of problems and persevere in solving them.</td>
</tr>
<tr>
<td>B) Numbers and Operations in Base Ten</td>
<td>• Reason abstractly and quantitatively.</td>
</tr>
<tr>
<td>C) Numbers and Operations—Fractions</td>
<td>• Construct viable arguments and critique the reasoning of others.</td>
</tr>
<tr>
<td>D) Ratios and Proportional Relationships</td>
<td>• Model with mathematics.</td>
</tr>
<tr>
<td>E) The Number System</td>
<td>• Use appropriate tools strategically.</td>
</tr>
<tr>
<td>F) Number and Quantity</td>
<td>• Attend to precision.</td>
</tr>
<tr>
<td>2.2 Algebraic Concepts</td>
<td>• Look for and make use of structure.</td>
</tr>
<tr>
<td>A) Operations and Algebraic Thinking</td>
<td>• Look for and make sense of regularity in repeated reasoning.</td>
</tr>
<tr>
<td>B) Expressions &amp; Equations</td>
<td></td>
</tr>
<tr>
<td>C) Functions</td>
<td></td>
</tr>
<tr>
<td>D) Algebra</td>
<td></td>
</tr>
<tr>
<td>2.3 Geometry</td>
<td></td>
</tr>
<tr>
<td>A) Geometry</td>
<td></td>
</tr>
<tr>
<td>2.4 Measurement, Data, and Probability</td>
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</tr>
<tr>
<td>A) Measurement and Data</td>
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<tr>
<td>B) Statistics and Probability</td>
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</tbody>
</table>
Key Points in Mathematics

- The standards stress both procedural skills and conceptual understanding to ensure students are learning and applying the critical information they need to succeed at higher levels.
- K-5 standards, which provide students with a solid foundation in whole numbers, addition, subtraction, multiplication, division, fractions, and decimals, help young students build the foundation to successfully apply more demanding math concepts and procedures, and move into application. They also provide detailed guidance to teachers on how to navigate their way through topics such as fractions, negative numbers, and geometry, and do so by maintaining a continuous progression from grade to grade.
- Having built a strong foundation at K-5, students can do hands-on learning in geometry, algebra, and probability and statistics. Students who have mastered the content and skills through the seventh grade will be well-prepared for algebra in grade 8.
- High school standards emphasize practicing applying mathematical ways of thinking to real world issues and challenges. The PA Core Standards for Mathematics detail four standard areas: Numbers and Operations, Algebraic Concepts, Geometry, and Measurement, Data, and Probability. These standard areas are reflective of the reporting categories in the PA Core Assessment Anchors and Eligible Content. The intent of this document is to provide a useful tool for designing curriculum, instruction, and assessment. The grade level curriculum and instructional shifts in mathematics cannot occur without the integrated emphasis on content and practice. The chart below illustrates the four standard areas and the development and progression of the strands, with an understanding that all is framed around the Standards for Mathematical Practice.
## Mathematical Standards: Development and Progression

### Standards for Mathematical Practice

| Make sense of problems and persevere in solving them. |
| Construct viable arguments and critique the reasoning of others. |
| Use appropriate tools strategically. |
| Look for and make use of structure. |
| Reason abstractly and quantitatively. |
| Model with mathematics. |
| Attend to precision. |
| Look for and express regularity in repeated reasoning. |

<table>
<thead>
<tr>
<th>PreK</th>
<th>K</th>
<th>1</th>
<th>2</th>
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<th>5</th>
<th>6</th>
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<td>(B) Numbers and Operations in Base Ten</td>
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<td>2.4</td>
<td>(A) Measurement and Data</td>
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</tbody>
</table>
### 2.1 Numbers and Operations

<table>
<thead>
<tr>
<th>Grade PreK 2.1.PreK</th>
<th>Grade K 2.1.K</th>
<th>Grade 1 2.1.1</th>
<th>Grade 2 2.1.2</th>
<th>Grade 3 2.1.3</th>
<th>Grade 4 2.1.4</th>
<th>Grade 5 2.1.5</th>
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</thead>
<tbody>
<tr>
<td><strong>B. Counting &amp; Cardinality</strong></td>
<td><strong>C.2.1.Pre.K.A.1</strong> Know number names and the count sequence.</td>
<td><strong>C.2.1.K.A.1</strong> Know number names and write and recite the count sequence.</td>
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</tr>
<tr>
<td><strong>C.2.1.Pre.K.A.2</strong> Count to tell the number of objects.</td>
<td><strong>C.2.1.K.A.2</strong> Apply one-to-one correspondence to count the number of objects.</td>
<td>Intentionally Blank</td>
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</tr>
<tr>
<td><strong>C.2.1.Pre.K.A.3</strong> Compare numbers.</td>
<td><strong>C.2.1.K.A.3</strong> Apply the concept of magnitude to compare numbers and quantities.</td>
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</tbody>
</table>

**Pennsylvania’s public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:**

- **A. Counting & Cardinality**
  - **C.2.1_Pre.K.A.1** Know number names and the count sequence.
  - **C.2.1_K.A.1** Know number names and write and recite the count sequence.
  - **C.2.1_Pre.K.A.2** Count to tell the number of objects.
  - **C.2.1_K.A.2** Apply one-to-one correspondence to count the number of objects.
  - **C.2.1_Pre.K.A.3** Compare numbers.
  - **C.2.1_K.A.3** Apply the concept of magnitude to compare numbers and quantities.

- **B. Reasoning & Proof**
  - **C.2.1_Pre.K.B.1** Reason abstractly and quantitatively.
  - **C.2.1_K.B.1** Model with mathematics.
  - **C.2.1_Pre.K.B.2** Use appropriate tools strategically.
  - **C.2.1_K.B.2** Attend to precision.
  - **C.2.1_Pre.K.B.3** Look for and make use of structure.
  - **C.2.1_K.B.3** Look for and express regularity in repeated reasoning.

- **C.2.1_Pre.K.C.1** Make sense of problems and persevere in solving them.
  - **C.2.1_K.C.1** Construct viable arguments and critique the reasoning of others.
  - **C.2.1_Pre.K.C.2** Use appropriate tools strategically.
  - **C.2.1_K.C.2** Look for and make use of structure.
## 2.1 Numbers and Operations

### The Standards of Mathematical Practices

- Make sense of problems and persevere in solving them.
- Construct viable arguments and critique the reasoning of others.
- Use appropriate tools strategically.
- Look for and make use of structure.
- Reason abstractly and quantitatively.
- Model with mathematics.
- Attend to precision.
- Look for and express regularity in repeated reasoning.

### Pennsylvania’s public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

<table>
<thead>
<tr>
<th>Grade PreK 2.1.PreK</th>
<th>Grade K 2.1.K</th>
<th>Grade 1 2.1.1</th>
<th>Grade 2 2.1.2</th>
<th>Grade 3 2.1.3</th>
<th>Grade 4 2.1.4</th>
<th>Grade 5 2.1.5</th>
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</thead>
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<tr>
<td><strong>CC.2.1.K.B.1</strong></td>
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<tr>
<td>Use place value to compose and decompose numbers within 19.</td>
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<td><strong>CC.2.1.1.B.1</strong></td>
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<tr>
<td>Extend the counting sequence to read and write numerals to represent objects.</td>
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<td><strong>CC.2.1.2.B.1</strong></td>
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<tr>
<td>Use place-value concepts to represent amounts of tens and ones and to compare three digit numbers.</td>
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<td><strong>CC.2.1.3.B.1</strong></td>
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<tr>
<td>Apply place-value understanding and properties of operations to perform multi-digit arithmetic.</td>
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<tr>
<td>M03.A-T.1.1.1</td>
<td>M03.A-T.1.1.2</td>
<td>M03.A-T.1.1.3</td>
<td>M03.A-T.1.1.4</td>
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<td><strong>CC.2.1.4.B.1</strong></td>
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<tr>
<td>Apply place-value concepts to show an understanding of multi-digit whole numbers.</td>
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<tr>
<td><strong>CC.2.1.5.B.1</strong></td>
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<tr>
<td>Apply place-value concepts to show an understanding of operations and rounding as they pertain to whole numbers and decimals.</td>
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<td><strong>CC.2.1.1.B.2</strong></td>
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<tr>
<td>Use place-value concepts to represent amounts of tens and ones and to compare two digit numbers.</td>
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<td><strong>CC.2.1.4.B.2</strong></td>
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<tr>
<td>Use place-value understanding and properties of operations to perform multi-digit arithmetic.</td>
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<tr>
<td><strong>CC.2.1.5.B.2</strong></td>
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<tr>
<td>Extend an understanding of operations with whole numbers to perform operations including decimals.</td>
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<tr>
<td><strong>CC.2.1.1.B.3</strong></td>
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<tr>
<td>Use place-value concepts and properties of operations to add and subtract within 100.</td>
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<td><strong>CC.2.1.2.B.3</strong></td>
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<tr>
<td>Use place-value understanding and properties of operations to add and subtract within 1000.</td>
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</table>
# 2.1 Numbers and Operations

<table>
<thead>
<tr>
<th>Grade PreK</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
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<th>Grade 5</th>
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</tbody>
</table>

Pennsylvania’s public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

### The Standards of Mathematical Practices

- Make sense of problems and persevere in solving them.
- Construct viable arguments and critique the reasoning of others.
- Use appropriate tools strategically.
- Look for and make use of structure.
- Reason abstractly and quantitatively.
- Model with mathematics.
- Attend to precision.
- Look for and express regularity in repeated reasoning.

### CC.2.1.3.C.1

- Explore and develop an understanding of fractions as numbers.
- M03.A-F.1.1.1
- M03.A-F.1.1.2
- M03.A-F.1.1.3
- M03.A-F.1.1.4
- M03.A-F.1.1.5

### CC.2.1.4.C.1

- Extend the understanding of fractions to show equivalence and ordering.
- M04.A-F.1.1.1
- M04.A-F.1.1.2

### CC.2.1.4.C.2

- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
- M04.A-F.2.1.1
- M04.A-F.2.1.2
- M04.A-F.2.1.3
- M04.A-F.2.1.4
- M04.A-F.2.1.5
- M04.A-F.2.1.6
- M04.A-F.2.1.7

### CC.2.1.4.C.3

- Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g., 0.9/10).
- M04.A-F.3.1.1
- M04.A-F.3.1.2
- M04.A-F.3.1.3
### 2.2 Algebraic Concepts

<table>
<thead>
<tr>
<th>Standards of Mathematical Practices</th>
<th>Grade PreK</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make sense of problems and persevere in solving them.</td>
<td>CC.2.2.1.A.1</td>
<td>CC.2.2.1.A.2</td>
<td>CC.2.2.2.A.3</td>
<td>CC.2.2.3.A.4</td>
<td>CC.2.2.4.A.4</td>
<td>CC.2.2.5.A.4</td>
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<tr>
<td>Construct viable arguments and critique the reasoning of others.</td>
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<tr>
<td>Use appropriate tools strategically.</td>
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<tr>
<td>Look for and make use of structure.</td>
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</tr>
<tr>
<td>Reason abstractly and quantitatively.</td>
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<tr>
<td>Model with mathematics.</td>
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<tr>
<td>Attend to precision.</td>
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<tr>
<td>Look for and express regularity in repeated reasoning.</td>
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</table>

Pennsylvania's public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

#### (A) Operations and Algebraic Thinking

<table>
<thead>
<tr>
<th>Grade PreK</th>
<th>Grade K</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CC.2.2.1.A.1</td>
<td>CC.2.2.1.A.2</td>
<td>CC.2.2.2.A.3</td>
<td>CC.2.2.3.A.4</td>
<td>CC.2.2.4.A.4</td>
<td>CC.2.2.5.A.4</td>
<td></td>
</tr>
<tr>
<td>Extend the concepts of putting together and taking apart to add and subtract within 10.</td>
<td>Understand and apply properties of operations and the relationship between addition and subtraction.</td>
<td>Use mental strategies to add and subtract within 20.</td>
<td>Understand properties of multiplication and the relationship between multiplication and division.</td>
<td>Develop and/or apply number theory concepts to find factors and multiples.</td>
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<tr>
<td>Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.</td>
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</table>

#### M03.B-O.1.1.1

#### M03.B-O.1.1.2

#### M03.B-O.1.2.1

#### M03.B-O.1.2.2

#### M04.B-O.1.1.1

#### M04.B-O.1.1.2

#### M04.B-O.1.1.3

#### M04.B-O.1.1.4

#### M05.B-O.1.1.1

#### M05.B-O.1.1.2

#### CC.2.2.1.A.1

#### CC.2.2.2.A.1

#### CC.2.2.3.A.1

#### CC.2.2.4.A.1

#### CC.2.2.5.A.1

### 2.2.1 Algebraic Concepts

Make sense of problems and persevere in solving them.

Construct viable arguments and critique the reasoning of others.

Use appropriate tools strategically.

Look for and make use of structure.

Reason abstractly and quantitatively.

Model with mathematics.

Attend to precision.

Look for and express regularity in repeated reasoning.
### 2.3 Geometry

<table>
<thead>
<tr>
<th>The Standards of Mathematical Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make sense of problems and persevere in solving them.</td>
</tr>
<tr>
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</tr>
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<tbody>
<tr>
<td>CC.2.3.PreK.A.1</td>
<td>Identify and describe shapes.</td>
<td>CC.2.3.K.A.1</td>
<td>Identify and describe two- and three-dimensional shapes.</td>
<td>CC.2.3.1.A.1</td>
<td>Compose and distinguish between two- and three-dimensional shapes based on their attributes.</td>
<td>CC.2.3.2.A.1</td>
</tr>
<tr>
<td>CC.2.3.K.A.2</td>
<td>Analyze, compare, create, and compose shapes.</td>
<td>CC.2.3.1.A.2</td>
<td>Use the understanding of fractions to partition shapes into halves and quarters.</td>
<td>CC.2.3.2.A.2</td>
<td>Use the understanding of fractions to partition shapes into halves, quarters, and thirds.</td>
<td>CC.2.3.3.A.2</td>
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Pennsylvania’s public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:
### 2.4 Measurement, Data, and Probability

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<tbody>
<tr>
<td>2.4.A.1 Describe and compare measurable attributes of length and weight of everyday objects.</td>
<td>CC.2.4.PreK.A.1</td>
<td>CC.2.4.K.A.1</td>
<td>CC.2.4.1.A.1</td>
<td>CC.2.4.2.A.1</td>
<td>CC.2.4.3.A.1</td>
<td>CC.2.4.4.A.1</td>
<td>CC.2.4.5.A.1</td>
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<tr>
<td>2.4.A.2 Tell and write time to the nearest half hour using both analog and digital clocks.</td>
<td>CC.2.4.A.2</td>
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<td>2.4.A.3 Solve problems and make change using coins and paper currency with appropriate symbols.</td>
<td>CC.2.4.A.3</td>
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- **Measurement and Data**
  - CC.2.4.A.1 Describe and compare measurable attributes of length and weight of everyday objects.
  - CC.2.4.A.2 Tell and write time to the nearest half hour using both analog and digital clocks.
  - CC.2.4.A.3 Solve problems and make change using coins and paper currency with appropriate symbols.

- **The Standards of Mathematical Practices**
  - Reason abstractly and quantitatively.
  - Model with mathematics.
  - Use appropriate tools strategically.
  - Look for and make use of structure.
  - Look for and express regularity in repeated reasoning.

Pennsylvania’s public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

- **Measurement and Data**
  - CC.2.4.A.1 Describe and compare measurable attributes of length and weight of everyday objects.
  - CC.2.4.A.2 Tell and write time to the nearest half hour using both analog and digital clocks.
  - CC.2.4.A.3 Solve problems and make change using coins and paper currency with appropriate symbols.

- **The Standards of Mathematical Practices**
  - Reason abstractly and quantitatively.
  - Model with mathematics.
  - Use appropriate tools strategically.
  - Look for and make use of structure.
  - Look for and express regularity in repeated reasoning.
# 2.4 Measurement, Data, and Probability

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<td>2.4.5</td>
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Pennsylvania's public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

- **Measurement and Data**
  - **CC.2.4.PreK.A.4** Classify objects and count the number of objects in each category.
  - **CC.2.4.K.A.4** Classify objects and count the number of objects in each category.
  - **CC.2.4.1.A.4** Represent and interpret data using tables/charts.
  - **CC.2.4.2.A.4** Represent and interpret data using line plots, picture graphs, and bar graphs.
  - **CC.2.4.3.A.4** Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.
  - **CC.2.4.4.A.4** Represent and interpret data involving fractions using information provided in a line plot.
  - **CC.2.4.5.A.4** Solve problems involving computation of fractions using information provided in a line plot.
  - **M03.D-M.2.1.1**
  - **M03.D-M.2.1.2**
  - **M03.D-M.2.1.3**
  - **M03.D-M.2.1.4**
  - **M04.D-M.2.1.1**
  - **M04.D-M.2.1.2**
  - **M05.D-M.2.1.1**
  - **M05.D-M.2.1.2**

- **Intentionally Blank**

- **CC.2.4.3.A.5** Determine the area of a rectangle and apply the concept to multiplication and to addition.
  - **M03.D-M.3.1.1**
  - **M03.D-M.3.1.2**
  - **M04.D-M.3.1.1**
  - **M04.D-M.3.1.2**
  - **M05.D-M.3.1.1**
  - **M05.D-M.3.1.2**

- **Intentionally Blank**

- **CC.2.4.2.A.6** Extend the concepts of addition and subtraction to problems involving length.
  - **CC.2.4.3.A.6** Solve problems involving perimeters of polygons and distinguish between linear and area measures.
  - **M03.D-M.4.1.1**

- **CC.2.4.4.A.6** Measure angles and use properties of adjacent angles to solve problems.
  - **M04.D-M.3.1.1**
  - **M04.D-M.3.1.2**

- **Intentionally Blank**
Pennsylvania's public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

2.1.6 Grade 6

- Understand ratio concepts and use ratio reasoning to solve problems.

2.1.7 Grade 7

- Analyze proportional relationships and use them to model and solve real-world and mathematical problems.

2.1.8 Grade 8

- Apply and extend the properties of exponents to solve problems with rational exponents.
- Apply properties of rational and irrational numbers to solve real-world or mathematical problems.
- Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.

High School

- Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
- Extend the knowledge of arithmetic operations and apply to complex numbers.
- Apply concepts of complex numbers in polynomial identities and quadratic equations to solve problems.
2.1 Numbers and Operations

The Standards of Mathematical Practices

Make sense of problems and persevere in solving them.

Construct viable arguments and critique the reasoning of others.

Use appropriate tools strategically.

Look for and make use of structure.

Reason abstractly and quantitatively.

Model with mathematics.

Attend to precision.

Look for and express regularity in repeated reasoning.

2.1.6 Grade 6

CC.2.1.6.E.4

Apply and extend previous understandings of numbers to the system of rational numbers.

M06.A-N.3.1.1

M06.A-N.3.1.2

M06.A-N.3.1.3

M06.A-N.3.2.1

M06.A-N.3.2.2

M06.A-N.3.2.3

2.1.7 Grade 7

CC.2.1.7.E.4

Estimate irrational numbers by comparing them to rational numbers.

M08.A-N.1.1.3

M08.A-N.1.1.4

M08.A-N.1.1.5

A1.1.1.1.1

2.1.8 Grade 8

CC.2.1.8.E.4

Estimate irrational numbers by comparing them to rational numbers.

M09.A-N.1.1.3

M09.A-N.1.1.4

M09.A-N.1.1.5

A1.1.1.1.1
2.2 Algebraic Concepts

The Standards of Mathematical Practices

- Make sense of problems and persevere in solving them.
- Construct viable arguments and critique the reasoning of others.
- Use appropriate tools strategically.
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- Reason abstractly and quantitatively.
- Model with mathematics.
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2.2.6 Grade 6
CC.2.2.6.B.1 Apply and extend previous understandings of arithmetic to algebraic expressions.

2.2.7 Grade 7
CC.2.2.7.B.1 Apply properties of operations to generate equivalent expressions.

2.2.8 Grade 8
CC.2.2.8.B.1 Apply concepts of radicals and integer exponents to generate equivalent expressions.

2.2.HS High School
CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.
CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.
CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials.
CC.2.2.HS.D.4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.
CC.2.2.HS.D.5 Use polynomial identities to solve problems.
CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.
CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.
CC.2.2.HS.D.8 Apply inverse operations to solve equations or formulas for a given variable.

Pennsylvania's public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

- Expressions and Equations
  - CC.2.2.6.B.1 Apply and extend previous understandings of arithmetic to algebraic expressions.
  - CC.2.2.7.B.1 Apply properties of operations to generate equivalent expressions.
  - CC.2.2.8.B.1 Apply concepts of radicals and integer exponents to generate equivalent expressions.
- Algebra
  - CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.
  - CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.
  - CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials.
  - CC.2.2.HS.D.4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.
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  - CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.
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2.2 Algebraic Concepts

The Standards of Mathematical Practices

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Pennsylvania's public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

(B) Expressions and Equations

CC.2.2.6.B.3 Represent and analyze quantitative relationships between dependent and independent variables.

M06.B-E.3.1.1
M06.B-E.3.1.2

CC.2.2.7.B.3 Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

M07.B-E.2.1.1
M07.B-E.2.2.1
M07.B-E.2.2.2
M07.B-E.2.3.1
A1.1.1.4.1

CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations.

M08.B-E.3.1.1
M08.B-E.3.1.2
M08.B-E.3.1.3
M08.B-E.3.1.4
M08.B-E.3.1.5
A1.1.2.1.1
A1.1.2.2.1
A1.1.2.2.2
A1.1.3.1.1
A2.1.3.1.1
A2.1.3.1.2
A2.1.3.1.3
A2.1.3.1.4

(D) Algebra

CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method.

A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A2.1.3.1.1, A2.1.3.1.2, A2.1.3.1.3, A2.1.3.1.4

CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.

A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2, A2.1.3.1.1, A2.1.3.1.2, A2.1.3.1.3, A2.1.3.1.4
2.2 Algebraic Concepts

The Standards of Mathematical Practices

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2.2.6 Grade 6
2.2.7 Grade 7
2.2.8 Grade 8
2.2.HS High School

Pennsylvania’s public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

(C) Functions

- Intentionally

CC.2.2.8.C.1 Define, evaluate, and compare functions.
M08.B-F.1.1.1
M08.B-F.1.1.2
M08.B-F.1.1.3
A1.1.2.1.1
A1.2.1.1.2
A1.2.1.2.1
A1.2.1.2.2
CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities.
M08.B-F.2.1.1
M08.B-F.2.1.2
A1.1.2.1.3
A1.2.1.1.1
A1.2.1.1.2
A1.2.1.2.2
A1.2.2.1.3
A1.2.2.1.4
CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.
A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.2.1.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.1.4, G.2.2.2.1, G.2.2.2.2, G.2.2.2.3, G.2.2.2.4, G.2.2.2.5
CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.
A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.1, A2.1.3.1.4, A2.1.3.2.1, A2.1.3.2.2, A2.2.1.1.1, A2.2.1.1.2, A2.2.1.1.3, A2.2.1.1.4
CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.
A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4, A2.1.3.1.1, A2.1.3.1.2, A2.1.3.1.3, A2.1.3.1.4, A2.1.3.2.1, A2.1.3.2.2, A2.2.1.1.1, A2.2.1.1.2, A2.2.1.1.3, A2.2.1.1.4, A2.2.2.1.1, A2.2.2.1.2, A2.2.2.1.3, A2.2.2.1.4
CC.2.2.HS.C.4 Interpret the effects transformations have on functions and find the inverses of functions.
A1.2.1.2.1, A1.2.1.2.2, A2.1.3.1.3, A2.1.3.1.4, A2.1.3.2.1, A2.2.2.1.1, A2.2.2.1.2, A2.2.2.1.3, A2.2.2.1.4, A2.2.2.2.1
CC.2.2.HS.C.5 Construct and compare linear, quadratic, and exponential models to solve problems.
A1.2.2.1.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.1.4, A2.1.3.1.1, A2.1.3.1.2, A2.1.3.1.3, A2.1.3.1.4, A2.2.1.1.1, A2.2.1.1.2, A2.2.1.1.3, A2.2.1.1.4, A2.2.2.1.1, A2.2.2.1.2, A2.2.2.1.3, A2.2.2.1.4, A2.2.2.2.1
CC.2.2.HS.C.6 Interpret functions in terms of the situations they model.
A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1, A2.1.3.1.3, A2.2.1.1.1, A2.2.1.1.2, A2.2.1.1.3, A2.2.1.1.4, A2.2.2.1.3, A2.2.2.1.4, A2.2.2.2.1
CC.2.2.HS.C.7 Apply radian measure of an angle and the unit circle to analyze the trigonometric functions.

CC.2.2.HS.C.8 Choose trigonometric functions to model periodic phenomena and describe the properties of the graphs.

CC.2.2.HS.C.9 Prove the Pythagorean identity and use it to calculate trigonometric ratios.

G.1.3.2.1, G.2.1.1.1, G.2.1.1.2

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2.3 Geometry

The Standards of Mathematical Practices

- Make sense of problems and persevere in solving them.
- Construct viable arguments and critique the reasoning of others.
- Use appropriate tools strategically.
- Look for and make use of structure.
- Reason abstractly and quantitatively.
- Model with mathematics.
- Attend to precision.
- Look for and express regularity in repeated reasoning.

2.3.6 Grade 6

CC.2.3.6.A.1
Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume.

2.3.7 Grade 7

CC.2.3.7.A.1
Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.

2.3.8 Grade 8

CC.2.3.8.A.1
Apply the concepts of volume of cylinders, cones, and spheres to solve real-world and mathematical problems.

2.3.HS High School

CC.2.3.HS.A.1
Use geometric figures and their properties to represent transformations in the plane.

CC.2.3.HS.A.2
Apply rigid transformations to determine and explain congruence.

CC.2.3.HS.A.3
Verify and apply geometric theorems as they relate to geometric figures.

CC.2.3.HS.A.4
Apply the concept of congruence to create geometric constructions.

CC.2.3.HS.A.5
Create justifications based on transformations to establish similarity of plane figures.

CC.2.3.HS.A.6
Verify and apply theorems involving similarity as they relate to plane figures.

CC.2.3.HS.A.7
Apply trigonometric ratios to solve problems involving right triangles.

CC.2.3.HS.A.8
Apply geometric theorems to verify properties of circles.

CC.2.3.HS.A.9
Extend the concept of similarity to determine arc lengths and areas of sectors of circles.
2.3 Geometry

The Standards of Mathematical Practices

- Make sense of problems and persevere in solving them.
- Construct viable arguments and critique the reasoning of others.
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- Reason abstractly and quantitatively.
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- Look for and express regularity in repeated reasoning.

2.3.6 Grade 6
2.3.7 Grade 7
2.3.8 Grade 8
2.3.HS High School

Pennsylvania's public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

(A) Geometry

Intentionally

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Intentionally

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CC.2.3.8.A.3
Understand and apply the Pythagorean Theorem to solve problems.

M08.C-G.2.1.1
M08.C-G.2.1.2
M08.C-G.2.1.3
G.2.1.1.1
G.2.1.2.1

(A) Geometry

CC.2.3.HS.A.10
Translate between the geometric description and the equation for a conic section.

A2.2.1.1.4, A2.2.2.1.1
CC.2.3.HS.A.11
Apply coordinate geometry to prove simple geometric theorems algebraically.

G.2.1.2.1, G.2.1.2.2, G.2.1.2.3
CC.2.3.HS.A.12
Explain volume formulas and use them to solve problems.

G.2.3.1.1, G.2.3.1.2, G.2.3.1.3
CC.2.3.HS.A.13
Analyze relationships between two-dimensional and three-dimensional objects.

G.1.1.1.1, G.1.1.1.2, G.1.1.1.3, G.1.1.1.4, G.1.2.1.1, G.1.2.1.2, G.1.2.1.3, G.1.2.1.4, G.2.3.2.1
CC.2.3.HS.A.14
Apply geometric concepts to model and solve real world problems.

G.2.2.4.1, G.2.3.1.1, G.2.3.1.2, G.2.3.1.3
2.4 Measurement, Data, and Probability

The Standards of Mathematical Practices

- Make sense of problems and persevere in solving them.
- Construct viable arguments and critique the reasoning of others.
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- Look for and make use of structure.
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Pennsylvania's public schools shall teach, challenge, and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

- (B) Statistics and Probability

**CC.2.4.6.B.1**
- Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions.

**M06.D-S.1.1.1**
- [Details not fully transcribed]

**CC.2.4.7.B.1**
- Draw inferences about populations based on random sampling concepts.

**M07.D-S.1.1.1**
- [Details not fully transcribed]

**CC.2.4.8.B.1**
- Analyze and/or interpret bivariate data displayed in multiple representations.

**M08.D-S.1.1.1**
- [Details not fully transcribed]

**A1.2.2.2.1**
- [Details not fully transcribed]

**CC.2.4.HS.B.1**
- Summarize, represent, and interpret data on a single count or measurement variable.

**M06.D-S.1.1.2**
- [Details not fully transcribed]

**M06.D-S.1.1.3**
- [Details not fully transcribed]

**M06.D-S.1.1.4**
- [Details not fully transcribed]

**CC.2.4.HS.B.2**
- Summarize, represent, and interpret data on two categorical and quantitative variables.

**A1.2.2.1.1**
- [Details not fully transcribed]

**A1.2.2.1.2**
- [Details not fully transcribed]

**A1.2.2.1.3**
- [Details not fully transcribed]

**A1.2.2.2.1**
- [Details not fully transcribed]

**A1.2.3.1.1**
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**A1.2.3.1.2**
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**A1.2.3.1.3**
- [Details not fully transcribed]

**A1.2.3.1.4**
- [Details not fully transcribed]

**A2.2.3.1.1**
- [Details not fully transcribed]

**A2.2.3.1.2**
- [Details not fully transcribed]

**CC.2.4.HS.B.3**
- Analyze linear models to make interpretations based on the data.

**A1.2.2.2.1**
- [Details not fully transcribed]

**A1.2.3.1.1**
- [Details not fully transcribed]

**A1.2.3.2.1**
- [Details not fully transcribed]

**A1.2.3.2.2**
- [Details not fully transcribed]

**A1.2.3.2.3**
- [Details not fully transcribed]

**A2.2.3.1.1**
- [Details not fully transcribed]

**A2.2.3.1.2**
- [Details not fully transcribed]

**CC.2.4.HS.B.4**
- Recognize and evaluate random processes underlying statistical experiments.

**A1.2.3.3.1**
- [Details not fully transcribed]

**A2.2.3.2.1**
- [Details not fully transcribed]

**A2.2.3.2.2**
- [Details not fully transcribed]

**A2.2.3.2.3**
- [Details not fully transcribed]

**CC.2.4.HS.B.5**
- Make inferences and justify conclusions based on sample surveys, experiments, and observational studies.

**A1.2.3.2.1**
- [Details not fully transcribed]

**A1.2.3.2.2**
- [Details not fully transcribed]

**A1.2.3.2.3**
- [Details not fully transcribed]

**A2.2.3.2.1**
- [Details not fully transcribed]

**A2.2.3.2.2**
- [Details not fully transcribed]

**A2.2.3.2.3**
- [Details not fully transcribed]

**CC.2.4.HS.B.6**
- Use the concepts of independence and conditional probability to interpret data.

**A2.2.3.2.1**
- [Details not fully transcribed]

**A2.2.3.2.2**
- [Details not fully transcribed]

**A2.2.3.2.3**
- [Details not fully transcribed]

**CC.2.4.HS.B.7**
- Apply the rules of probability to compute probabilities of compound events in a uniform probability model.

**A1.2.3.3.1**
- [Details not fully transcribed]

**A2.2.3.2.1**
- [Details not fully transcribed]

**A2.2.3.2.2**
- [Details not fully transcribed]

**A2.2.3.2.3**
- [Details not fully transcribed]
### APPENDIX B
Academic Standards for Science and Technology and Environment and Ecology
Grades 6-12

**Authority**
The provisions of this Appendix B amended under sections 121, 2603-B and 2604-B of the Public School Code of 1949 (24 P. S. §§ 1-121, 26-2603-B and 26-2604-B).

**Source**

**Cross References**

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#### IX. List of References

#### Source

School Code of 1949 (4.2) P. S. §§ 1-121, 26-309-B and 26-310-B of the Public Authority.

#### Apps

Grades 6-12

Environmental and Ecology
Academic Standards for Science and Technology and Environment and Ecology

**APPENDIX B**

Page 1

STATE BOARD OF EDUCATION
Earth Sciences .................................................. 3.5.
A. Land Forms and Processes
B. Resources
C. Meteorology
D. Hydrology and Oceanography

Reading
Students read, understand, and respond to informational text—with an emphasis on comprehension, vocabulary acquisition, and making connections among ideas and between texts with a focus on textual evidence.

• Key Ideas and Details
• Inferences

Technology Education ........................................... 3.6.
A. Biotechnology
B. Information Technology
C. Physical Technologies
(Construction, Manufacturing, and Transportation)

Writing
Students write for different purposes and audiences. Students write clear and focused text to convey a well-developed perspective and appropriate content.

• Text Types and Purposes
• Production and Distribution of Writing

Technology Education ........................................... 3.6.
A. Biotechnology
B. Information Technology
C. Physical Technologies

Glossary

Science, Technology and Human Endeavors
E. Computer Communication Systems
D. Computer Software
C. Computer Operations
B. Instruments
A. Tools

Technology Education ........................................... 3.6.
A. Biotechnology
B. Information Technology
C. Physical Technologies

Earth Sciences .................................................. 3.5.

ACADEMIC STANDARDS AND ASSESSMENTS
VIII. INTRODUCTION

This document describes what students should know and be able to do in the following eight areas:

- 3.1. Unifying Themes of Science
- 3.2. Inquiry and Design
- 3.3. Biological Sciences
- 3.4. Physical Science, Chemistry and Physics
- 3.5. Earth Sciences
- 3.6. Technology Education
- 3.7. Technological Devices
- 3.8. Science, Technology and Human Endeavors

These standards describe what students should know and be able to do in the following areas:

- 3.8 Science, Technology and Human Endeavors
- 3.7 Technological Devices
- 3.6 Technology Education
- 3.5 Earth Sciences
- 3.4 Physical Science, Chemistry and Physics
- 3.3 Biological Sciences
- 3.2 Inquiry and Design
- 3.1 Unifying Themes of Science

This document describes what students should know and be able to do in the...
serve to benchmark the standard statement. Curriculum, instruction and assessment should focus on meeting the standard statement. Technology education, computer applications and science are separate curricular areas. Meeting standards should be approached as a collaborative effort among all curricular areas.

The following descriptors explain the intent of each standard category:

3.1. Unifying Themes
Unifying themes of science and technology provide big ideas that integrate with significant concepts. There are only a few fundamental concepts and processes that form the framework upon which science and technology knowledge is organized—motion and forces, energy, structure of matter, change over time and machines. These themes create the context through which the content of the disciplines can be taught and are emphasized in each standard.

3.2. Inquiry and Design
The nature of science and technology is characterized by applying process skills to solve real-life problems. These skills include observing, classifying, inferring, predicting, measuring, computing, estimating, communicating, using space/time relationships, defining operationally, raising questions, formulating hypotheses, testing and experimenting, designing controlled experiments, recognizing variables, manipulating variables, interpreting data, formulating models, designing models, and producing solutions. Everyone can use them to solve real-life problems. These process skills are developed across the grade levels and differ in the degree of sophistication, quantifiable nature and application to the context.

3.3. Biological Sciences
Biology concerns living things, their appearance, different types of life, their scope of life, their similarities and differences. Living things are made of the same components as all other matter and move using the same basic kinds of forces as described in physics. Everyone can use them to solve real-life problems. These skills include observation, inferring, predicting, measuring, defining operationally, raising questions, formulating hypotheses, testing and experimenting, designing controlled experiments, recognizing variables, manipulating variables, interpreting data, formulating models, designing models, and producing solutions.
3.4. Physical Science
Chemistry and Physics
Physics and chemistry involve the study of objects and their properties. Students examine changes to materials during mixing, freezing, heating and dissolving and then learn how to observe and measure results. In chemistry students study the relationship between matter, atomic structure and its activity. Laboratory investigations of the properties of substances and their changes through a range of chemical interactions provide a basis for students to understand atomic theory and a variety of reaction types and their applications in business, agriculture and medicine. Physics deepens the understanding of the structure and properties of materials and includes atoms, waves, light, electricity, magnetism and the role of energy, forces and motion. These overtly observable physical phenomena provide a basis for understanding the interplay of these properties and their application in business, agriculture and medicine to understand some of the major theories of reaction in order to improve the quality of life. Students develop an ability to design, create and use new technological tools and techniques. These tools and techniques make it possible to create new teaching strategies in our world. Technology education is the use of accumulated knowledge and skills and their application to problem solving. Technology education requires students to design, create, use, evaluate and modify systems of biotechnologies, information technologies and physical technologies. The dynamics of earth science include understanding of these concepts as practical applications in the form of physical science, geography and mathematics. Students use tools to observe, measure, move and make things. New technological tools and techniques make it possible to enact far-reaching changes in our world. Technology enhances the students' abilities to identify problems and determine solutions. Computers play an integral role in every day life by extending our abilities to collect, store and communicate information and ideas.

3.5. Earth Sciences
The dynamics of earth science include the study of objects and processes. Students examine the impact of their products and processes. Scientific and technological knowledge both influence society, advance scientific knowledge and create a scientific knowledge and societal needs of other people and ideas. These overtly observable physical phenomena provide a basis for understanding the interplay of these properties and their application in business, agriculture and medicine to understand some of the major theories of reaction in order to improve the quality of life. Students develop an ability to design, create, use, evaluate and modify systems of biotechnologies, information technologies and physical technologies. The dynamics of earth science include understanding of these concepts as practical applications in the form of physical science, geography and mathematics. Students use tools to observe, measure, move and make things. New technological tools and techniques make it possible to enact far-reaching changes in our world. Technology enhances the students' abilities to identify problems and determine solutions. Computers play an integral role in every day life by extending our abilities to collect, store and communicate information and ideas.

3.6. Technology Education
Technology education is the use of accumulated knowledge to process resources to meet human needs and improve the quality of life. Students develop the ability to select and correctly use materials, tools, techniques and processes to answer questions, understand explanations and solve problems encountered in real life situations. These tools and techniques make it possible to create new teaching strategies in our world. Technology education is the use of accumulated knowledge and skills and their application to problem solving. Technology education requires students to design, create, use, evaluate and modify systems of biotechnologies, information technologies and physical technologies. The dynamics of earth science include understanding of these concepts as practical applications in the form of physical science, geography and mathematics. Students use tools to observe, measure, move and make things. New technological tools and techniques make it possible to enact far-reaching changes in our world. Technology enhances the students' abilities to identify problems and determine solutions. Computers play an integral role in every day life by extending our abilities to collect, store and communicate information and ideas.

3.7. Technological Devices
Students use tools to observe, measure, move and make things. New technological tools and techniques make it possible to enact far-reaching changes in our world. Technology enhances the students' abilities to identify problems and determine solutions. Computers play an integral role in every day life by extending our abilities to collect, store and communicate information and ideas.

3.8. Science, Technology and Human Endeavors
Scientific knowledge and societal needs often create a demand for new technology. Conversely, new technology advances scientific knowledge. Both influence society through the impact of their products and processes. Students examine the impact of their products and processes. Scientific and technological knowledge both influence society, advance scientific knowledge and create a
What Is Science?

Any study of science includes the search for understanding the natural world and facts, principles, theories and laws that have been verified by the scientific community and are used to explain and predict natural phenomena.

Acquiring scientific knowledge involves constructing hypotheses using observation and knowledge in the content area in order to formulate useful questions that provoke scientific inquiry. As a result of repeated, rigorous testing over time and applying multiple perspectives to a problem, consistent information emerges. A theory describes this verifiable event or phenomena. Theories are powerful elements in science and are used to predict other events. As theories lose their ability to predict, they are modified, expanded or generalized or incorporated into a broader theory.

Knowledge of what science is incorporates carefully developed and integrated components:

- **Nature of science**—the ways in which scientists search for answers to questions and explanations of observations about the natural world; includes process knowledge of observing, classifying, inferring, predicting, measuring, hypothesizing, experimenting and interpreting data.
- **Problem solving**—application of concepts to problems of human adaptation to the environment that often leads to recognition of new problems; has social implications and leads to personal decision-making and action; a process which forms the link between decision making and actions, a process which involves operational definitions, recognizing variables, formulating models and producing solutions.
- **Process skills**—Recognition by students how knowledge is acquired and applied in science by observing, classifying, inferring, predicting, measuring, estimating, communicating, using specific relationships, defining operational, interpreting data, formulating models, designing models and producing solutions.
- **Inquiry**—an intellectual process of logic that includes verification of answers to questions and explanations for natural objects, events and phenomena.
- **Scientific thinking**—the disposition to suspend judgment, not make decisions and not take action until results, explanations or answers have been tested and verified with information.

What Is Technology Education?

Technology is a body of knowledge separate from but related to the sciences. Technology education involves constructing hypotheses using observation and knowledge in the content area in order to formulate useful questions that provoke scientific inquiry. As a result of repeated, rigorous testing over time and applying multiple perspectives to a problem, consistent information emerges. A theory describes this verifiable event or phenomena. Theories are powerful elements in science and are used to predict other events. As theories lose their ability to predict, they are modified, expanded or generalized or incorporated into a broader theory.
Technology education can be divided into three main streams that include the specific content, curriculum, and specific certification requirements. Technology is the application of tools, materials, processes, and systems by humans to solve problems and provide benefits to humankind. We use technology in an attempt to improve our environment. These improvements may relate to survival needs (e.g., food, shelter) or human aspirations (e.g., knowledge, art, control). They can include unexpected benefits, unexpected costs, and unexpected risks.

Technology education involves a broad spectrum of knowledge and skills in technology, instructional technology, and science education. Effective technology education combines knowledge of content, process, and skills with a holistic approach to learning.

Knowledge of Content, Process, and Skills in Technology involves learning processes that include these components:

- **Methods of designing and developing solutions**
- **Standards for selecting and using appropriate materials, tools, and processes**
- **Experimental and design specifications for testing and evaluating solutions**
- **Criteria for judging the performance and impact of the solutions**
- **Evaluating the impact of modifying a system to improve performance**

Technology education can be divided into three main systems that include bio-technological, informational, and physical technologies.

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STATE BOARD OF EDUCATION

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### 3.1. Unifying Themes

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</table>
| **Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...** | A. Explain the parts of a simple system and their relationship to each other.  
- Describe a system as a group of related parts that work together to achieve a desired result (e.g., digestive system).  
- Explain the importance of order in a system.  
- Distinguish between system inputs, system processes and system outputs.  
- Distinguish between open loop and closed loop systems.  
- Apply systems analysis to solve problems. | A. Discriminate among the concepts of systems, subsystems, feedback and control in solving technological problems.  
- Identify the function of subsystems within a larger system (e.g., role of thermostat in an engine, pressure switch).  
- Describe the interrelationships among inputs, processes, outputs, feedback and control in specific systems.  
- Explain the concept of system redesign and apply it to improve technological systems.  
- Apply the universal systems model to illustrate specific solutions and troubleshoot specific problems.  
- Analyze and describe the effectiveness of systems to solve specific problems. | A. Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.  
- Apply knowledge of control systems concept by designing and modeling control systems that solve specific problems.  
- Apply systems analysis to predict results.  
- Analyze and describe the function, interaction and relationship among subsystems and the system itself.  
- Compare and contrast several systems that could be applied to solve a single problem.  
- Evaluate the causes of a system’s inefficiency. |

A. Know that natural and human-made objects are made up of parts.  
- Identify and describe what parts make up a system.  
- Identify system parts that are natural and human-made (e.g., ball point pen, simple electrical circuits, plant anatomy).  
- Describe the purpose of analyzing systems.  
- Know that technologies include physical technology systems (e.g., construction, manufacturing, transportation), informational systems and biochemical-related systems.
### 3.1. Unifying Themes

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<td><strong>Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...</strong></td>
<td><strong>B. Know models as useful simplifications of objects or processes.</strong>&lt;br&gt;• Identify different types of models.&lt;br&gt;• Identify and apply models as tools for prediction and insight.&lt;br&gt;• Apply appropriate simple modeling tools and techniques.&lt;br&gt;• Identify theories that serve as models (e.g., molecules).</td>
<td><strong>B. Describe the use of models as an application of scientific or technological concepts.</strong>&lt;br&gt;• Identify and describe different types of models and their functions.&lt;br&gt;• Apply models to predict specific results and observations (e.g., population growth, effects of infectious organisms).&lt;br&gt;• Explain systems by outlining a system’s relevant parts and its purpose and/or designing a model that illustrates its function.</td>
<td><strong>B. Describe concepts of models as a way to predict and understand science and technology.</strong>&lt;br&gt;• Distinguish between different types of models and modeling techniques and apply their appropriate use in specific applications (e.g., kinetic gas theory, DNA).&lt;br&gt;• Examine the advantages of using models to demonstrate processes and outcomes (e.g., blue print analysis, structural stability).&lt;br&gt;• Apply mathematical models to science and technology.</td>
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### 3.1. Unifying Themes

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<td><strong>Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to . . .</strong></td>
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| C. Illustrate patterns that regularly occur and reoccur in nature.  
  - Identify observable patterns (e.g., growth patterns in plants, crystal shapes in minerals, climate, structural patterns in bird feathers).  
  - Use knowledge of natural patterns to predict next occurrences (e.g., seasons, leaf patterns, lunar phases). |
| C. Identify patterns as repeated processes or recurring elements in science and technology.  
  - Identify different forms of patterns and use them to group and classify specific objects.  
  - Identify repeating structure patterns.  
  - Identify and describe patterns that occur in physical systems (e.g., construction, manufacturing, transportation), informational systems and biochemical-related systems. |
| C. Apply patterns as repeated processes or recurring elements in science and technology.  
  - Examine and describe recurring patterns that form the basis of biological classification, chemical periodicity, geological order and astronomical order.  
  - Examine and describe stationary physical patterns.  
  - Examine and describe physical patterns in motion. |
| C. Assess and apply patterns in science and technology.  
  - Assess and apply recurring patterns in natural and technological systems.  
  - Compare and contrast structure and function relationships as they relate to patterns.  
  - Assess patterns in nature using mathematical formulas. |
### 3.1. Unifying Themes

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**Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...**

D. Know that scale is an important attribute of natural and human made objects, events and phenomena.
- Identify the use of scale as it relates to the measurement of distance, volume and mass.
- Describe scale as a ratio (e.g., map scales).
- Explain the importance of scale in producing models and apply it to a model.

D. Explain scale as a way of relating concepts and ideas to one another by some measure.
- Apply various applications of size and dimensions of scale to scientific, mathematical, and technological applications.
- Describe scale as a form of ratio and apply to a life situation.

D. Apply scale as a way of relating concepts and ideas to one another by some measure.
- Apply dimensional analysis and scale as a ratio.
- Convert one scale to another.

D. Analyze scale as a way of relating concepts and ideas to one another by some measure.
- Compare and contrast various forms of dimensional analysis.
- Assess the use of several units of measurement to the same problem.
- Analyze and apply appropriate measurement scales when collecting data.
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<td>E. Recognize change in natural and physical systems.</td>
<td>E. Identify change as a variable in describing natural and physical systems.</td>
<td>E. Describe patterns of change in nature, physical and man made systems.</td>
<td>E. Evaluate change in nature, physical systems and man made systems.</td>
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<tr>
<td>• Recognize change as fundamental to science and technology concepts.</td>
<td>• Describe fundamental science and technology concepts that could solve practical problems.</td>
<td>• Describe how fundamental science and technology concepts are used to solve practical problems (e.g., momentum, Newton’s laws of universal gravitation, tectonics, conservation of mass and energy, cell theory, theory of evolution, atomic theory, theory of relativity, Pasteur’s germ theory, relativity, heliocentric theory, gas laws, feedback systems).</td>
<td>• Evaluate fundamental science and technology concepts and their development over time (e.g., DNA, cellular respiration, unified field theory, energy measurement, automation, miniaturization, Copernican and Ptolemaic universe theories).</td>
</tr>
<tr>
<td>• Examine and explain change by using time and measurement.</td>
<td>• Explain how ratio is used to describe change.</td>
<td>• Evaluate fundamental science and technology concepts and their development over time (e.g., DNA, cellular respiration, unified field theory, energy measurement, automation, miniaturization, Copernican and Ptolemaic universe theories).</td>
<td>• Analyze how models, systems and technologies have changed over time (e.g., germ theory, theory of evolution, solar system, cause of fire).</td>
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<td>• Describe relative motion.</td>
<td>• Describe the effect of making a change in one part of a system on the system as a whole.</td>
<td>• Describe the effect of making a change in one part of a system on the system as a whole.</td>
<td>• Evaluate how models, systems and technologies have changed over time (e.g., germ theory, theory of evolution, solar system, cause of fire).</td>
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<tr>
<td>• Describe the change to objects caused by heat, cold, light or chemicals.</td>
<td></td>
<td>• Recognize that stable systems often involve underlying dynamic changes (e.g., a chemical reaction at equilibrium has molecules reforming continuously).</td>
<td>• Explain how correlation of variables does not necessarily imply causation.</td>
</tr>
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</table>

**Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...**
### 3.1. Unifying Themes

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| *Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...* | • Describe the effects of error in measurements.  
• Describe changes to matter caused by heat, cold, light or chemicals using a rate function. | | • Evaluate the patterns of change within a technology (e.g., changes in engineering in the automotive industry). |
### 3.2. Inquiry and Design

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**Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...**

#### A. Identify and use the nature of scientific and technological knowledge.
- Distinguish between a scientific fact and a belief.
- Provide clear explanations that account for observations and results.
- Relate how new information can change existing perceptions.

#### A. Explain and apply scientific and technological knowledge.
- Distinguish between a scientific theory and a belief.
- Answer “What if” questions based on observation, inference or prior knowledge or experience.
- Explain how skepticism about an accepted scientific explanation led to a new understanding.
- Explain how new information may change existing theories and practice.

#### A. Apply knowledge and understanding about the nature of scientific and technological knowledge.
- Distinguish between a scientific fact and a belief.
- Compare and contrast scientific theories and beliefs.
- Know that science uses both direct and indirect observation means to study the world and the universe.
- Integrate new information into existing theories and explain implied results.

#### A. Evaluate the nature of scientific and technological knowledge.
- Know and use the ongoing scientific processes to continually improve and better understand how things work.
- Critically evaluate the status of existing theories (e.g., germ theory of disease, wave theory of light, classification of subatomic particles, theory of evolution, epidemiology of AIDS).
### 3.2. Inquiry and Design

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<td>B. Describe objects in the world using the five senses.</td>
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<tr>
<td>• Recognize observational descriptors from each of the five senses (e.g., see-blue, feel-rough).</td>
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<td>• Use observations to develop a descriptive vocabulary.</td>
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<tr>
<td>B. Apply process knowledge to make and interpret observations.</td>
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<tr>
<td>• Measure materials using a variety of scales.</td>
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<tr>
<td>• Describe relationships by making inferences and predictions.</td>
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<tr>
<td>• Communicate, use space/time relationships, define operationally, raise questions, formulate hypotheses, test and experiment.</td>
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<tr>
<td>• Design controlled experiments, recognize variables, and manipulate variables.</td>
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<tr>
<td>• Interpret data, formulate models, design models, and produce solutions.</td>
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<tr>
<td>B. Apply process knowledge and organize scientific and technological phenomena in varied ways.</td>
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<tr>
<td>• Describe materials using precise quantitative and qualitative skills based on observations.</td>
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<tr>
<td>• Develop appropriate scientific experiments: raising questions, formulating hypotheses, testing, controlled experiments, recognizing variables, manipulating variables, interpreting data, and producing solutions.</td>
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<tr>
<td>• Use process skills to make inferences and predictions using collected information and to communicate, using space/time relationships, defining operationally.</td>
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<td>B. Evaluate experimental information for appropriateness and adherence to relevant science processes.</td>
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<td>• Evaluate experimental data correctly within experimental limits.</td>
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<td>• Judge that conclusions are consistent and logical with experimental conditions.</td>
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<tr>
<td>• Interpret results of experimental research to predict new information or improve a solution.</td>
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*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...*
### 3.2. Inquiry and Design

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| **C.** Recognize and use the elements of scientific inquiry to solve problems.  
  - Generate questions about objects, organisms and/or events that can be answered through scientific investigations.  
  - Design an investigation.  
  - Conduct an experiment.  
  - State a conclusion that is consistent with the information. | **C.** Identify and use the elements of scientific inquiry to solve problems.  
  - Generate questions about objects, organisms and/or events that can be answered through scientific investigations.  
  - Evaluate the appropriateness of questions.  
  - Design an investigation with limited variables to investigate a question.  
  - Conduct a two-part experiment.  
  - Judge the significance of experimental information in answering the question.  
  - Communicate appropriate conclusions from the experiment. | **C.** Apply the elements of scientific inquiry to solve problems.  
  - Generate questions about objects, organisms and/or events that can be answered through scientific investigations.  
  - Evaluate the appropriateness of questions.  
  - Design an investigation with adequate control and limited variables to investigate a question.  
  - Conduct a multiple step experiment.  
  - Organize experimental information using a variety of analytic methods.  
  - Judge the significance of experimental information in answering the question.  
  - Suggest additional steps that might be done experimentally. | **C.** Apply the elements of scientific inquiry to solve multi-step problems.  
  - Generate questions about objects, organisms and/or events that can be answered through scientific investigations.  
  - Evaluate the appropriateness of questions.  
  - Design an investigation with adequate control and limited variables to investigate a question.  
  - Organize experimental information using analytic and descriptive techniques.  
  - Evaluate the significance of experimental information in answering the question.  
  - Project additional questions from a research study that could be studied. |

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Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...

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| D. Recognize and use the technological design process to solve problems.  
  • Recognize and explain basic problems.  
  • Identify possible solutions and their course of action.  
  • Try a solution.  
  • Describe the solution, identify its impacts and modify if necessary.  
  • Show the steps taken and the results. | D. Know and use the technological design process to solve problems.  
  • Define different types of problems.  
  • Define all aspects of the problem, necessary information and questions that must be answered.  
  • Propose the best solution.  
  • Design and propose alternative methods to achieve solutions.  
  • Apply a solution.  
  • Explain the results, present improvements, identify and infer the impacts of the solution. | D. Identify and apply the technological design process to solve problems.  
  • Examine the problem, rank all necessary information and all questions that must be answered.  
  • Propose and analyze a solution.  
  • Implement the solution.  
  • Evaluate the solution, test, redesign and improve as necessary.  
  • Communicate the process and evaluate and present the impacts of the solution. | D. Analyze and use the technological design process to solve problems.  
  • Assess all aspects of the problem, prioritize the necessary information and formulate questions that must be answered.  
  • Propose, develop and appraise the best solution and develop alternative solutions.  
  • Implement and assess the solution.  
  • Evaluate and assess the solution, redesign and improve as necessary.  
  • Communicate and assess the process and evaluate and present the impacts of the solution. |
### 3.3. Biological Sciences

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| **A.** Know the similarities and differences of living things.  
- Identify life processes of living things (e.g., growth, digestion, react to environment).  
- Know that some organisms have similar external characteristics (e.g., anatomical characteristics; appendages, type of covering, body segments) and that similarities and differences are related to environmental habitat.  
- Describe basic needs of plants and animals. | **A.** Describe the similarities and differences that characterize diverse living things.  
- Describe how the structures of living things help them function in unique ways.  
- Explain how to use a dichotomous key to identify plants and animals.  
- Account for adaptations among organisms that live in a particular environment. | **A.** Explain the structural and functional similarities and differences found among living things.  
- Identify and characterize major life forms according to their placement in existing classification groups.  
- Explain the relationship between structure and function at the molecular and cellular levels.  
- Describe organizing schemes of classification keys.  
- Identify and characterize major life forms by kingdom, phyla, class and order. | **A.** Explain the relationship between structure and function at all levels of organization.  
- Identify and explain interactions among organisms (e.g., mutually beneficial, harmful relationships).  
- Explain and analyze the relationship between structure and function at the molecular, cellular and organ-system level.  
- Describe and explain structural and functional relationships in each of the five (or six) kingdoms.  
- Explain significant biological diversity found in each of the biomes. |

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### 3.3. Biological Sciences

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**B. Know that living things are made up of parts that have specific functions.**
- Identify examples of unicellular and multicellular organisms.
- Determine how different parts of a living thing work together to make the organism function.

**B. Describe the cell as the basic structural and functional unit of living things.**
- Identify the levels of organization from cell to organism.
- Compare life processes at the organism level with life processes at the cell level.
- Explain that cells and organisms have particular structures that underlie their functions.
- Describe and distinguish among cell cycles, reproductive cycles and life cycles.
- Explain disease effects on structures or functions of an organism.

**B. Describe and explain the chemical and structural basis of living organisms.**
- Describe the relationship between the structure of organic molecules and the function they serve in living organisms.
- Identify the specialized structures and regions of the cell and the functions of each.
- Explain how cells store and use information to guide their functions.
- Explain cell functions and processes in terms of chemical reactions and energy changes.

**B. Analyze the chemical and structural basis of living organisms.**
- Identify and describe factors affecting metabolic function (e.g., temperature, acidity, hormones).
- Evaluate metabolic activities using experimental knowledge of enzymes.
- Evaluate relationships between structure and functions of different anatomical parts given their structure.
- Describe potential impact of genome research on the biochemistry and physiology of life.
### 3.3. Biological Sciences

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| **C.** Know that characteristics are inherited and, thus, offspring closely resemble their parents. |
| - Identify characteristics for animal and plant survival in different climates. |
| - Identify physical characteristics that appear in both parents and offspring and differ between families, strains or species. |

| **C.** Describe how genetic information is inherited and expressed. |
| - Compare and contrast the function of mitosis and meiosis. |
| - Describe mutations’ effects on a trait’s expression. |
| - Distinguish different reproductive patterns in living things (e.g., budding, spores, fission). |
| - Compare random and selective breeding practices and their results (e.g., antibiotic resistant bacteria). |
| - Explain the relationship among DNA, genes and chromosomes. |
| - Explain different types of inheritance (e.g., multiple allele, sex-influenced traits). |
| - Describe the role of DNA in protein synthesis as it relates to gene expression. |

| **C.** Explain gene inheritance and expression at the molecular level. |
| - Analyze gene expression at the molecular level. |
| - Describe the roles of nucleic acids in cellular reproduction and protein synthesis. |
| - Describe genetic engineering techniques, applications and impacts. |
| - Explain birth defects from the standpoint of embryological development and/or changes in genetic makeup. |
### 3.3. Biological Sciences

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| **D.** Identify changes in living things over time.  
  • Compare extinct life forms with living organisms. | **D.** Explain basic concepts of natural selection.  
  • Identify adaptations that allow organisms to survive in their environment.  
  • Describe how an environmental change can affect the survival of organisms and entire species.  
  • Know that differences in individuals of the same species may give some advantage in surviving and reproducing.  
  • Recognize that populations of organisms can increase rapidly.  
  • Describe the role that fossils play in studying the past.  
  • Explain how biologic extinction is a natural process. | **D.** Explain the mechanisms of the theory of evolution.  
  • Analyze data from fossil records, similarities in anatomy and physiology, embryological studies and DNA studies that are relevant to the theory of evolution.  
  • Explain the role of mutations and gene recombination in changing a population of organisms.  
  • Compare modern day descendants of extinct species and propose possible scientific accounts for their present appearance.  
  • Describe the factors (e.g., isolation, differential reproduction) affecting gene frequency in a population over time and their consequences. | **D.** Analyze the theory of evolution.  
  • Examine human history by describing the progression from early hominids to modern humans.  
  • Apply the concept of natural selection as a central concept in illustrating evolution theory. |

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- Describe and differentiate between the roles of natural selection and genetic drift.
- Describe changes that illustrate major events in the earth’s development based on a time line.
- Explain why natural selection can act only on inherited traits.
- Apply the concept of natural selection to illustrate and account for a species’ survival, extinction or change over time.

Ecosystem Standards are in the Environment and Ecology Standard Category (4.6).
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<tr>
<td><strong>A. Recognize basic concepts about the structure and properties of matter.</strong>&lt;br&gt;• Describe properties of matter (e.g., hardness, reactions to simple chemical tests).&lt;br&gt;• Know that combining two or more substances can make new materials with different properties.&lt;br&gt;• Know different material characteristics (e.g., texture, state of matter, solubility).</td>
<td><strong>A. Describe concepts about the structure and properties of matter.</strong>&lt;br&gt;• Identify elements as basic building blocks of matter that cannot be broken down chemically.&lt;br&gt;• Distinguish compounds from mixtures.&lt;br&gt;• Describe and conduct experiments that identify chemical and physical properties.&lt;br&gt;• Describe reactants and products of simple chemical reactions.</td>
<td><strong>A. Explain concepts about the structure and properties of matter.</strong>&lt;br&gt;• Know that atoms are composed of even smaller sub-atomic structures whose properties are measurable.&lt;br&gt;• Explain the repeating pattern of chemical properties by using the repeating patterns of atomic structure within the periodic table.&lt;br&gt;• Predict the behavior of gases through the use of Boyle’s, Charles’ or the ideal gas law, in everyday situations.&lt;br&gt;• Describe phases of matter according to the Kinetic Molecular Theory.&lt;br&gt;• Explain the formation of compounds and their resulting properties using bonding theories (ionic and covalent).</td>
<td><strong>A. Apply concepts about the structure and properties of matter.</strong>&lt;br&gt;• Apply rules of systematic nomenclature and formula writing to chemical substances.&lt;br&gt;• Classify and describe, in equation form, types of chemical and nuclear reactions.&lt;br&gt;• Explain how radioactive isotopes that are subject to decay can be used to estimate the age of materials.&lt;br&gt;• Explain how the forces that bind solids, liquids and gases affect their properties.&lt;br&gt;• Characterize and identify important classes of compounds (e.g., acids, bases, salts).</td>
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*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...*
### 3.4. Physical Science, Chemistry and Physics

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*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...*

- Recognize formulas for simple inorganic compounds.
- Describe various types of chemical reactions by applying the laws of conservation of mass and energy.
- Apply knowledge of mixtures to appropriate separation techniques.
- Understand that carbon can form several types of compounds.
- Apply the conservation of energy concept to fields as diverse as mechanics, nuclear particles and studies of the origin of the universe.
- Apply the predictability of nuclear decay to estimate the age of materials that contain radioactive isotopes.
- Quantify the properties of matter (e.g., density, solubility coefficients) by applying mathematical formulas.
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| **B. Know basic energy types, sources and conversions.**  
- Identify energy forms and examples (e.g., sunlight, heat, stored, motion).  
- Know the concept of the flow of energy by measuring flow through an object or system.  
- Describe static electricity in terms of attraction, repulsion and sparks.  
- Apply knowledge of the basic electrical circuits to design and construction simple direct current circuits.  
- Classify materials as conductors and nonconductors.  
- Know and demonstrate the basic properties of heat by producing it in a variety of ways. | **B. Relate energy sources and transfers to heat and temperature.**  
- Identify and describe sound changes in moving objects.  
- Know that the sun is a major source of energy that emits wavelengths of visible light, infrared and ultraviolet radiation.  
- Explain the conversion of one form of energy to another by applying knowledge of each form of energy.  
- Explain the parts and functions in an electrical circuit. | **B. Analyze energy sources and transfers of heat.**  
- Determine the efficiency of chemical systems by applying mathematical formulas.  
- Use knowledge of chemical reactions to generate an electrical current.  
- Evaluate energy changes in chemical reactions.  
- Use knowledge of conservation of energy and momentum to explain common phenomena (e.g., refrigeration system, rocket propulsion).  
- Explain resistance, current and electro-motive force (Ohm’s Law). | **B. Apply and analyze energy sources and conversions and their relationship to heat and temperature.**  
- Determine the heat involved in illustrative chemical reactions.  
- Evaluate mathematical formulas that calculate the efficiency of specific chemical and mechanical systems.  
- Use knowledge of oxidation and reduction to balance complex reactions.  
- Apply appropriate thermodynamic concepts (e.g., conservation, entropy) to solve problems relating to energy and heat. |

Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...
3.4. Physical Science, Chemistry and Physics

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<td>Know the characteristics of light (e.g., reflection, refraction, absorption) and use them to produce heat, color or a virtual image.</td>
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**Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...**

**Observe and describe different types of force and motion.**
- Identify characteristics of sound (pitch, loudness and echoes).
- Recognize forces that attract or repel other objects and demonstrate them.
- Describe various types of motions.
- Compare the relative movement of objects and describe types of motion that are evident.
- Describe the position of an object by locating it relative to another object or the background (e.g., geographic direction, left, up).

**C. Identify and explain the principles of force and motion.**
- Describe the motion of an object based on its position, direction and speed.
- Classify fluid power systems according to fluid used or mode of power transmission (e.g., air, oil).
- Explain various motions using models.
- Explain how convex and concave mirrors and lenses change light images.
- Explain how sound and light travel in waves of differing speeds, sizes and frequencies.

**C. Distinguish among the principles of force and motion.**
- Identify the relationship of electricity and magnetism as two aspects of a single electromagnetic force.
- Identify elements of simple machines in compound machines.
- Explain fluid power systems through the design and construction of appropriate models.
- Describe sound effects (e.g., Doppler effect, amplitude, frequency, reflection, refraction, absorption, sonar, seismic).
- Describe light effects (e.g., Doppler effect, dispersion, absorption, emission spectra, polarization, interference).
- Describe and measure the motion of sound, light and other objects.

**C. Apply the principles of motion and force.**
- Evaluate wave properties of frequency, wavelength and speed as applied to sound and light through different media.
- Propose and produce modifications to specific mechanical power systems that will improve their efficiency.
- Analyze the principles of translational motion, velocity and acceleration as they relate to free fall and projectile motion.
- Analyze the principles of rotational motion to solve problems relating to angular momentum, and torque.
- Interpret a model that illustrates circular motion and acceleration.
3.4. Physical Science, Chemistry and Physics

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<td>Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...</td>
<td>• Know Newton's laws of motion (including inertia, action and reaction) and gravity and apply them to solve problems related to forces and mass.</td>
<td>• Describe inertia, motion, equilibrium, and action/reaction concepts through words, models and mathematical symbols.</td>
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• Describe inertia, motion, equilibrium, and action/reaction concepts through words, models and mathematical symbols.
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**Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...**

D. Describe the composition and structure of the universe and the earth’s place in it.
- Recognize earth’s place in the solar system.
- Explain and illustrate the causes of seasonal changes.
- Identify planets in our solar system and their general characteristics.
- Describe the solar system motions and use them to explain time (e.g., days, seasons), major lunar phases and eclipses.

D. Describe essential ideas about the composition and structure of the universe and the earth’s place in it.
- Recognize earth’s place in the solar system.
- Explain and illustrate the causes of seasonal changes.
- Identify planets in our solar system and their general characteristics.
- Describe the solar system motions and use them to explain time (e.g., days, seasons), major lunar phases and eclipses.

D. Explain essential ideas about the composition and structure of the universe.
- Compare various planets’ characteristics.
- Describe basic star types and identify the sun as a star type.
- Describe and differentiate comets, asteroids and meteors.
- Identify gravity as the force that keeps planets in orbit around the sun and governs the rest of the movement of the solar system and the universe.
- Illustrate how the position of stars and constellations change in relation to the Earth during an evening and from month to month.
- Identify equipment and instruments that explore the universe.

D. Analyze essential ideas about the composition and structure of the universe.
- Analyze the Big Bang Theory’s use of gravitation and nuclear reaction to explain a possible origin of the universe.
- Compare the use of visual, radio and x-ray telescopes to collect data regarding the structure and evolution of the universe.
- Correlate the use of the special theory of relativity and the life of a star.
### 3.4. Physical Science, Chemistry and Physics

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- Identify the accomplishments and contributions provided by selected past and present scientists in the field of astronomy.
- Identify and articulate space program efforts to investigate possibilities of living in space and on other planets.

- Identify and analyze the findings of several space instruments in regard to the extent and composition of the solar system and universe.

Refer to Technology Standard Category 3.6 for applied uses of these concepts and principles.
### 3.5. Earth Sciences

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<th>3.5.12. GRADE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A.</strong> Know basic landforms and earth history.</td>
<td><strong>A.</strong> Describe earth features and processes.</td>
<td><strong>A.</strong> Relate earth features and processes that change the earth.</td>
<td><strong>A.</strong> Analyze and evaluate earth features and processes that change the earth.</td>
</tr>
<tr>
<td>• Describe earth processes (e.g., rusting, weathering, erosion) that have affected selected physical features in students' neighborhoods.</td>
<td>• Describe major layers of the earth.</td>
<td>• Illustrate and explain plate tectonics as the mechanism of continental movement and sea floor changes.</td>
<td>• Apply knowledge of geophysical processes to explain the formation and degradation of earth structures (e.g., mineral deposition, cave formations, soil composition).</td>
</tr>
<tr>
<td>• Identify various earth structures (e.g., mountains, faults, drainage basins) through the use of models.</td>
<td>• Describe the processes involved in the creation of geologic features (e.g., folding, faulting, volcanism, sedimentation) and that these processes seen today (e.g., erosion, weathering, crustal plate movement) are similar to those in the past.</td>
<td>• Compare examples of change to the earth’s surface over time as they related to continental movement and ocean basin formation (e.g., Delaware, Susquehanna, Ohio Rivers system formations, dynamics).</td>
<td>• Interpret geological evidence supporting evolution.</td>
</tr>
<tr>
<td>• Identify the composition of soil as weathered rock and decomposed organic remains.</td>
<td>• Describe the processes that formed Pennsylvania geologic structures and resources including mountains, glacial formations, water gaps and ridges.</td>
<td>• Interpret topographic maps to identify and describe significant geologic history/structures in Pennsylvania.</td>
<td>• Apply knowledge of radioactive decay to assess the age of various earth features and objects.</td>
</tr>
<tr>
<td>• Describe fossils and the type of environment they lived in (e.g., tropical, aquatic, desert).</td>
<td>• Explain how the rock cycle affected rock formations in the state of Pennsylvania.</td>
<td>• Evaluate and interpret geologic history using geologic maps.</td>
<td>• Explain several methods of dating earth materials and structures.</td>
</tr>
</tbody>
</table>
### 3.5. Earth Sciences

<table>
<thead>
<tr>
<th>3.5.4. GRADE 4</th>
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</tr>
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Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...

- Distinguish between examples of rapid surface changes (e.g., landslides, earthquakes) and slow surface changes (e.g., weathering).
- Identify living plants and animals that are similar to fossil forms.
- Correlate rock units with general geologic time periods in the history of the earth.
- Describe and identify major types of rocks and minerals.
### 3.5. Earth Sciences

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</tr>
</thead>
<tbody>
<tr>
<td><strong>B. Know types and uses of earth materials.</strong></td>
<td><strong>B. Recognize earth resources and how they affect everyday life.</strong></td>
<td><strong>B. Explain sources and uses of earth resources.</strong></td>
<td><strong>B. Analyze the availability, location and extraction of earth resources.</strong></td>
</tr>
<tr>
<td>• Identify uses of various earth materials (e.g., buildings, highways, fuels, growing plants).</td>
<td>• Identify and locate significant earth resources (e.g., rock types, oil, gas, coal deposits) in Pennsylvania.</td>
<td>• Compare the locations of strategic minerals and earth resources in the world with their geologic history using maps and global information systems.</td>
<td>• Describe how the location of earth’s major resources has affected a country’s strategic decisions.</td>
</tr>
<tr>
<td>• Identify and sort earth materials according to a classification key (e.g., soil/rock type).</td>
<td>• Explain the processes involved in the formation of oil and coal in Pennsylvania.</td>
<td>• Demonstrate the effects of sedimentation and erosion before and after a conservation plan is implemented.</td>
<td>• Compare locations of earth features and country boundaries.</td>
</tr>
<tr>
<td></td>
<td>• Explain the value and uses of different earth resources (e.g., selected minerals, ores, fuel sources, agricultural uses).</td>
<td>• Evaluate the impact of geologic activities/hazards (e.g., earthquakes, sinkholes, landslides).</td>
<td>• Analyze the impact of resources (e.g., coal deposits, rivers) on the life of Pennsylvania’s settlements and cities.</td>
</tr>
<tr>
<td></td>
<td>• Compare the locations of human settlements as related to available resources.</td>
<td>• Evaluate land use (e.g., agricultural, recreational, residential, commercial) in Pennsylvania based upon soil characteristics.</td>
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</table>
| **C. Know basic weather elements.**  
- Identify cloud types.  
- Identify weather patterns from data charts (including temperature, wind direction and speed, precipitation) and graphs of the data.  
- Explain how the different seasons affect plants, animals, food availability and daily human life. | **C. Describe basic elements of meteorology.**  
- Explain weather forecasts by interpreting weather data and symbols.  
- Explain the oceans’ impact on local weather and the climate of a region.  
- Identify how cloud types, wind directions and barometric pressure changes are associated with weather patterns in different regions of the country.  
- Explain and illustrate the processes of cloud formation and precipitation.  
- Describe and illustrate the major layers of the earth’s atmosphere.  
- Identify different air masses and global wind patterns and how they relate to the weather patterns in different regions of the U.S. | **C. Interpret meteorological data.**  
- Analyze information from meteorological instruments and online sources to predict weather patterns.  
- Describe weather and climate patterns on global levels.  
- Evaluate specific adaptations plants and animals have made that enable them to survive in different climates. | **C. Analyze atmospheric energy transfers.**  
- Describe how weather and climate involve the transfer of energy in and out of the atmosphere.  
- Explain how unequal heating of the air, ocean and land produces wind and ocean currents.  
- Analyze the energy transformations that occur during the greenhouse effect and predict the long-term effects of increased pollutant levels in the atmosphere.  
- Analyze the mechanisms that drive a weather phenomena (e.g., El Nino, hurricane, tornado) using the correlation of three methods of heat energy transfer. |

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</table>
| **D.** Recognize the earth’s different water resources.  
- Know that approximately three-fourths of the earth is covered by water.  
- Identify and describe types of fresh and saltwater bodies.  
- Identify examples of water in the form of solid, liquid and gas on or near the surface of the earth.  
- Explain and illustrate evaporation and condensation.  
- Recognize other resources available from water (e.g., energy, transportation, minerals, food). | **D.** Explain the behavior and impact of the earth’s water systems.  
- Explain the water cycle using the processes of evaporation and condensation.  
- Describe factors that affect evaporation and condensation.  
- Distinguish salt from fresh water (e.g., density, electrical conduction).  
- Compare the effect of water type (e.g., polluted, fresh, salt water) and the life contained in them.  
- Identify ocean and shoreline features (e.g., bays, inlets, spit, tidal marshes). | **D.** Assess the value of water as a resource.  
- Compare specific sources of potable water (e.g., wells, public systems, rivers) used by people in Pennsylvania.  
- Identify the components of a municipal/agricultural water supply system and a wastewater treatment system.  
- Relate aquatic life to water conditions (e.g., turbidity, temperature, salinity, dissolved oxygen, nitrogen levels, pressure).  
- Compare commercially important aquatic species in or near Pennsylvania.  
- Identify economic resources found in marine areas.  
- Assess the natural and man-made factors that affect the availability of clean water (e.g., rock and mineral deposits, man-made pollution). | **D.** Analyze the principles and history of hydrology.  
- Analyze the operation and effectiveness of a water purification and desalination system.  
- Evaluate the pros and cons of surface water appropriation for commercial and electrical use.  
- Analyze the historical development of water use in Pennsylvania (e.g., recovery of Lake Erie).  
- Compare the marine life and type of water found in the intertidal, neritic and bathyal zones. |

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Pennsylvania Core Standards for Reading in Science and Technology

Grades 6-12

INTRODUCTION

These standards describe what students in the science classroom should know and be able to do with the English language in reading, grade 6 through 12. The standards provide the targets for instruction and student learning essential for success in all academic areas, not just language arts classrooms. Although the standards are not a curriculum or a prescribed series of activities, school entities will use them to develop a local school curriculum that will meet local students’ needs.

The standards below begin at grade 6; standards for K-5 reading in history/social studies, science, and technical subjects are integrated into the K-5 Reading standards.

The English Language Arts Standards for Science and Technical Subjects also provide parents and community members with information about what students should know and be able to do as they progress through the educational program and at graduation. With a clearly defined target provided by the standards, parents, students, educators and community members become partners in learning. Each standard implies an end of year goal—with the understanding that exceeding the standard is an even more desirable end goal.
# Reading Informational Text

**Students read, understand, and respond to informational text—with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**

<table>
<thead>
<tr>
<th>Key Ideas and Details</th>
<th>GRADE 6-8</th>
<th>GRADE 9-10</th>
<th>GRADE 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.5.6-8.A.</td>
<td>Cite specific textual evidence to support analysis of science and technical texts.</td>
<td>CC.3.5.9-10.A.</td>
<td>Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.</td>
</tr>
<tr>
<td>CC.3.5.6-8.B.</td>
<td>Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</td>
<td>CC.3.5.9-10.B.</td>
<td>Determine the central ideas or conclusions of a text; trace the text’s explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.</td>
</tr>
<tr>
<td>CC.3.5.6-8.C.</td>
<td>Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</td>
<td>CC.3.5.9-10.C.</td>
<td>Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.</td>
</tr>
</tbody>
</table>
### 3.5 Reading Informational Text

Students read, understand, and respond to informational text—with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.

<table>
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<tr>
<th>GRADE 6-8</th>
<th>GRADE 9-10</th>
<th>GRADE 11-12</th>
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<tr>
<td><strong>Craft and Structure</strong></td>
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</tr>
<tr>
<td>CC.3.5.6-8.D. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.</td>
<td>CC.3.5.9-10.D. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics.</td>
<td>CC.3.5.11-12.D. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.</td>
</tr>
<tr>
<td>CC.3.5.6-8.E. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.</td>
<td>CC.3.5.9-10.E. Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</td>
<td>CC.3.5.11-12.E. Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.</td>
</tr>
<tr>
<td>CC.3.5.6-8.F. Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.</td>
<td>CC.3.5.9-10.F. Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.</td>
<td>CC.3.5.11-12.F. Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.</td>
</tr>
</tbody>
</table>
### Reading Informational Text

Students read, understand, and respond to informational text—with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>GRADE 6-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.5.6-8.G. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADE 9-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.5.9-10.G. Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADE 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.5.11-12.G. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADE 6-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.5.6-8.H. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADE 9-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.5.9-10.H. Assess the extent to which the reasoning and evidence in a text support the author’s claim or a recommendation for solving a scientific or technical problem.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADE 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.5.11-12.H. Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADE 6-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.5.6-8.I. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADE 9-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.5.9-10.I. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADE 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.5.11-12.I. Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</td>
</tr>
</tbody>
</table>
### 3.5 Reading Informational Text
Students read, understand, and respond to informational text—with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Range and Level of Complex Texts</th>
<th>GRADE 6-8</th>
<th>GRADE 9-10</th>
<th>GRADE 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.5.6-8.J. By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.</td>
<td>CC.3.5.9-10.J. By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</td>
<td>CC.3.5.11-12.J. By the end of grade 12, read and comprehend science/technical texts in the grades 11-12 text complexity band independently and proficiently.</td>
<td></td>
</tr>
</tbody>
</table>
3.6. Technology Education

<table>
<thead>
<tr>
<th>3.6.4. GRADE 4</th>
<th>3.6.7. GRADE 7</th>
<th>3.6.10. GRADE 10</th>
<th>3.6.12. GRADE 12</th>
</tr>
</thead>
</table>
| **A.** Know that biotechnologies relate to propagating, growing, maintaining, adapting, treating and converting.  
- Identify agricultural and industrial production processes that involve plants and animals.  
- Identify waste management treatment processes.  
- Describe how knowledge of the human body influences or impacts ergonomic design.  
- Describe how biotechnology has impacted various aspects of daily life (e.g., health care, agriculture, waste treatment). | **A.** Explain biotechnologies that relate to related technologies of propagating, growing, maintaining, adapting, treating and converting.  
- Identify the environmental, societal and economic impacts that waste has in the environment.  
- Identify and explain the impact that a specific medical advancement has had on society.  
- Explain the factors that were taken into consideration when a specific object was designed.  
- Define and describe how fuels and energy can be generated through the process of biomass conversion.  
- Identify and group basic plant and animal production processes. | **A.** Apply biotechnologies that relate to propagating, growing, maintaining, adapting, treating and converting.  
- Apply knowledge of plant and animal production processes in designing an improvement to existing processes.  
- Apply knowledge of biomedical technology applications in designing a solution to a simple medical problem (e.g., wheel chair design, artificial arteries).  
- Apply knowledge of how biomedical technology affects waste products in designing a solution that will result in reduced waste.  
- Apply ergonomic engineering factors when devising a solution to a specific problem.  
- Describe various methods of biochemical conversion. | **A.** Analyze biotechnologies that relate to propagating, growing, maintaining, adapting, treating and converting.  
- Analyze and solve a complex production process problem using biotechnologies (e.g., hydroponics, fish farming, crop propagation).  
- Analyze specific examples where engineering has impacted society in protection, personal health application or physical enhancement.  
- Appraise and evaluate the cause and effect and subsequent environmental, economic and societal impacts that result from biomass and biochemical conversion. |

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<tr>
<td>• Explain the impact that agricultural science has had on biotechnology.</td>
<td>• Describe specific examples that reflect the impact that agricultural science has had on biotechnology.</td>
<td>• Evaluate and apply biotechnical processes to complex plant and animal production methods.</td>
<td>• Apply knowledge of biochemical-related technologies to propose alternatives to hazardous waste treatment.</td>
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<tr>
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<td></td>
<td>• Apply knowledge of agricultural science to solve or improve a biochemical related problem.</td>
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</table>
### Technology Education

**3.6.4. GRADE 4**

- Know that information technologies involve encoding, transmitting, receiving, storing, retrieving and decoding.
  - Identify electronic communication methods that exist in the community (e.g., digital cameras, telephone, internet, television, fiber optics).
  - Identify graphic reproduction methods.
  - Describe appropriate image generating techniques (e.g., photography, video).
  - Demonstrate the ability to communicate an idea by applying basic sketching and drawing techniques.

**3.6.7. GRADE 7**

- Explain information technologies of encoding, transmitting, receiving, storing, retrieving and decoding.
  - Demonstrate the effectiveness of image generating technique to communicate a story (e.g., photography, video).
  - Analyze and evaluate the effectiveness of a graphic object designed and produced to communicate a thought or concept.
  - Apply basic technical drawing techniques to communicate an idea or solution to a problem.

**3.6.10. GRADE 10**

- Apply knowledge of information technologies of encoding, transmitting, receiving, storing, retrieving and decoding.
  - Describe the proper use of graphic and electronic communication systems.
  - Apply a variety of advanced mechanical and electronic drafting methods to communicate a solution to a specific problem.
  - Apply and analyze advanced communication techniques to produce an image that effectively conveys a message (e.g., desktop publishing, audio and/or video production).
  - Illustrate an understanding of a computer network system by modeling, constructing or assembling its components.

**3.6.12. GRADE 12**

- Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.
  - Apply and analyze advanced information techniques to produce a complex image that effectively conveys a message (e.g., desktop publishing, audio and/or video production).
  - Analyze and evaluate a message designed and produced using still, motion and animated communication techniques.
  - Describe the operation of fiber optic, microwave and satellite informational systems.
  - Apply various graphic and electronic information techniques to solve real world problems (e.g., data organization and analysis, forecasting, interpolation).

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| C. Know physical technologies of structural design, analysis and engineering, finance, production, marketing, research and design.  
- Identify and group a variety of construction tasks.  
- Identify the major construction systems present in a specific local building.  
- Identify specific construction systems that depend on each other in order to complete a project.  
- Know skills used in construction.  
- Identify examples of manufactured goods present in the home and school.  
- Identify basic resources needed to produce a manufactured item.  
- Identify basic component operations in a specific manufacturing enterprise (e.g., cutting, shaping, attaching). | C. Explain physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design.  
- Use knowledge of material effectiveness to solve specific construction problems (e.g., steel vs. wood bridges).  
- Differentiate among the different types of construction applications (e.g., microwave tower, power plants, aircrafts).  
- Explain basic material processes that manufactured objects undergo during production (e.g., separating, forming, combining).  
- Evaluate a construction activity by specifying task analyses and necessary resources. | C. Apply physical technologies to structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.  
- Describe and classify common construction by their characteristics and composition.  
- Compare and contrast specific construction systems that depend on each other in order to complete a project.  
- Evaluate material failure common to specific applications.  
- Demonstrate knowledge of various construction systems by building or interpreting models.  
- Select and apply the necessary resources to successfully conduct a manufacturing enterprise. | C. Analyze physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.  
- Apply knowledge of construction technology by designing, planning and applying all the necessary resources to successfully solve a construction problem.  
- Compare resource options in solving a specific manufacturing problem.  
- Analyze and apply complex skills needed to process materials in complex manufacturing enterprises.  
- Apply advanced information collection and communication techniques to successfully convey solutions to specific construction problems.  

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### 3.6. Technology Education

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- Identify waste and pollution resulting from a manufacturing enterprise.
- Explain and demonstrate the concept of manufacturing (e.g., assemble a set of papers or ball point pens sequentially, mass produce an object).
- Identify transportation technologies of propelling, structuring, suspending, guiding, controlling and supporting.
- Identify and experiment with simple machines used in transportation systems.
- Explain how improved transportation systems have changed society.
- Explain the relationships among the basic resources needed in the production process for a specific manufactured object.
- Explain the difference between design engineering and production engineering processes.
- Analyze manufacturing steps that affect waste and pollutants.
- Explain transportation technologies of propelling, structuring, suspending, guiding, controlling and supporting.
- Identify and explain the workings of several mechanical power systems.
- Model and explain examples of vehicular propulsion, control, guidance, structure and suspension systems.
- Explain the limitations of land, marine, air and space transportation systems.
- Apply concepts of design engineering and production engineering in the organization and application of a manufacturing activity.
- Apply the concepts of manufacturing by redesigning an enterprise to improve productivity or reduce or eliminate waste and/or pollution.
- Evaluate the interrelationship of various transportation systems in the community.
- Analyze the impacts that transportation systems have on a community.
- Assess the importance of capital on specific construction applications.
- Analyze the positive and negative qualities of several different types of materials as they would relate to specific construction applications.
- Analyze transportation technologies of propelling, structuring, suspending, guiding, controlling and supporting.
- Analyze the concepts of vehicular propulsion, guidance, control, suspension and structural systems while designing and producing specific complex transportation systems.
INTRODUCTION

These standards describe what students in the social studies classroom should know and be able to do as they progress through the educational program. The English Language Arts Standards for History and Social Studies also provide parents and community members with information about what students should know and be able to do as they progress through the educational program. Parents and community members with information about what students should know and be able to do as they progress through the English Language Arts Standards for History and Social Studies.

The standards described in this document were developed in collaboration with educators and experts in the fields of social studies, science, and technology. These standards are intended to provide a framework for curriculum development and instruction in social studies, science, and technology. They are designed to ensure that students are prepared for success in all academic areas and are able to compete successfully in the 21st century.

These standards describe what students in the social studies classroom should know and be able to do as they progress through the educational program. The standards provide a clear and consistent understanding of what students are expected to learn in social studies, science, and technology. These standards are intended to provide a shared understanding of what students should be learning in social studies, science, and technology.

The standards described in this document were developed in collaboration with educators and experts in the fields of social studies, science, and technology. These standards are intended to provide a framework for curriculum development and instruction in social studies, science, and technology. They are designed to ensure that students are prepared for success in all academic areas and are able to compete successfully in the 21st century.
### 3.6 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

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<tbody>
<tr>
<td><strong>CC.3.6.6-8.A.</strong></td>
<td><strong>CC.3.6.9-10.A.</strong></td>
<td><strong>CC.3.6.11-12.A.</strong></td>
</tr>
<tr>
<td>Write arguments focused on discipline-specific content.</td>
<td>Write arguments focused on discipline-specific content.</td>
<td>Write arguments focused on discipline-specific content.</td>
</tr>
<tr>
<td>- Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.</td>
<td>- Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</td>
<td>- Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</td>
</tr>
<tr>
<td>- Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.</td>
<td>- Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience’s knowledge level and concerns.</td>
<td>- Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience’s knowledge level, concerns, values, and possible biases.</td>
</tr>
<tr>
<td>- Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.</td>
<td>- Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</td>
<td>- Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</td>
</tr>
<tr>
<td>- Establish and maintain a formal style.</td>
<td>- Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.</td>
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<tr>
<td>- Provide a concluding statement or section that follows from and supports the argument presented.</td>
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<tr>
<td><strong>CC.3.6.6-8.B.</strong> *</td>
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<tr>
<td>Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.</td>
<td></td>
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<tr>
<td>• Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.</td>
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<tr>
<td>• Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.</td>
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<tr>
<td>• Use precise language and domain-specific vocabulary to inform about or explain the topic.</td>
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<td>• Establish and maintain a formal style and objective tone.</td>
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<td>• Provide a concluding statement or section that follows from and supports the information or explanation presented.</td>
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<td><strong>CC.3.6.9-10.B.</strong> *</td>
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<td>Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</td>
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<tr>
<td>• Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</td>
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<tr>
<td>• Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.</td>
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<tr>
<td>• Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</td>
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<tr>
<td>• Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.</td>
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<tr>
<td>• Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.</td>
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<tr>
<td>• Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</td>
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<tr>
<td><strong>CC.3.6.11-12.B.</strong> *</td>
<td></td>
<td></td>
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<tr>
<td>Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</td>
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<tr>
<td>• Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</td>
<td></td>
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<tr>
<td>• Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.</td>
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<td>• Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</td>
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<tr>
<td>• Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</td>
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<td>• Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</td>
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<td><strong>Writing</strong></td>
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</tr>
<tr>
<td>CC.3.6.6-8.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</td>
<td>CC.3.6.9-10.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</td>
<td>CC.3.6.11-12.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</td>
</tr>
<tr>
<td>CC.3.6.6-8.D. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</td>
<td>CC.3.6.9-10.D. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</td>
<td>CC.3.6.11-12.D. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</td>
</tr>
<tr>
<td>CC.3.6.6-8.E. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.</td>
<td>CC.3.6.9-10.E. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.</td>
<td>CC.3.6.11-12.E. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</td>
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<td><strong>Research to Build and Present Knowledge</strong></td>
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<tr>
<td>CC.3.6.6-8.F. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</td>
<td>CC.3.6.9-10.F. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</td>
<td>CC.3.6.11-12.F. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</td>
</tr>
<tr>
<td>CC.3.6.6-8.G. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.</td>
<td>CC.3.6.9-10.G. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</td>
<td>CC.3.6.11-12.G. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</td>
</tr>
<tr>
<td>CC.3.6.6-8.H. Draw evidence from informational texts to support analysis, reflection, and research.</td>
<td>CC.3.6.9-10.H. Draw evidence from informational texts to support analysis, reflection, and research.</td>
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</tr>
<tr>
<td>CC.3.6.6-8.I.</td>
<td>CC.3.6.9-10.I.</td>
<td>CC.3.6.11-12.I.</td>
</tr>
<tr>
<td>Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
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* Students’ narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.
3.7. Technological Devices

<table>
<thead>
<tr>
<th>3.7.4. GRADE 4</th>
<th>3.7.7. GRADE 7</th>
<th>3.7.10. GRADE 10</th>
<th>3.7.12. GRADE 12</th>
</tr>
</thead>
</table>
| **A.** Explore the use of basic tools, simple materials and techniques to safely solve problems.  
  - Describe the scientific principles on which various tools are based.  
  - Group tools and machines by their function.  
  - Select and safely apply appropriate tools and materials to solve simple problems. | **A.** Describe the safe and appropriate use of tools, materials and techniques to answer questions and solve problems.  
  - Identify uses of tools, machines, materials, information, people, money, energy and time that meet specific design criteria.  
  - Describe safe procedures for using tools and materials.  
  - Assess materials for appropriateness of use. | **A.** Identify and safely use a variety of tools, basic machines, materials and techniques to solve problems and answer questions.  
  - Select and safely apply appropriate tools, materials and processes necessary to solve complex problems.  
  - Apply advanced tool and equipment manipulation techniques to solve problems. | **A.** Apply advanced tools, materials and techniques to answer complex questions.  
  - Demonstrate the safe use of complex tools and machines within their specifications.  
  - Select and safely apply appropriate tools, materials and processes necessary to solve complex problems that could result in more than one solution.  
  - Evaluate and use technological resources to solve complex multi-step problems. |

*Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...*
### 3.7. Technological Devices

#### 3.7.4. GRADE 4

- Develop simple skills to measure, record, cut and fasten.
- Explain appropriate instrument selection for specific tasks.

#### 3.7.7. GRADE 7

- Use appropriate instruments and apparatus to study materials.
  - Select appropriate instruments to measure the size, weight, shape and temperature of living and non-living objects.
  - Apply knowledge of different measurement systems to measure and record objects' properties.

#### 3.7.10. GRADE 10

- Apply appropriate instruments and apparatus to examine a variety of objects and processes.
  - Describe and use appropriate instruments to gather and analyze data.
  - Compare and contrast different scientific measurement systems; select the best measurement system for a specific situation.
  - Explain the need to estimate measurements within error of various instruments.
  - Apply accurate measurement knowledge to solve everyday problems.
  - Describe and demonstrate the operation and use of advanced instrumentation in evaluating material and chemical properties (e.g., scanning electron microscope, nuclear magnetic resonance machines).

#### 3.7.12. GRADE 12

- Evaluate appropriate instruments and apparatus to accurately measure materials and processes.
  - Apply and evaluate the use of appropriate instruments to accurately measure scientific and technologic phenomena within the error limits of the equipment.
  - Evaluate the appropriate use of different measurement scales (macro and micro).
  - Evaluate the utility and advantages of a variety of absolute and relative measurement scales for their appropriate application.
### 3.7. Technological Devices

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Computer literacy, including the use of hardware and software in standard statements C, D, and E, should be integrated across all content areas.

<table>
<thead>
<tr>
<th>C. Identify basic computer operations and concepts.</th>
<th>C. Explain and demonstrate basic computer operations and concepts.</th>
<th>C. Apply basic computer operations and concepts.</th>
<th>C. Evaluate computer operations and concepts as to their effectiveness to solve specific problems.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify the major parts necessary for a computer to input and output data.</td>
<td>• Know specialized computer applications used in the community.</td>
<td>• Identify solutions to basic hardware and software problems.</td>
<td>• Describe and demonstrate atypical software installation.</td>
</tr>
<tr>
<td>• Explain and demonstrate the basic use of input and output devices (e.g., keyboard, monitor, printer, mouse).</td>
<td>• Describe the function of advanced input and output devices (e.g., scanners, video images, plotters, projectors) and demonstrate their use.</td>
<td>• Apply knowledge of advanced input devices.</td>
<td>• Analyze and solve hardware and advanced software problems.</td>
</tr>
<tr>
<td>• Explain and demonstrate the use of external and internal storage devices (e.g., disk drive, CD drive).</td>
<td>• Demonstrate age appropriate keyboarding skills and techniques.</td>
<td>• Apply knowledge of hardware setup.</td>
<td>• Assess and apply multiple input and output devices to solve specific problems.</td>
</tr>
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</table>

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<td>• Identify solutions to basic hardware and software problems.</td>
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<td>• Apply knowledge of advanced input devices.</td>
<td>• Analyze and solve hardware and advanced software problems.</td>
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<tr>
<td>• Apply knowledge of hardware setup.</td>
<td>• Assess and apply multiple input and output devices to solve specific problems.</td>
</tr>
<tr>
<td>• Describe the process for basic software installation and demonstrate it.</td>
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<tr>
<td><strong>D. Use basic computer software.</strong>&lt;br&gt;• Apply operating system skills to perform basic computer tasks.&lt;br&gt;• Apply basic word processing skills.&lt;br&gt;• Identify and use simple graphic and presentation graphic materials generated by the computer.&lt;br&gt;• Apply specific instructional software.</td>
<td><strong>D. Apply computer software to solve specific problems.</strong>&lt;br&gt;• Identify software designed to meet specific needs (e.g., Computer Aided Drafting, design software, tutorial, financial, presentation software).&lt;br&gt;• Identify and solve basic software problems relevant to specific software applications.&lt;br&gt;• Identify basic multimedia applications.&lt;br&gt;• Demonstrate a basic knowledge of desktop publishing applications.&lt;br&gt;• Apply intermediate skills in utilizing word processing, database and spreadsheet software.&lt;br&gt;• Apply basic graphic manipulation techniques.</td>
<td><strong>D. Utilize computer software to solve specific problems.</strong>&lt;br&gt;• Identify legal restrictions in the use of software and the output of data.&lt;br&gt;• Apply advanced graphic manipulation and desktop publishing techniques.&lt;br&gt;• Apply basic multimedia applications.&lt;br&gt;• Apply advanced word processing, database and spreadsheet skills.&lt;br&gt;• Describe and demonstrate how two or more software applications can be used to produce an output.&lt;br&gt;• Select and apply software designed to meet specific needs.</td>
<td><strong>D. Evaluate the effectiveness of computer software to solve specific problems.</strong>&lt;br&gt;• Evaluate the effectiveness of software to produce an output and demonstrate the process.&lt;br&gt;• Design and apply advanced multimedia techniques.&lt;br&gt;• Analyze, select and apply the appropriate software to solve complex problems.&lt;br&gt;• Evaluate the effectiveness of the computer as a presentation tool.&lt;br&gt;• Analyze the legal responsibilities of computer users.</td>
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Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...
### 3.7. Technological Devices

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| **E. Identify basic computer communications systems.**  
  - Apply a web browser.  
  - Apply basic electronic mail functions.  
  - Use on-line searches to answer age appropriate questions. | **E. Explain basic computer communications systems.**  
  - Describe the organization and functions of the basic parts that make up the World Wide Web.  
  - Apply advanced electronic mail functions.  
  - Apply basic on-line research techniques to solve a specific problem. | **E. Apply basic computer communications systems.**  
  - Identify and explain various types of on-line services.  
  - Identify and explain the function of the parts of a basic network.  
  - Describe and apply the components of a web page and their function.  
  - Explain and demonstrate file transfer within and outside of a computer network.  
  - Identify, describe and complete advanced on-line research. | **E. Assess the effectiveness of computer communications systems.**  
  - Assess the effectiveness of a computer based communications system.  
  - Transfer files among different computer platforms.  
  - Analyze the effectiveness of on-line information resources to meet the needs for collaboration, research, publications, communications and productivity.  
  - Apply knowledge of protocol standards to solve connectivity problems. |

*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...*
### 3.8. Science, Technology and Human Endeavors

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</table>
| **A. Know that people select, create and use science and technology and that they are limited by social and physical restraints.**  
  - Identify and describe positive and negative impacts that influence or result from new tools and techniques.  
  - Identify how physical technology (e.g., construction, manufacturing, transportation), informational technology and biotechnology are used to meet human needs.  
  - Describe how scientific discoveries and technological advancements are related.  
  - Identify interrelationships among technology, people and their world.  
  - Apply the technological design process to solve a simple problem. | **A. Explain how sciences and technologies are limited in their effects and influences on society.**  
  - Identify and describe the unavoidable constraints of technological design.  
  - Identify changes in society as a result of a technological development.  
  - Identify and explain improvements in transportation, health, sanitation and communications as a result of advancements in science and technology and how they effect our lives. | **A. Analyze the relationship between societal demands and scientific and technological enterprises.**  
  - Identify past and current tradeoffs between increased production, environmental harm and social values (e.g., increased energy needs, power plants, automobiles).  
  - Compare technologies that are applied and accepted differently in various cultures (e.g., factory farming, nuclear power).  
  - Describe and evaluate social change as a result of technological developments.  
  - Assess the social impacts of a specific international environmental problem by designing a solution that applies the appropriate technologies and resources. | **A. Synthesize and evaluate the interactions and constraints of science and technology on society.**  
  - Compare and contrast how scientific and technological knowledge is both shared and protected.  
  - Evaluate technological developments that have changed the way humans do work and discuss their impacts (e.g., genetically engineered crops).  
  - Evaluate socially proposed limitations of scientific research and technological application. |
### 3.8. Science, Technology and Human Endeavors

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<tr>
<th>Grade</th>
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<tr>
<td><strong>B.</strong> Know how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.</td>
<td><em>Identify and distinguish between human needs and improving the quality of life.</em>&lt;br&gt;<em>Identify and distinguish between natural and human-made resources.</em>&lt;br&gt;<em>Describe a technological invention and the resources that were used to develop it.</em></td>
</tr>
<tr>
<td><strong>B.</strong> Explain how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.</td>
<td><em>Identify interrelationships between systems and resources.</em>&lt;br&gt;<em>Identify and describe the resources necessary to solve a selected problem in a community and improve the quality of life.</em>&lt;br&gt;<em>Identify and explain specific examples of how agricultural science has met human needs and has improved the quality of life.</em></td>
</tr>
<tr>
<td><strong>B.</strong> Analyze how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.</td>
<td><em>Identify several problems and opportunities that exist in your community, apply various problem-solving methods to design and evaluate possible solutions.</em>&lt;br&gt;<em>Analyze a recently invented item, describing the human need that prompted its invention and the current and potential social impacts of the specific invention.</em>&lt;br&gt;<em>Apply knowledge of oceanography, meteorology, geology and human anatomy to explain important considerations that need to be made for construction of homes, buildings and businesses in the United States.</em>&lt;br&gt;<em>Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.</em>&lt;br&gt;<em>Apply appropriate tools, materials and processes to solve complex problems.</em>&lt;br&gt;<em>Use knowledge of human abilities to design or modify technologies that extend and enhance human abilities.</em>&lt;br&gt;<em>Apply appropriate tools, materials and processes to physical, informational or biotechnological systems to identify and recommend solutions to international problems.</em>&lt;br&gt;<em>Apply knowledge of agricultural science to develop a solution that will improve on a human need or want.</em></td>
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<td>3.8.4. GRADE 4</td>
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3.8. Science, Technology and Human Endeavors

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</table>
| **C. Know the pros and cons of possible solutions to scientific and technological problems in society.**  
  - Compare the positive and negative expected and unexpected impacts of technological change.  
  - Identify and discuss examples of technological change in the community that have both positive and negative impacts. | **C. Identify the pros and cons of applying technological and scientific solutions to address problems and the effect upon society.**  
  - Describe the positive and negative expected and unexpected effects of specific technological developments.  
  - Describe ways technology extends and enhances human abilities. | **C. Evaluate possibilities, consequences and impacts of scientific and technological solutions.**  
  - Relate scientific and technological advancements in terms of cause and effect.  
  - Describe and evaluate the impacts that financial considerations have had on specific scientific and technological applications.  
  - Compare and contrast potential solutions to technological, social, economic and environmental problems.  
  - Analyze the impacts on society of accepting or rejecting scientific and technological advances. | **C. Evaluate the consequences and impacts of scientific and technological solutions.**  
  - Propose solutions to specific scientific and technological applications, identifying possible financial considerations.  
  - Analyze scientific and technological solutions through the use of risk/benefit analysis.  
  - Analyze and communicate the positive or negative impacts that a recent technological invention had on society.  
  - Evaluate and describe potential impacts from emerging technologies and the consequences of not keeping abreast of technological advancements (e.g., assessment alternatives, risks, benefits, costs, economic impacts, constraints). |

*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...*
IX. GLOSSARY

Allele: Any of a set of possible forms of a gene.

Biochemical conversion: The changing of organic matter into other chemical forms.

Biomass conversion: The changing of organic matter that has been produced by photosynthesis into useful liquid, gas or fuel.

Biomedical technology: The application of health care theories to develop methods, products and tools to maintain or improve homeostasis.

Biomes: A community of living organisms of a single major ecological region.

Biotechnology: The application of scientific, physical, mechanical and mathematical principles to design processes, products and systems for the transmission of information, including electronic communication systems.

Biochemistry: The study of the composition, structure, properties and reactions of carbon based matter, especially of atomic and molecular systems.

Construction technology: The ways that humans build structures on sites.

Desalinization: To remove salts and other chemicals from sea or saline water.

Dichotomous: Divided or divided into two parts or divisions.

Enzyme: A protein that increases the rate of a chemical reaction without being changed by the reaction; an organic catalyst.

Embryology: The branch of biology dealing with the development of embryos.

Embryogenesis: The growing or forming of an embryo or embryo-like organism.

Electronic communication: System for the transmission of information using electronic technology (e.g., digital cameras, cellular telephones, Internet, television, fiber optics).

Embryogenesis: The growing or forming of an embryo or embryo-like organism.

Embryology: The study of embryos.

Carbon chemistry: The science of the composition, structure, properties and reactions of carbon based matter, especially of atomic and molecular systems.

Biotechnology: The ways that humans apply biological concepts to produce products and provide services.

Embryogenesis: The growing or forming of an embryo or embryo-like organism.

Embryology: The study of embryos.

A community of living organisms of a single major ecological region.

Embryogenesis: The growing or forming of an embryo or embryo-like organism.

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A community of living organisms of a single major ecological region.

Embryogenesis: The growing or forming of an embryo or embryo-like organism.

Embryology: The study of embryos.
Ergonomics: Of or relating to the design of equipment or devices to fit the human body's control, position, movement and environment.

Evolution: A process of change that explains why what we see today is different from what existed in the past; it includes changes in the galaxies, stars, solar system, earth and life on earth. Biological evolution is a change in the hereditary characteristics of groups of organisms over the course of generations.

Fact: Information that has been objectively verified.

Geologic hazard: A naturally occurring or man-made condition or phenomenon that presents a risk or is a potential danger to life and property (e.g., landslides, floods, earthquakes, ground subsidence, coastal and beach erosion, faulting, dam leakage and failure, mining disasters, pollution and waste disposal, sinkholes).

Geologic map: A representation of a region on which is recorded earth information (e.g., the distribution, nature and age relationships of rock units and the occurrences of mineral deposits and fossil localities).

Hydrology: The scientific study of the properties, distribution and effects of water on the earth's surface, in the soil and underlying rocks and in the atmosphere.

Hypothesis: An assertion subject to verification or proof as a premise from which a conclusion is drawn.

Information technology: The technical means that humans create to store and transmit information.

Inquiry: A systematic process for using knowledge and skills to acquire and apply new knowledge.

Instructional technology: Any mechanical aid (including computer technology) used to assist in or enhance the process of teaching and learning.

Learning: A systematic process for using knowledge and skills to transmit information.

Law: Summarizing statement of observed experimental facts that has been tested many times and is generally accepted as true.
Manufacturing technology: The ways that humans produce goods and products.

Mitosis: The sequential differentiation and segregation of replicated chromosomes in a cell's nucleus that precedes complete cell division.

Model: A description, analogy or a representation of something that helps us understand it better (e.g., a physical model, a conceptual model, a mathematical model).

Nova: A variable star that suddenly increases in brightness to several times its normal magnitude and returns to its original appearance in a few weeks to several months or years.

Patterns: Repeated processes that are exhibited in a wide variety of ways; identifiable recurrences of the element and/or the form.

Physical technology: The ways that humans construct, manufacture and transport products.

Radioactive isotope: An atom that gives off nuclear radiation and has the same number of protons (atomic number) as another nuclide but a different number of neutrons.

Relationship between science and technology: Science builds principles or theories while technology is the practical application of those principles or theories.

Scale: Relates concepts and ideas to one another by some measurement.

Science: The way humans conceptually, mathematically and experimentally gain knowledge.

System: A group of related objects that work together to achieve a desired result.

and experimentation.

Telemetry: The ways that humans communicate, manufacture and transport products.

The term "closed loop" refers to a system that feeds back information to the input, whereas "open loop" refers to a system that does not.

Scientific method: The way humans acquire knowledge.

Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS
Subsystem: A group of related objects that make up a larger system (e.g., automobiles have electrical systems, fuel systems).

Technology education: The application of tools, materials, processes and systems to solve problems and extend human capability including:

- People:
  - The physical ways humans move materials, goods and information within a system of transportation.
  - A group of related parts that function together to perform a specific task in any form of transportation.
  - The position, function, size, shape and development of the transportation system.
  - A representation on a suitable scale or through computer-based tools.

- Systems:
  - Specific technology, including the physical, biological or social components of a system.
  - A representation of a region on a suitable scale to show detail, selected man-made and natural features of a region.

- Transportation:
  - A group of related parts that function together to perform a major task in any transportation system.

- Tool:
  - Any device used to extend human capability including computer-based tools.

- Topographic map:
  - A representation of a region on a suitable scale to show detail, selected man-made and natural features of a region.

- Theory of evolution:
  - A theory that the various types of animals and plants have evolved through the process of evolution, describing the common origin of all living things and how they have changed over time.

- The application of tools, materials, processes and systems to solve problems and extend human capabilities.
Academic Standards for Environment and Ecology

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THE ACADEMIC STANDARDS AND ASSESSMENTS

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Academic Standards for Environment and Ecology

CH. 4  ACADEMIC STANDARDS AND ASSESSMENTS

22
The Declaration of Rights, Article 1 of the Pennsylvania Constitution states in Section 27: "The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and aesthetic values of the environment. Pennsylvania's public natural resources are the common property of all people, forever held in trust for the people of the Commonwealth by the Commonwealth, public natural resources and the common property of all people. Pennsylvanians have a right and duty to preserve and protect the natural resources of the Commonwealth for present and future generations."

To this end it is our responsibility to develop a citizenry that is aware of and concerned about the local environment and has the knowledge and skills to work toward solutions to current problems and the prevention of new ones. Solutions to current problems and the protection of our natural resources require an awareness of the total environment and a concern about its sustainability. The human interactions with the ecosystem and the results of human decisions are the main components of this academic area. Environment and Ecology examines the human interactions with the ecosystem and the consequences of human decision-making. The human interactions with the ecosystem are also examined in various other academic areas. This document includes Environment and Ecology standards that describe what students should know and be able to do in these areas.

**XI. INTRODUCTION**

**Crosswalk**

A. Environmental Laws and Regulations

4.9. Environmental Laws and Regulations

B. Supply and Demand

D. Supply and Demand

C. Human Impacts

B. Sustainability

A. Societal Needs

**Environment and Ecology**

4.8. Environment and Ecology

C. Management Strategies

B. Adaptation

A. Diversity
The study of Environment and Ecology will allow students to be active participants in the community in making decisions related to the environment. The documents emphasize the need for rigorous academic content that students will be expected to achieve. These standards will help students understand decision-making processes, the art of compromise and problem-solving skills. The documents also establish the essential elements of what students should know and be able to do at the end of grades four, seven, ten and twelve. The sequential nature of this document reflects the need for foundational knowledge as well as the advanced knowledge that students should have as they mature intellectually.

The study of Environment and Ecology is a very engaging academic area that captivates students' innate interests in their surroundings of the natural and built environment. The skills and knowledge that are addressed in this area of study will serve students' interests in their surroundings of the natural and built environment.

Environment and Ecology is a very engaging academic area that captivates students' innate interests in their surroundings of the natural and built environment. The skills and knowledge that are addressed in this area of study will serve students' interests in their surroundings of the natural and built environment.

A glossary is included to assist the reader in understanding terminology contained in the standards.

This integration across systems is what sets this academic area apart from all others.
### 4.1. Watersheds and Wetlands

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*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:*

**A. Identify various types of water environments.**
- Identify the lotic system (e.g., creeks, rivers, streams).
- Identify the lentic system (e.g., ponds, lakes, swamps).

**A. Explain the role of the water cycle within a watershed.**
- Explain the water cycle.
- Explain the water cycle as it relates to a watershed.

**A. Describe changes that occur from a stream’s origin to its final outflow.**
- Identify Pennsylvania’s major watersheds and their related river systems.
- Describe changes by tracing a specific river’s origin back to its headwaters including its major tributaries.

**A. Categorize stream order in a watershed.**
- Explain the concept of stream order.
- Identify the order of watercourses within a major river’s watershed.
- Compare and contrast the physical differences found in the stream continuum from headwater to mouth.
**4.1. Watersheds and Wetlands**

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| **B. Explain the differences between moving and still water.**  
  • Explain why water moves or does not move.  
  • Identify types of precipitation. | **B. Understand the role of the watershed.**  
  • Identify and explain what determines the boundaries of a watershed.  
  • Explain how water enters a watershed.  
  • Explain factors that affect water quality and flow through a watershed. | **B. Explain the relationship among landforms, vegetation and the amount and speed of water.**  
  • Analyze a stream’s physical characteristics.  
  • Describe how topography influences streams.  
  • Explain the influence of mountains on precipitation.  
  • Explain how vegetation affects storm water runoff.  
  • Delineate the boundaries of a watershed.  
  • Describe factors that affect the quality of groundwater.  
  • Explain how the speed of water and vegetation cover relates to erosion. | **B. Explain the relationships that exist within watersheds in the United States.**  
  • Understand that various ecosystems may be contained in a watershed.  
  • Examine and describe the ecosystems contained within a specific watershed.  
  • Identify and describe the major watersheds in the United States. |

*Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:*

Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS
### 4.1. Watersheds and Wetlands

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</table>
| **C.** Identify living things found in water environments.  
  - Identify fish, insects and amphibians that are found in fresh water.  
  - Identify plants found in fresh water. | **C.** Explain the effects of water on the life of organisms in a watershed.  
  - Explain how water is necessary for all life.  
  - Explain how the physical components of aquatic systems influence the organisms that live there in terms of size, shape and physical adaptations.  
  - Describe the life cycle of organisms that depend on water.  
  - Identify organisms that have aquatic stages of life and describe those stages. | **C.** Describe the physical characteristics of a stream and determine the types of organisms found in aquatic environments.  
  - Describe and explain the physical factors that affect a stream and the organisms living there.  
  - Identify terrestrial and aquatic organisms that live in a watershed.  
  - Categorize aquatic organisms found in a watershed continuum from headwater to mouth (e.g., shredder, predator, decomposer).  
  - Identify the types of organisms that would live in a stream based on the stream’s physical characteristics.  
  - Explain the habitat needs of specific aquatic organisms. | **C.** Analyze the parameters of a watershed.  
  - Interpret physical, chemical and biological data as a means of assessing the environmental quality of a watershed.  
  - Apply appropriate techniques in the analysis of a watershed (e.g., water quality, biological diversity, erosion, sedimentation). |

*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:*
### 4.1. Watersheds and Wetlands

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| **D.** Identify a wetland and the plants and animals found there.  
  - Identify different kinds of wetlands.  
  - Identify plants and animals found in wetlands.  
  - Explain wetlands as habitats for plants and animals. | **D.** Explain and describe characteristics of a wetland.  
  - Identify specific characteristics of wetland plants and soils.  
  - Recognize the common types of plants and animals.  
  - Describe different types of wetlands.  
  - Describe the different functions of a wetland. | **D.** Describe the multiple functions of wetlands.  
  - Describe wetlands in terms of their effects (e.g., habitat, flood, buffer zones, prevention areas, nurseries, food production areas).  
  - Explain how a wetland influences water quality, wildlife and water retention.  
  - Analyze wetlands through their indicators (e.g., soils, plants, hydrology). | **D.** Analyze the complex and diverse ecosystems of wetlands.  
  - Explain the functions of habitat, nutrient production, migration stopover and groundwater recharge as it relates to wetlands.  
  - Explain the dynamics of a wetland ecosystem.  
  - Describe and analyze different types of wetlands. |
| **E.** Recognize the impact of watersheds and wetlands on animals and plants.  
  - Explain the role of watersheds in everyday life.  
  - Identify the role of watersheds and wetlands for plants and animals. | **E.** Describe the impact of watersheds and wetlands on people.  
  - Explain the impact of watersheds and wetlands in flood control, wildlife habitats and pollution abatement.  
  - Explain the influence of flooding on wetlands. | **E.** Identify and describe natural and human events on watersheds and wetlands.  
  - Describe how natural events affect a watershed (e.g., drought, floods).  
  - Identify the effects of humans and human events on watersheds. | **E.** Evaluate the trade-offs, costs and benefits of conserving watersheds and wetlands.  
  - Evaluate the effects of natural events on watersheds and wetlands.  
  - Evaluate the effects of human activities on watersheds and wetlands. |
4.2. Renewable and Nonrenewable Resources

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Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

**A. Identify needs of people.**
- Identify plants, animals, water, air, minerals and fossil fuels as natural resources.
- Explain air, water and nutrient cycles.
- Identify how the environment provides for the needs of people.

**A. Know that raw materials come from natural resources.**
- Identify resources used to provide humans with energy, food, housing and water.
- Explain how plants and animals may be classified as natural resources.
- Compare means of growing or acquiring food.
- Identify fiber and other raw materials used in clothing and shelter production.
- Identify types of minerals and fossil fuels used by humans.

**A. Explain that renewable and nonrenewable resources supply energy and materials.**
- Identify alternative sources of energy.
- Identify and compare fuels used in industrial and agricultural societies.
- Compare and contrast the cycles of various natural resources.
- Explain food and fiber as renewable resources.

**A. Analyze the use of renewable and nonrenewable resources.**
- Explain the effects on the environment and sustainability through the use of nonrenewable resources.
- Evaluate the advantages and disadvantages of reusing our natural resources.
4.2. Renewable and Nonrenewable Resources

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| B. Identify products derived from natural resources.  
- Identify products made from trees.  
- Identify by-products of plants and animals.  
- Identify the sources of manmade products (e.g., plastics, metal, aluminum, fabrics, paper, cardboard). | B. Examine the renewability of the resources.  
- Identify renewable resources and describe their uses.  
- Identify nonrenewable resources and describe their uses.  
- Compare finished products to their original raw material.  
- Identify the waste derived from the use of renewable and nonrenewable resources.  
- Determine how consumption may impact the availability of resources.  
- Compare the time spans of renewability for fossil fuels and alternative fuels. | B. Evaluate factors affecting availability of natural resources.  
- Describe natural occurrences that may affect the natural resources.  
- Analyze technologies that affect the use of our natural resources.  
- Evaluate the effect of consumer desires on various natural resources. | B. Analyze factors affecting the availability of renewable and nonrenewable resources.  
- Evaluate the use of natural resources and offer approaches for using them while diminishing waste.  
- Compare the economics of different areas based on the availability and accessibility of the natural resources. |
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<th>4.2. Renewable and Nonrenewable Resources</th>
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<td><strong>Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:</strong></td>
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<td>C. Know that some natural resources have limited life spans.</td>
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<tr>
<td>- Identify renewable and nonrenewable resources used in the local community.</td>
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<tr>
<td>- Identify various means of conserving natural resources.</td>
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<td>- Know that natural resources have varying life spans.</td>
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<td>- Analyze the costs and benefits of different man-made systems and how they use renewable and nonrenewable natural resources.</td>
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4.2. Renewable and Nonrenewable Resources

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| **D. Identify by-products and their use of natural resources.**  
  - Understand the waste stream.  
  - Identify those items that can be recycled and those that can not.  
  - Identify use of reusable products.  
  - Identify the use of compost, landfills and incinerators. | **D. Describe the role of recycling and waste management.**  
  - Identify materials that can be recycled in the community.  
  - Explain the process of closing the loop in recycling.  
  - Compare the decomposition rates of different organic materials.  
  - Describe methods that could be used to reuse materials for new products.  
  - Evaluate the costs and benefits of disposable products. | **D. Explain different management alternatives involved in recycling and solid waste management.**  
  - Analyze the manufacturing process (before, during and after) with consideration for resource recovery.  
  - Compare various methods dealing with solid waste (e.g., incineration, compost, land application).  
  - Differentiate between pre/post-consumer and raw materials.  
  - Illustrate how one natural resource can be managed through reduction, recycling, reuse or use. | **D. Evaluate solid waste management practices.**  
  - Examine and explain the path of a recyclable material from collection to waste, reuse or recycling identifying the market forces.  
  - Understand current regulations concerning recycling and solid waste.  
  - Research new technologies in the use, reuse or recycling of materials. |

*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:*
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<td><strong>A. Know that plants, animals and humans are dependent on air and water.</strong></td>
<td>Identify environmental health issues.</td>
<td>Identify environmental health issues.</td>
<td>Identify environmental health issues.</td>
<td>Analyze the complexity of environmental health issues.</td>
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<td>• Know that all living things need air and water to survive.</td>
<td>• Identify various examples of long-term pollution and explain their effects on environmental health.</td>
<td>• Identify the effects on human health of air, water and soil pollution and the possible economic costs to society.</td>
<td>• Identify invisible pollutants and explain their effects on human health.</td>
<td>• Identify environmental health issues and explain how they have been addressed on a worldwide level.</td>
</tr>
<tr>
<td>• Describe potentially dangerous pest controls used in the home.</td>
<td>• Identify diseases that have been associated with poor environmental quality.</td>
<td>• Describe how indoor pollution may affect human health (e.g., dust mites, fumes, cat dandruff).</td>
<td>• Analyze efforts to prevent, control and/or reduce pollution through cost and benefit analysis and risk management.</td>
<td></td>
</tr>
<tr>
<td>• Identify things that cause sickness when put into the air, water or soil.</td>
<td>• Describe different types of pest controls and their effects on the environment.</td>
<td>• Explain the costs and benefits of cleaning up contaminants.</td>
<td>• Describe the impact of occupational exposures as they relate to environmental health issues.</td>
<td></td>
</tr>
<tr>
<td>• Identify different areas where health can be affected by air, water or land pollution.</td>
<td>• Identify alternative products that can be used in life to reduce pollution.</td>
<td>• Explain how common household cleaning products are manufactured and how to dispose of their by-products after use.</td>
<td>• Identify invisible pollutants and explain their effects on human health.</td>
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</tr>
<tr>
<td>• Identify actions that can prevent or reduce waste pollution.</td>
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<td></td>
<td>• Explain the relationship between wind direction and velocity as it relates to dispersal and occurrence of pollutants.</td>
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<tr>
<td></td>
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<td></td>
<td>• Explain the different disposal methods used for toxic and hazardous waste.</td>
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</tbody>
</table>
### 4.3. Environmental Health

<table>
<thead>
<tr>
<th>Grade</th>
<th>Standard Description</th>
</tr>
</thead>
</table>
| 4.3.4. GRADE 4 | B. Identify how human actions affect environmental health.  
- Identify pollutants.  
- Identify sources of pollution.  
- Identify litter and its effect on the environment.  
- Describe how people can reduce pollution. |
| 4.3.7. GRADE 7 | B. Describe how human actions affect the health of the environment.  
- Identify land use practices and their relation to environmental health.  
- Explain how natural disasters affect environmental health.  
- Identify residential and industrial sources of pollution and their effects on environmental health.  
- Explain the difference between point and nonpoint source pollution.  
- Explain how nonpoint source pollution can affect the water supply and air quality.  
- Explain how acid deposition can affect water, soil and air quality.  
- Explain the relationship between resource use, reuse, recycling and environmental health. |
| 4.3.10. GRADE 10 | B. Explain how multiple variables determine the effects of pollution on environmental health.  
- Explain how human practices affect the quality of the water and soil.  
- Identify evidence of natural events around the world and their effects on environmental health (e.g., Yellowstone National Park fires).  
- Identify local and state environmental regulations and their impact on environmental health.  
- Analyze data and explain how point source pollution can be detected and eliminated.  
- Identify and explain ways of detecting pollution by using state-of-the-art technologies. |
| 4.3.12. GRADE 12 | B. Analyze the local, regional and national impacts of environmental health.  
- Analyze the cost of natural disasters in both dollars and loss of natural habitat.  
- Research and analyze the local, state and national laws that deal with point and nonpoint source pollution; evaluate the costs and benefits of these laws.  
- Explain mitigation and its role in environmental health.  
- Explain industry’s initiatives to meet state and federal mandates on clean air and water.  
- Describe the impacts of point and nonpoint source pollution on the Chesapeake Bay.  
- Identify and evaluate the costs and benefits of laws regulating air and water quality and waste disposal. |
### 4.3. Environmental Health

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<thead>
<tr>
<th>4.3.4. GRADE 4</th>
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<th>4.3.10. GRADE 10</th>
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<tr>
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<tr>
<td><strong>C.</strong> Understand that the elements of natural systems are interdependent.</td>
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<tr>
<td>- Identify some of the organisms that live together in an ecosystem.</td>
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<tr>
<td>- Understand that the components of a system all play a part in a healthy natural system.</td>
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<tr>
<td>- Identify the effects of a healthy environment on the ecosystem.</td>
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<tr>
<td><strong>C.</strong> Explain biological diversity.</td>
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<tr>
<td>- Explain the complex, interactive relationships among members of an ecosystem.</td>
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<tr>
<td>- Explain how diversity affects ecological integrity of the natural resources.</td>
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<tr>
<td><strong>C.</strong> Explain biological diversity as an indicator of a healthy environment.</td>
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<tr>
<td>- Explain species diversity.</td>
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<tr>
<td>- Analyze the effects of species extinction on the health of an ecosystem.</td>
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<tr>
<td><strong>C.</strong> Analyze the need for a healthy environment.</td>
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<tr>
<td>- Research the relationship of some chronic diseases to an environmental pollutant.</td>
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<tr>
<td>- Explain how man-made systems may affect the environment.</td>
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</table>
### 4.4. Agriculture and Society

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:</strong></td>
<td><strong>A. Know the importance of agriculture to humans.</strong></td>
<td><strong>A. Explain society’s standard of living in relation to agriculture.</strong></td>
<td><strong>A. Describe the importance of agriculture to society.</strong></td>
</tr>
<tr>
<td></td>
<td>• Identify people’s basic needs.</td>
<td>• Identify the major cash crops of Pennsylvania.</td>
<td>• Identify what percentage of the United States’ population is involved in the food and fiber industry.</td>
</tr>
<tr>
<td></td>
<td>• Explain the influence of agriculture on food, clothing, shelter and culture from one area to another.</td>
<td>• Compare what percentage of the United States’ population is involved in the food and fiber industry.</td>
<td>• Compare and contrast the influence of agriculture on a nation’s culture, standard of living and foreign trade.</td>
</tr>
<tr>
<td></td>
<td>• Know how people depend on agriculture.</td>
<td>• Compare and contrast agricultural changes that have been made to meet society’s needs.</td>
<td>• Identify laws that affect conservation and management of food and fiber production in the local area and analyze their impact.</td>
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<tr>
<td></td>
<td></td>
<td>• Compare and contrast how animals and plants affect agricultural systems.</td>
<td>• Compare a contemporary economic issue in agriculture to its historical origin.</td>
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<td></td>
<td>• Compare several technological advancements and their effect(s) on the historical growth of agriculture.</td>
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<td></td>
<td>• Compare different environmental conditions related to agricultural production, cost and quality of the product.</td>
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### 4.4. Agriculture and Society

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</tr>
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<tbody>
<tr>
<td><strong>B.</strong> Identify the role of the sciences in Pennsylvania agriculture.</td>
<td><strong>B.</strong> Investigate how agricultural science has recognized the various soil types found in Pennsylvania.</td>
<td><strong>B.</strong> Assess the influence of agricultural science on farming practices.</td>
<td><strong>B.</strong> Describe how agricultural science has influenced biotechnology.</td>
</tr>
<tr>
<td>1. Identify common animals found on Pennsylvania farms.</td>
<td>1. Explain the importance of particle sizes in different soil types.</td>
<td>1. Compare the practices of no-till farming to traditional soil preparation (e.g., plow, disc).</td>
<td>1. Investigate how bioengineered crops may influence the food supply.</td>
</tr>
<tr>
<td>2. Identify common plants found on Pennsylvania farms.</td>
<td>2. Determine how water has influenced the development of Pennsylvania soil types.</td>
<td>2. Analyze and explain the various practices of nutrient management on the farm.</td>
<td>2. Analyze the use of specific bacteria for the control of agricultural pests.</td>
</tr>
<tr>
<td>3. Identify the parts of important agricultural related plants (i.e., corn, soybeans, barley).</td>
<td>3. Investigate how soil types have influenced the plant types used on Pennsylvania farms</td>
<td>3. Analyze and explain how farm efficiencies have changed human nutrition.</td>
<td>3. Evaluate the use of feed additives in shifting metabolism to increase muscle mass and reduce fat in farm animals.</td>
</tr>
<tr>
<td>4. Identify a fiber product from Pennsylvania farms.</td>
<td>4. Analyze how soil types and geographic regions have impacted the profitability of Pennsylvania farms.</td>
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</table>
4.4. Agriculture and Society

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<tr>
<td><strong>C. Know that food and fiber originate from plants and animals.</strong></td>
<td><strong>C. Explain agricultural systems’ use of natural and human resources.</strong></td>
<td><strong>C. Explain the functions of the components of the food and fiber system.</strong></td>
<td><strong>C. Analyze and research the social, political and economic factors that affect agricultural systems.</strong></td>
</tr>
<tr>
<td>- Define and identify food and fiber.</td>
<td>- Analyze the needs of plants and animals as they relate to climate and soil conditions.</td>
<td>- Compare and analyze growing conditions in the United States to determine which plants and animals are most suitable to each region.</td>
<td>- Analyze the costs and benefits associated with agriculture practices and how they affect economic and human needs.</td>
</tr>
<tr>
<td>- Identify what plants and animals need to grow.</td>
<td>- Identify the plants and animals that can be raised in the area and explain why.</td>
<td>- Compare the management practices needed for a commodity (i.e., production, processing, research and development, marketing, distribution and regulations).</td>
<td>- Analyze the costs and benefits of agriculture research practices in society.</td>
</tr>
<tr>
<td>- Identify agricultural products that are local and regional.</td>
<td>- Identify natural resources necessary for agricultural systems.</td>
<td>- Identify a commodity, its origin and its steps of production.</td>
<td>- Research the use of by-products that are the results of agriculture production (e.g., manure handling, bird feathers).</td>
</tr>
<tr>
<td>- Identify an agricultural product based on its origin.</td>
<td>- Compare the need for crop production to the need for animal production.</td>
<td>- Compare and analyze the cost of a commodity to its production cost.</td>
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<tr>
<td>- Describe several products and tell their origins.</td>
<td>- Define issues associated with food and fiber production.</td>
<td>- Identify and describe how food safety issues have impacted production in agriculture.</td>
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<tr>
<td>- Describe the journey of a local agricultural product from production to the consumer.</td>
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</table>
4.4. Agriculture and Society

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<tr>
<td>D. Identify technology and energy use associated with agriculture.</td>
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<tr>
<td>• Identify the various tools and machinery necessary for farming.</td>
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<tr>
<td>• Identify the types of energy used in producing food and fiber.</td>
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<tr>
<td>• Identify tools and machinery used in the production of agricultural products.</td>
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<tr>
<td>D. Explain the improvement of agricultural production through technology.</td>
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<tr>
<td>• Compare the technologies that have advanced agricultural production.</td>
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<tr>
<td>• Explain how energy sources have changed to meet agricultural technology.</td>
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<tr>
<td>D. Analyze the efforts of increased efficiency in agriculture through technology.</td>
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<tr>
<td>• Compare various technological advancements and analyze each for its contribution toward labor and cost efficiency.</td>
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<tr>
<td>• Compare the current market value of both natural and alternative energy sources involved in the production of food and fiber.</td>
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<tr>
<td>D. Analyze research and development activities as they relate to agriculture.</td>
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<tr>
<td>• Analyze the role of research, development and technology as it relates to the food and fiber system.</td>
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<tr>
<td>• Research and analyze energy sources used and/or generated by producing, processing and marketing agricultural products.</td>
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<tr>
<td>4.5.4. GRADE 4</td>
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</tr>
</tbody>
</table>
| **A. Know types of pests.**  
  • Identify classifications of pests.  
  • Identify and categorize pests.  
  • Know how pests fit into a food chain. | **A. Explain benefits and harmful effects of pests.**  
  • Identify different examples of pests and explain the beneficial or harmful effects of each.  
  • Identify several locations where pests can be found and compare the effects the pests have on each location. | **A. Identify similar classifications of pests that may or may not have similar effects on different regions.**  
  • Identify environmental effect(s) of pests on different regions of the world.  
  • Identify introduced species that are classified as pests in their new environments. | **A. Research integrated pest management systems.**  
  • Analyze the threshold limits of pests and the need for intervention in a managed environment.  
  • Research the types of germicides and analyze their effects on homes, industry, hospitals and institutions.  
  • Design and explain an integrated pest management plan that uses a range of pest controls. |
### 4.5. Integrated Pest Management

<table>
<thead>
<tr>
<th>4.5.4. GRADE 4</th>
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</table>

**B. Explain pest control.**
- Know reasons why people control pests.
- Identify different methods for controlling specific pests in the home, school and community.
- Identify chemical labels (e.g., caution, poison, warning).

**B. Explain how pest management affects the environment.**
- Explain issues related to integrated pest management including biological technology, resistant varieties, chemical practices, medical technology and monitoring techniques.
- Describe how integrated pest management and related technology impact human activities.
- Identify issues related to integrated pest management that affect the environment.

**B. Analyze health benefits and risks associated with integrated pest management.**
- Identify the health risks associated with chemicals used in common pesticides.
- Assess various levels of control within different integrated pest management practices including increased immunity to pesticides, food safety, sterilization, nutrient management and weed control.

**B. Research and analyze integrated pest management practices globally.**
- Research worldwide integrated pest management systems and evaluate the level of impact.
- Research and analyze the international regulations that exist related to integrated pest management.
- Explain the complexities associated with moving from one level of control to the next with different integrated pest management practices and compare the related costs of each system.
### 4.5. Integrated Pest Management

<table>
<thead>
<tr>
<th>Grade</th>
<th>C. Understand society’s need for integrated pest management.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5.4. GRADE 4</td>
<td>• Identify integrated pest management practices in the home.</td>
</tr>
<tr>
<td></td>
<td>• Identify integrated pest management practices outside the home.</td>
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<tr>
<td>4.5.7. GRADE 7</td>
<td>C. Explain various integrated pest management practices used in society.</td>
</tr>
<tr>
<td></td>
<td>• Compare and contrast integrated pest management monitoring methods utilized in different community settings.</td>
</tr>
<tr>
<td>4.5.10. GRADE 10</td>
<td>• Compare integrated pest management to past practices.</td>
</tr>
<tr>
<td>4.5.12. GRADE 12</td>
<td>• Compare and analyze the long-term effects of using integrated pest management products.</td>
</tr>
<tr>
<td></td>
<td>C. Determine the effects of integrated pest management practices on society over time.</td>
</tr>
<tr>
<td></td>
<td>• Analyze the risks to the environment and society associated with alternative practices used in integrated pest management.</td>
</tr>
<tr>
<td></td>
<td>• Analyze the benefits to the environment and society associated with alternative practices used in integrated pest management.</td>
</tr>
<tr>
<td></td>
<td>C. Analyze the historical significance of integrated pest management on society.</td>
</tr>
<tr>
<td></td>
<td>• Explain the dynamics of integrated pest management practices and their relative effects upon society.</td>
</tr>
<tr>
<td></td>
<td>• Identify historic events affecting integrated pest management and cite the practices used (e.g., avian flu, bubonic plague, potato blight).</td>
</tr>
<tr>
<td></td>
<td>• Research and analyze the long-term effects of pest management practices on the environment.</td>
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</tbody>
</table>

Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

1. Understand society’s need for integrated pest management.
2. Identify integrated pest management practices in the home.
3. Identify integrated pest management practices outside the home.
4. Explain various integrated pest management practices used in society.
5. Compare and contrast integrated pest management monitoring methods utilized in different community settings.
6. Compare integrated pest management to past practices.
7. Compare and analyze the long-term effects of using integrated pest management products.
8. Determine the effects of integrated pest management practices on society over time.
9. Analyze the risks to the environment and society associated with alternative practices used in integrated pest management.
10. Analyze the benefits to the environment and society associated with alternative practices used in integrated pest management.
11. Analyze the historical significance of integrated pest management on society.
12. Explain the dynamics of integrated pest management practices and their relative effects upon society.
13. Identify historic events affecting integrated pest management and cite the practices used (e.g., avian flu, bubonic plague, potato blight).
14. Research and analyze the long-term effects of pest management practices on the environment.
### 4.6. Ecosystems and their Interactions

**Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:**

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<th>4.6.12. GRADE 12</th>
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</table>

**A.** Understand that living things are dependent on nonliving things in the environment for survival.
- Identify and categorize living and nonliving things.
- Describe the basic needs of an organism.
- Identify basic needs of a plant and an animal and explain how their needs are met.
- Identify plants and animals with their habitat and food sources.
- Identify environmental variables that affect plant growth.
- Describe how animals interact with plants to meet their needs for shelter.
- Describe how certain insects interact with soil for their needs.
- Understand the components of a food chain.

**A.** Explain the flows of energy and matter from organism to organism within an ecosystem.
- Identify and explain the characteristics of biotic and abiotic.
- Describe and explain the adaptations of plants and animals to their environment.
- Demonstrate the dependency of living components in the ecosystem on the nonliving components.
- Explain energy flow through a food web.
- Explain the importance of the predator/prey relationship and how it maintains the balances within ecosystems.
- Understand limiting factors and predict their effects on an organism.

**A.** Explain the biotic and abiotic components of an ecosystem and their interaction.
- Identify the major biomes and explain their similarities and differences.
- Compare and contrast the interactions of biotic and abiotic components in an ecosystem.
- Analyze the effects of abiotic factors on specific ecosystems.
- Describe how the availability of resources affects organisms in an ecosystem.
- Explain energy flow in a food chain through an energy pyramid.
- Evaluate the efficiency of energy flow in a food chain.
- Explain the concept of carrying capacity in an ecosystem.

**A.** Analyze the interdependence of an ecosystem.
- Analyze the relationships among components of an ecosystem.
- Evaluate the efficiency of energy flow within an ecosystem.
- Explain limiting factors and their impact on carrying capacity.
- Understand how biological diversity impacts the stability of an ecosystem.
- Analyze the positive or negative impacts of outside influences on an ecosystem.
- Analyze how different land use practices can affect the quality of soils.
### 4.6. Ecosystems and their Interactions

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<tr>
<td>• Identify a local ecosystem and its living and nonliving components.</td>
<td>• Identify niches for producers, consumers and decomposers within an ecosystem.</td>
<td>• Identify a specific environmental impact and predict what change may take place to affect homeostasis.</td>
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</tr>
<tr>
<td>• Identify a simple ecosystem and its living and nonliving components.</td>
<td>• Compare and contrast the major ecosystems of Pennsylvania.</td>
<td>• Examine and explain how organisms modify their environments to sustain their needs.</td>
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<tr>
<td>• Identify common soil textures.</td>
<td>• Identify the major characteristics of a biome.</td>
<td>• Assess the effects of latitude and altitude on biomes.</td>
<td></td>
</tr>
<tr>
<td>• Identify animals that live underground.</td>
<td>• Compare and contrast different biomes and their characteristics.</td>
<td>• Interpret possible causes of population fluctuations.</td>
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<tr>
<td></td>
<td>• Identify the relationship of abiotic and biotic components and explain their interaction in an ecosystem.</td>
<td>• Explain how erosion and sedimentation have changed the quality of soil related habitats.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Explain how different soil types determine the characteristics of ecosystems.</td>
<td></td>
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</tbody>
</table>
### 4.6. Ecosystems and their Interactions

<table>
<thead>
<tr>
<th>4.6.4. GRADE 4</th>
<th>4.6.7. GRADE 7</th>
<th>4.6.10. GRADE 10</th>
<th>4.6.12. GRADE 12</th>
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<tr>
<td><strong>Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:</strong></td>
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</tr>
</tbody>
</table>
| **B. Understand the concept of cycles.**  
- Explain the water cycle.  
- Explain the carbon dioxide/oxygen cycle (photosynthesis). | **B. Explain the concepts of cycles.**  
- Identify and explain cycles within an ecosystem.  
- Analyze the role of different cycles within an ecosystem. | **B. Explain how cycles affect the balance in an ecosystem.**  
- Describe an element cycle and its role in an ecosystem.  
- Explain the consequences of interrupting natural cycles. | **B. Analyze the impact of cycles on the ecosystem.**  
- Evaluate the materials necessary for natural cycles.  
- Explain the processes involved in the natural cycles. |
| **C. Identify how ecosystems change over time.** | **C. Explain how ecosystems change over time.**  
- Explain how ecosystems change.  
- Identify the succession stages of a given ecosystem.  
- Explain how specific organisms may change an ecosystem.  
- Explain a change in an ecosystem that relates to humans. | **C. Analyze how ecosystems change over time.**  
- Identify and explain the succession stages in an ecosystem.  
- Identify causes of succession.  
- Analyze consequences of interrupting natural cycles. | **C. Analyze how human action and natural changes affect the balance within an ecosystem.**  
- Analyze the effects of substances that move through natural cycles.  
- Analyze the effects of natural occurrences and their effects on ecosystems.  
- Analyze effects of human action on an ecosystem.  
- Compare the stages of succession and how they influence the cycles existing in an ecosystem. |
### 4.7. Threatened, Endangered and Extinct Species

**Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:**

<table>
<thead>
<tr>
<th>A. Identify differences in living things.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Explain why plants and animals are different colors, shapes and sizes and how these differences relate to their survival.</td>
</tr>
<tr>
<td>• Identify characteristics that living things inherit from their parents.</td>
</tr>
<tr>
<td>• Explain why each of the four elements in a habitat is essential for survival.</td>
</tr>
<tr>
<td>• Identify local plants or animals and describe their habitat.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>A. Describe diversity of plants and animals in ecosystems.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Select an ecosystem and describe different plants and animals that live there.</td>
</tr>
<tr>
<td>• Identify adaptations in plants and animals.</td>
</tr>
<tr>
<td>• Recognize that adaptations are developed over long periods of time and are passed on from one generation to the next.</td>
</tr>
<tr>
<td>• Understand levels of ecosystem organization (e.g., individuals, populations, species).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A. Explain the significance of diversity in ecosystems.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Explain the role that specific organisms have in their ecosystem.</td>
</tr>
<tr>
<td>• Identify a species and explain what effects its increase or decline might have on the ecosystem.</td>
</tr>
<tr>
<td>• Identify a species and explain how its adaptations are related to its niche in the environment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A. Analyze biological diversity as it relates to the stability of an ecosystem.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Examine and explain what happens to an ecosystem as biological diversity changes.</td>
</tr>
<tr>
<td>• Explain the relationship between species’ loss and bio-diversity.</td>
</tr>
<tr>
<td>• Examine and explain how a specialized interaction between two species may affect the survival of both species.</td>
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</table>
### 4.7. Threatened, Endangered and Extinct Species

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<tr>
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<th>4.7.10. GRADE 10</th>
<th>4.7.12. GRADE 12</th>
</tr>
</thead>
</table>
| **B.** Know that adaptations are important for survival.  
  - Explain how specific adaptations can help a living organism to survive.  
  - Explain what happens to a living thing when its food, water, shelter or space is changed. | **B.** Explain how species of living organisms adapt to their environment.  
  - Explain the role of individual variations in natural selection.  
  - Explain how an adaptation is an inherited structure or behavior that helps an organism survive and reproduce.  
  - Describe how a particular trait may be selected over time and account for a species’ adaptation.  
  - Compare and contrast animals and plants that have very specific survival requirements with those that have more general requirements for survival.  
  - Explain how living things respond to changes in their environment.  
  - Explain how one species may survive an environmental change while another might not. | **B.** Explain how structure, function and behavior of plants and animals affect their ability to survive.  
  - Describe an organism’s adaptations for survival in its habitat.  
  - Compare adaptations among species. | **B.** Examine the effects of extinction, both natural and human caused, on the environment.  
  - Predict how human or natural action can produce change to which organisms cannot adapt.  
  - Identify species that became extinct through natural causes and explain how that occurred.  
  - Identify a species that became extinct due to human actions and explain what occurred. |

*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:*
### 4.7. Threatened, Endangered and Extinct Species

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</table>

**C. Define and understand extinction.**
- Identify plants and animals that are extinct.
- Explain why some plants and animals are extinct.
- Know that there are local and state laws regarding plants and animals.

**C. Explain natural or human actions in relation to the loss of species.**
- Identify natural or human impacts that cause habitat loss.
- Explain how habitat loss can affect the interaction among species and the population of a species.
- Analyze and explain the changes in an animal population over time.
- Explain how a habitat management practice affects a population.
- Explain the differences among threatened, endangered and extinct species.
- Identify Pennsylvania plants and animals that are on the threatened or endangered list.

**C. Identify and explain why adaptations can lead to specialization.**
- Explain factors that could lead to a species’ increase or decrease.
- Explain how management practices may influence the success of specific species.
- Identify and explain criteria used by scientists for categorizing organisms as threatened, endangered or extinct.

**C. Analyze the effects of threatened, endangered or extinct species on human and natural systems.**
- Identify and explain how a species’ increase, decline or elimination affects the ecosystem and/or human social, cultural and economic structures.
- Analyze why natural populations do not remain constant.
- Analyze management strategies regarding threatened or endangered species.
- Identify laws, agreements or treaties at national or international levels regarding threatened or endangered species.
- Analyze the role of zoos and wildlife preserves on species that have been identified as threatened or endangered.
### 4.7. Threatened, Endangered and Extinct Species

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Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

- Describe state laws passed regarding threatened and endangered species in Pennsylvania.
- Explain why one species may be more susceptible to becoming endangered than another species.

- Examine the influence of wildlife management in preserving different species in Pennsylvania (e.g., bobcat, elk, bald eagle).
Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

<table>
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</tr>
</thead>
</table>
| A. Identify the biological requirements of humans.  
  • Explain how a dynamically changing environment provides for sustainability of living systems.  
  • Identify several ways that people use natural resources. | A. Describe how the development of civilization relates to the environment.  
  • Explain how people use natural resources in their environment.  
  • Locate and identify natural resources in different parts of the world.  
  • Compare and contrast how people use natural resources throughout the world. | A. Analyze how society’s needs relate to the sustainability of natural resources.  
  • Explain why some societies have been unable to meet their natural resource needs.  
  • Compare and contrast the use of natural resources and the environmental conditions in several countries.  
  • Describe how uses of natural resources impact sustainability. | A. Explain how technology has influenced the sustainability of natural resources over time.  
  • Describe how technology has changed the use of natural resources by business and industry.  
  • Analyze the effect of natural resource conservation on a product over time (e.g., automobile manufacturing, aluminum can recycling, paper products). |
4.8. Humans and the Environment

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<td><strong>Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:</strong></td>
<td><strong>B. Know that environmental conditions influence where and how people live.</strong>&lt;br&gt;• Identify how regional natural resources influence what people use.&lt;br&gt;• Explain the influence of climate on how and where people live.</td>
<td><strong>B. Explain how people use natural resources.</strong>&lt;br&gt;• Describe how natural resources are used for survival.&lt;br&gt;• Explain how natural resources and technological changes have affected the development of civilizations.&lt;br&gt;• Explain how climate and extreme weather events (e.g., drought, flood) influence people’s lives.</td>
<td><strong>B. Analyze the relationship between the use of natural resources and sustaining our society.</strong>&lt;br&gt;• Explain the role of natural resources in sustaining society.&lt;br&gt;• Analyze the effects of a natural resource’s availability on a community or region.</td>
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# 4.8. Humans and the Environment

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<tbody>
<tr>
<td>C. Explain how human activities may change the environment. • Identify everyday human activities and how they affect the environment. • Identify examples of how human activities within a community affect the natural environment.</td>
<td>C. Explain how human activities may affect local, regional and national environments. • Describe what effect consumption and related generation of wastes have on the environment. • Explain how a particular human activity has changed the local area over the years.</td>
<td>C. Analyze how human activities may cause changes in an ecosystem. • Analyze and evaluate changes in the environment that are the result of human activities. • Compare and contrast the environmental effects of different industrial strategies (e.g., energy generation, transportation, logging, mining, agriculture).</td>
<td>C. Analyze how pollution has changed in quality, variety and toxicity as the United States developed its industrial base. • Analyze historical pollution trends and project them for the future. • Compare and contrast historical and current pollution levels at a given location.</td>
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### 4.8. Humans and the Environment

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</table>
| **D. Know the importance of natural resources in daily life.**  
- Identify items used in daily life that come from natural resources.  
- Identify ways to conserve our natural resources.  
- Identify major land uses in the community. | **D. Explain the importance of maintaining the natural resources at the local, state and national levels.**  
- Explain how human activities and natural events have affected ecosystems.  
- Explain how conservation practices have influenced ecosystems.  
- Define the roles of Pennsylvania agencies that deal with natural resources. | **D. Explain how the concept of supply and demand affects the environment.**  
- Identify natural resources for which societal demands have been increasing.  
- Identify specific resources for which human consumption has resulted in scarcity of supply (e.g., buffalo, lobsters).  
- Describe the relationship between population density and resource use and management. | **D. Analyze the international implications of environmental occurrences.**  
- Identify natural occurrences that have international impact (e.g., El Nino, volcano eruptions, earthquakes).  
- Analyze environmental issues and their international implications. |
<table>
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<th>4.9.4. GRADE 4</th>
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<th>4.9.10. GRADE 10</th>
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</tr>
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</table>
| **A.** Know that there are laws and regulations for the environment.  
- Identify local and state laws and regulations regarding the environment.  
- Explain how the recycling law impacts the school and home.  
- Identify and describe the role of a local or state agency that deals with environmental laws and regulations. | **A.** Explain the role of environmental laws and regulations.  
- Identify and explain environmental laws and regulations (e.g., Clean Air Act, Clean Water Act, Recycling and Waste Reduction Act, Act 26 on Agricultural Education).  
- Explain the role of local and state agencies in enforcing environmental laws and regulations (e.g., Department of Environmental Protection, Department of Agriculture, Game Commission). | **A.** Explain why environmental laws and regulations are developed and enacted.  
- Explain the positive and negative impacts associated with passing environmental laws and regulations.  
- Understand conflicting rights of property owners and environmental laws and regulations.  
- Analyze the roles that local, state and federal governments play in the development and enforcement of environmental laws.  
- Identify local and state environmental regulations and their impact on environmental health.  
- Explain the positive and negative impacts of the Endangered Species Act. | **A.** Analyze environmental laws and regulations as they relate to environmental issues.  
- Analyze and explain how issues lead to environmental law or regulation (e.g., underground storage tanks, regulation of water discharges, hazardous, solid and liquid industrial waste, endangered species).  
- Compare and contrast environmental laws and regulations that may have a positive or negative impact on the environment and the economy.  
- Research and describe the effects of an environmental law or regulation and how it has impacted the environment. |

*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:*
A species that is in danger of extinction throughout a community of living organisms and their interrelated physical and chemical environment.

Acid deposition: Precipitation with a pH less than 5.6 that forms in the atmosphere when certain pollutants mix with water vapor.

Acid deposition: A nonliving factor or element (e.g., light, water, heat, rock, energy, mineral).

Acid deposition: Precipitation with a pH less than 5.6 that forms in the atmosphere when certain pollutants mix with water vapor.

Acid deposition: An environmental factor related to or produced by organisms of the same or different species and their relative interaction with the variety and complexity of species present and species abundance.

Acid deposition: A nonliving factor or element (e.g., light, water, heat, rock, energy, mineral).

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Acid deposition: A nonliving factor or element (e.g., light, water, heat, rock, energy, mineral).

Acid deposition: Precipitation with a pH less than 5.6 that forms in the atmosphere when certain pollutants mix with water vapor.
Environment:

The total of the surroundings (air, water, soil, vegetation, people, wildlife) influencing each living being's existence, including physical, biological and all other factors; the surroundings of a plant or animal, including other plants or animals, climate and location.

Equilibrium:

The ability of an ecosystem to maintain stability among its biological resources (e.g., forest, fisheries, crops) so that there is a steady optimum yield.

Extinction:

The complete elimination of a species from the earth.

Groundwater:

Water that infiltrates the soil and is located in underground reservoirs called aquifers.

Hazardous waste:

Underground reservoirs called aquifers. Which may influence the soil and is located in

The complete elimination of a species from the earth. occurs so their habitat is destroyed or disrupted. The ability of an ecosystem to maintain stability.

Homeostasis:

The tendency for a system by resisting change to remain in a state of equilibrium.

Incinerating:

Burning to ashes; reducing to ashes.

Integrated pest management:

A variety of pest control methods that include repairs, traps, bait, poison, etc. to eliminate pests.

Lentic:

Relating to or living in still water.

Lotic:

Relating to or living in actively moving water.

Mitigation:

The policy of constructing or creating man-made habitats, such as wetlands, to replace those lost to development.

Niche (ecological):

The role played by an organism in an ecosystem; its food preferences, requirements for shelter, special behaviors and the timing of its activities (e.g., nocturnal, diurnal).

Nonpoint source pollution:

Contamination that originates from many locations.

Nonpoint source pollution:

Contamination that originates from many locations

Development:

Relating to or living in actively moving water.

Relating to or living in still water.

Habitats:

The variety of practical methods that include repairs, traps, bait, poison, etc. to eliminate pests.

Homeostasis:

The tendency for a system by resisting change to remain in a state of equilibrium.

Incinerating:

Burning to ashes; reducing to ashes.

Integrated pest management:

A variety of pest control methods that include repairs, traps, bait, poison, etc. to eliminate pests.

Location:

The place of an organism or group of organisms, such as a plant, animal, etc., in relation to other organisms, including other plants or animals, climate and location.
Nonrenewable resources: Substances (e.g., oil, gas, coal, copper, gold) that, once used, cannot be replaced in this geological age.

Point source pollution: Pollutants discharged from a single identifiable location (e.g., pipes, ditches, channels, sewers, tunnels, containers of various types).

Pest: A label applied to an organism when it is in competition with humans for some resource.

Recycling: Collecting and reprocessing a resource to make into new products.

Regulation: A rule or order issued by an executive authority or regulatory agency of a government and having the force of law.

Renewable: A naturally occurring raw material or form of energy that will be replenished through natural ecological cycles or sound management practices (e.g., the sun, wind, water, plants).

Risk management: A strategy developed to reduce or control the chance of harm or loss to one’s health or life; the process of identifying, evaluating, selecting and implementing actions to reduce risk to human health and to ecosystems.

Shredder: Through chewing and/or grinding, microorganisms feed on non-woody coarse particulate matter.

Stream order: Energy and nutrient flow that increases as water moves toward the oceans (e.g., water, streams, rivers, rivers, lakes, oceans, oceans).

Succession: The series of changes that occur in an ecosystem (primary) that ends when waters flow into oceans.

Sustainability: The ability to keep in existence or maintain a set of non-woody coarse particulate matter.

Trophic levels: The role of an organism in nutrient and energy flow within an ecosystem (e.g., producers, consumers, decomposers).

Waste stream: The flow of (waste) materials from generation, decomposition, and/or water flow.
Watershed: The land area from which surface runoff drains into a stream, channel, lake, reservoir or other body of water; also called a drainage basin.

Wetlands: Lands where water saturation is the dominant factor determining the nature of the soil development and the plant and animal communities (e.g., sloughs, estuaries, marshes).

APPENDIX C
Academic Standards for Civics and Government and Economics and Geography and History

Academic Standards for History

Authority

Academic Standards for History


Cross References


XIII. TABLE OF CONTENTS

Introduction................................................. XXIII.

THE ACADEMIC STANDARDS

Historical Analysis and Skill Development

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B. Historical Comprehension
C. Historical Interpretation
D. Historical Research

Pennsylvania History

A. Contributions of Individuals and Groups
B. Documents, Artifacts and Historical Places
C. Influences of Continuity and Change
D. Conflict and Cooperation Among Groups

United States History

A. Contributions of Individuals and Groups
B. Documents, Artifacts and Historical Places
C. Influences of Continuity and Change
D. Conflict and Cooperation Among Groups

Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS 22
The Academic Standards for Civics and Government describe what students should know and be able to do at four grade levels (third, sixth, ninth and twelfth). The Pennsylvania Constitution of 1790 was the basis for the Free Public School Act of 1834, which is the underpinning of today's system of schools operating throughout the Commonwealth. These schools were created to educate children and prepare them to be useful citizens, loyal to the principles upon which our Republic was founded, and aware of their roles as citizens in maintaining those ideals.

The Academic Standards for Civics and Government are based on the Public School Code of 1949, which directs that: "...teaching and presentation of the principles and ideals of the American Republic shall be an integral part of the curriculum...." The Pennsylvania Constitution of 1790, the Free Public School Act of 1834, and the Public School Code of 1949 were the basis for the Free Public School System in Pennsylvania. These schools were created to educate children and prepare them to be useful citizens, loyal to the principles upon which our Republic was founded, and aware of their roles as citizens in maintaining those ideals.

The Standards for Literacy and Learning, adopted in 1990, include the following goals: Knowledge and Understanding; Critical Thinking and Problem Solving; Communication; Social and Civic Skills; and Personal and Career Development. These goals are designed to ensure that students are prepared for life in a democratic society.

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The Introduction

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This document includes Academic Standards for Civics and Government that describe what students should know and be able to do in four areas:

- Principles and Documents of Government
- Rights and Responsibilities of Citizenship
- How Government Works
- How International Relationships Function

Throughout the standard statements, concepts found in lower grades must be developed and expanded upon. The Academic Standards for Civics and Government are based on the Public School Code of 1949, which directs that "...teaching and presentation of the principles and ideals of the American Republic shall be an integral part of the curriculum...." The Pennsylvania Constitution of 1790, the Free Public School Act of 1834, and the Public School Code of 1949 were the basis for the Free Public School System in Pennsylvania. These schools were created to educate children and prepare them to be useful citizens, loyal to the principles upon which our Republic was founded, and aware of their roles as citizens in maintaining those ideals.

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The intent of the Code is that such instruction "shall have for its purpose also instilling into every boy and girl who comes out of public, private and parochial schools their solemn duty and obligation to exercise intelligently their voting privilege and to understand the advantages of the American republican form of government as compared with various other forms of governments."

The Academic Standards for Civics and Government consist of four standard categories (designated as 5.1., 5.2., 5.3., and 5.4.). Each category has a number of standards statements designated by a capital letter. Some standard statements have bulleted items known as standard descriptors. The descriptors may be followed by an "e.g.", "e.g.'s", examples or illustrations to clarify what type of information is intended. These are suggestions and the choice of specific content is a local decision as is the method of instruction.

Civics and Government along with Economics, Geography and History are identified as Social Studies in Chapter 4. This identification is consistent with the identification of Social Studies in Chapter 49 of the Education Code. Based on these regulations, Social and Government Education along with Economics, Geography and History are included as Social Studies and are consistent with the identification in Chapter 4.

A glossary is included to assist the reader in clarifying terminology and command in the standards.

The Academic Standards for Civics and Government are organized with various other forms of government to assist the reader in understanding principles and to understand the advantages of the American republican form of government. The standards are designed to provide a coherent and focused course of study for Civics and Government. The standards are intended to provide a framework for curriculum development, instruction, and assessment.

The glossary is included to assist the reader in clarifying terminology contained in the standards.
### 5.1. Principles and Documents of Government

<table>
<thead>
<tr>
<th>5.1.3. GRADE 3</th>
<th>5.1.6. GRADE 6</th>
<th>5.1.9. GRADE 9</th>
<th>5.1.12. GRADE 12</th>
</tr>
</thead>
</table>

**Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...**

<table>
<thead>
<tr>
<th>A. Describe what government is.</th>
<th>A. Explain the purpose of government.</th>
<th>A. Identify and explain the major arguments advanced for the necessity of government.</th>
<th>A. Evaluate the major arguments advanced for the necessity of government.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Explain the purposes of rules and laws and why they are important in the classroom, school, community, state and nation.</td>
<td>B. Explain the importance of the rule of law for the protection of individual rights and the common good in the community, state, nation and world.</td>
<td>B. Describe historical examples of the importance of the rule of law.</td>
<td>B. Analyze the sources, purposes and functions of law.</td>
</tr>
<tr>
<td>C. Define the principles and ideals shaping government.</td>
<td>C. Describe the principles and ideals shaping government.</td>
<td>C. Evaluate the importance of the principles and ideals of civic life.</td>
<td>C. Evaluate the importance of the principles and ideals of civic life.</td>
</tr>
<tr>
<td>• Justice</td>
<td>• Equality</td>
<td>• Constitutional government</td>
<td>• Federalism</td>
</tr>
<tr>
<td>• Truth</td>
<td>• Majority rule/Minority rights</td>
<td>• Liberal democracy</td>
<td></td>
</tr>
<tr>
<td>• Diversity of people and ideas</td>
<td>• Popular sovereignty</td>
<td>• Classical republicanism</td>
<td></td>
</tr>
<tr>
<td>• Patriotism</td>
<td>• Privacy</td>
<td>• Federalism</td>
<td></td>
</tr>
<tr>
<td>• Common good</td>
<td>• Checks and balances</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Liberty</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rule of law</td>
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<td></td>
<td></td>
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<tr>
<td>• Leadership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Citizenship</td>
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<td>5.1. Principles and Documents of Government</td>
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<tr>
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<td><strong>5.1.6. GRADE 6</strong></td>
<td><strong>5.1.9. GRADE 9</strong></td>
<td><strong>5.1.12. GRADE 12</strong></td>
</tr>
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<td>Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to . . .</td>
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<td></td>
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</tr>
<tr>
<td>D. Identify the document which created Pennsylvania.</td>
<td>D. Explain the basic principles and ideals within documents of Pennsylvania government.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Charter of 1681</td>
<td>• Charter of 1681</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Charter of Privileges</td>
<td>• Charter of Privileges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pennsylvania Constitution</td>
<td>• Pennsylvania Constitution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pennsylvania Declaration of Rights</td>
<td>• Pennsylvania Declaration of Rights</td>
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<td></td>
</tr>
<tr>
<td>D. Interpret significant changes in the basic documents shaping the government of Pennsylvania.</td>
<td>D. Analyze the principles and ideals that shape the government of Pennsylvania and apply them to the government.</td>
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</tr>
<tr>
<td>• The Great Law of 1682</td>
<td>• The Charter of 1681</td>
<td></td>
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</tr>
<tr>
<td>• Constitution of 1776</td>
<td>• Charter of Privileges</td>
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<tr>
<td>• Constitution of 1790</td>
<td>• PA Constitution, its revisions and Amendments</td>
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<tr>
<td>• Constitution of 1838</td>
<td>• Constitution of 1874</td>
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<tr>
<td>• Constitution of 1968</td>
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<td></td>
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</tr>
</tbody>
</table>
| E. Identify documents of United States government.  
  - Declaration of Independence  
  - Constitution of the United States  
  - Bill of Rights |
| E. Explain the basic principles and ideals within documents of United States government. |
| E. Analyze the basic documents shaping the government of the United States.  
  - Magna Carta  
  - English Bill of Rights  
  - Mayflower Compact  
  - Articles of Confederation  
  - Declaration of Independence  
  - Federalist papers  
  - Anti-federalist writings  
  - United States Constitution |
| E. Evaluate the principles and ideals that shape the United States and compare them to documents of government. |
### 5.1. Principles and Documents of Government

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</table>

**F. Explain the meaning of a preamble.**
- Constitution of the United States
- Pennsylvania Constitution

**G. Describe the purpose of the United States Flag, The Pledge of Allegiance and The National Anthem.**

**F. Explain the meaning of the Preamble to the Constitution of the Commonwealth of Pennsylvania and compare it to the Preamble of the Constitution of the United States.**

**F. Contrast the individual rights created by the Pennsylvania Constitution and those created by the Constitution of the United States.**

**F. Analyze and assess the rights of the people as listed in the Pennsylvania Constitution and the Constitution of the United States.**

**G. Describe the procedures for proper uses, display and respect for the United States Flag as per the National Flag Code.**

**G. Analyze and interpret the role of the United States Flag in civil disobedience and in patriotic activities.**
### 5.1. Principles and Documents of Government

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</tr>
<tr>
<td><strong>H. Identify framers of documents of governments.</strong>&lt;br&gt;• Pennsylvania&lt;br&gt;• United States</td>
<td></td>
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</tr>
<tr>
<td><strong>I. Explain why government is necessary in the classroom, school, community, state and nation and the basic purposes of government in Pennsylvania and the United States.</strong></td>
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</tr>
<tr>
<td><strong>J. Explain the importance of respect for the property and the opinions of others.</strong></td>
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</tr>
<tr>
<td><strong>H. Describe the roles played by the framers of the basic documents of governments of Pennsylvania and the United States.</strong></td>
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<tr>
<td><strong>I. Describe and compare the making of rules by direct democracy and by republican form of government.</strong></td>
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</tr>
<tr>
<td><strong>J. Describe how the government protects individual and property rights and promotes the common good.</strong></td>
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</tr>
<tr>
<td><strong>H. Explain and interpret the roles of framers of basic documents of government from a national and Pennsylvania perspective.</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>I. Explain the essential characteristics of limited and unlimited governments and explain the advantages and disadvantages of systems of government.</strong>&lt;br&gt;• Confederal&lt;br&gt;• Federal&lt;br&gt;• Unitary</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>J. Explain how law protects individual rights and the common good.</strong></td>
<td></td>
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<tr>
<td><strong>H. Analyze the competing positions held by the framers of the basic documents of government of Pennsylvania and United States.</strong></td>
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<tr>
<td><strong>I. Analyze historical examples of the importance of the rule of law explaining the sources, purposes and functions of law.</strong></td>
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<tr>
<td><strong>J. Analyze how the law promotes the common good and protects individual rights.</strong></td>
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Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...

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</thead>
<tbody>
<tr>
<td>5.1.3. GRADE 3</td>
</tr>
</tbody>
</table>
| **K.** Identify symbols and political holidays.  
  - Pennsylvania (e.g., Charter Day, Liberty Bell, Keystone State)  
  - United States (e.g., Presidents’ Day, Statue of Liberty, White House)  
| **K.** Describe the purpose of symbols and holidays.  
| **K.** Explain why symbols and holidays were created and the ideals they commemorate.  
| **K.** Analyze the roles of symbols and holidays in society.  
| **L.** Identify ways courts resolve conflicts involving principles and ideals of government.  
| **L.** Explain the role of courts in resolving conflicts involving the principles and ideals of government.  
  - Local  
  - State  
  - Federal  
| **L.** Interpret Pennsylvania and United States court decisions that have impacted the principles and ideals of government.  
| **L.** Analyze Pennsylvania and United States court decisions that have affected principles and ideals of government in civic life.  
  - Civil rights  
  - Commerce  
  - Judicial review  
  - Federal supremacy  

Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS
5.1. Principles and Documents of Government

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<td></td>
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<td></td>
</tr>
<tr>
<td>M. Identify portions of famous speeches and writings that reflect the basic principles and ideals of government (e.g., “I have a dream,” Reverend Martin Luther King; “One small step for man,” Neil Armstrong).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M. Explain the basic principles and ideals found in famous speeches and writings (e.g., “Governments, like clocks, go from the motion people give them,” William Penn; “A date that will live in infamy,” Franklin D. Roosevelt).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M. Interpret the impact of famous speeches and writings on civic life (e.g., The Gospel of Wealth, Declaration of Sentiments).</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>M. Evaluate and analyze the importance of significant political speeches and writings in civic life (e.g., Diary of Anne Frank, Silent Spring).</td>
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</tbody>
</table>

Basic concepts found in lower grades for standard statements and their descriptors must be developed more fully throughout higher grade levels.
5.2. Rights and Responsibilities of Citizenship

<table>
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<tr>
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</tr>
</thead>
</table>

Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to . . .

A. Identify examples of the rights and responsibilities of citizenship.
   • Personal rights
   • Political rights
   • Economic rights
   • Personal responsibilities
   • Civic responsibilities

B. Identify personal rights and responsibilities.

A. Compare rights and responsibilities of citizenship.
   • Political rights
   • Economic rights
   • Personal responsibilities of the individual and to society
   • Civic responsibilities of the individual and to society
   • Traits of character of individuals and to a republican form of government

B. Explain the relationship between rights and responsibilities.

A. Contrast the essential rights and responsibilities of citizens in systems of government.
   • Autocracy
   • Democracy
   • Oligarchy
   • Republic

B. Analyze citizens’ rights and responsibilities in local, state and national government.

B. Evaluate citizen’s participation in government and civic life.

A. Evaluate an individual’s civic rights, responsibilities and duties in various governments.
### 5.2. Rights and Responsibilities of Citizenship

<table>
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<tbody>
<tr>
<td><strong>Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to . . .</strong></td>
<td><strong>C. Explain ways citizens resolve conflicts in society and government.</strong></td>
<td><strong>C. Analyze skills used to resolve conflicts in society and government.</strong></td>
<td><strong>C. Interpret the causes of conflict in society and analyze techniques to resolve those conflicts.</strong></td>
</tr>
<tr>
<td><strong>C. Identify sources of conflict and disagreement and different ways conflicts can be resolved.</strong></td>
<td><strong>D. Describe the importance of political leadership and public service.</strong></td>
<td><strong>D. Analyze political leadership and public service in a republican form of government.</strong></td>
<td><strong>D. Evaluate political leadership and public service in a republican form of government.</strong></td>
</tr>
<tr>
<td><strong>D. Identify the importance of political leadership and public service in the school, community, state and nation.</strong></td>
<td><strong>E. Identify examples of the rights and responsibilities of citizenship.</strong></td>
<td><strong>E. Explain the importance of the political process to competent and responsible participation in civic life.</strong></td>
<td><strong>E. Analyze how participation in civic and political life leads to the attainment of individual and public goals.</strong></td>
</tr>
<tr>
<td><strong>E. Describe ways citizens can influence the decisions and actions of government.</strong></td>
<td><strong>F. Describe the impact of the consequences of violating rules and laws in a civil society.</strong></td>
<td><strong>F. Analyze the consequences of violating laws of Pennsylvania compared to those of the United States.</strong></td>
<td><strong>F. Evaluate how individual rights may conflict with or support the common good.</strong></td>
</tr>
<tr>
<td><strong>F. Explain the benefits of following rules and laws and the consequences of violating them.</strong></td>
<td><strong>G. Explain the importance of participating in government and civic life.</strong></td>
<td><strong>G. Analyze political and civic participation in government and society.</strong></td>
<td><strong>G. Evaluate what makes a competent and responsible citizen.</strong></td>
</tr>
<tr>
<td><strong>G. Identify ways to participate in government and civic life.</strong></td>
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<table>
<thead>
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<td>Basic concepts found in lower grades for standard statements and their descriptors must be developed more fully throughout higher grade levels.</td>
<td></td>
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</tbody>
</table>
### 5.3. How Government Works

<table>
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<tr>
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</tr>
<tr>
<td>A. Identify the elected representative bodies responsible for making local, Pennsylvania and United States laws.</td>
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</tbody>
</table>
| B. Identify the role of the three branches of government.  
  • Executive  
  • Legislative  
  • Judicial |
| C. Identify reasons for rules and laws in the school and community. |
| A. Compare the structure, organization and operation of local, state and national governments. |
| B. Describe the responsibilities and powers of the three branches of government. |
| C. Explain how government actions affect citizens’ daily lives. |
| A. Explain the structure, organization and operation of the local, state and national governments including domestic and national policy-making. |
| B. Compare the responsibilities and powers of the three branches within the national government. |
| C. Explain how a bill becomes a law on a federal, state, and local level. |
| A. Analyze and evaluate the structure, organization and operation of the local, state and national governments including domestic and national policy-making. |
| B. Analyze the responsibilities and powers of the national government. |
| C. Evaluate the process of how a bill becomes the law on a federal, state, and local levels. |
Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td><strong>5.3.3. GRADE 3</strong></td>
</tr>
<tr>
<td>D. Identify services performed by the local, state and national governments.</td>
</tr>
<tr>
<td>E. Identify positions of authority at school and in local, state and national governments.</td>
</tr>
</tbody>
</table>

Local (e.g., Zoning Board)  
State (e.g., Pennsylvania Public Utility Commission)  
National (e.g., Federal Communications Commission)
### 5.3. How Government Works

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</tbody>
</table>

**F. Explain what an election is.**
- Pennsylvania
- United States

**G. Explain why being treated fairly is important.**

**F. Describe the voting process.**
- Voter registration
- Primary Elections
- Caucuses
- Political party conventions
- General Elections
- Electoral College

**G. Describe how the government protects individual rights.**
- Presumption of Innocence
- Right to Counsel
- Trial by Jury
- Bill of Rights

**F. Explain the election process.**
- Equal protection
- Habeas Corpus
- Right Against Self Incrimination
- Double Jeopardy
- Right of Appeal
- Due Process

**G. Evaluate how the government protects or curtails individual rights and analyze the impact of supporting or opposing those rights.**
### 5.3. How Government Works

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</tr>
<tr>
<td><strong>H. Identify individual interests and explain ways to influence others.</strong></td>
<td>H. Identify individual interests and how they impact government.</td>
<td>H. Analyze how interest groups provide opportunities for citizens to participate in the political process.</td>
<td>H. Evaluate the impact of interest groups on the political process.</td>
<td></td>
</tr>
<tr>
<td><strong>I. Explain why taxes are necessary and identify who pays them.</strong></td>
<td>I. Describe why and how government raises money to pay for its operations and services.</td>
<td>I. Analyze how and why government raises money to pay for its operations and services.</td>
<td>I. Evaluate how and why government raises money to pay for its operations and services.</td>
<td></td>
</tr>
<tr>
<td><strong>J. Identify the role of the media in society.</strong></td>
<td>J. Describe the influence of media in reporting issues.</td>
<td>J. Analyze the importance of freedom of the press.</td>
<td>J. Evaluate the role of media in political life in the United States and explain the role of the media in setting the public agenda.</td>
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### 5.4. How International Relationships Function

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A. Identify how customs and traditions influence governments.

B. Recognize that the world is divided into various political units.

C. Identify ways in which countries interact with the United States.

A. Explain the concept of nation-states.

B. Describe how nation-states coexist in the world community.

C. Describe the governments of the countries bordering the United States and their relationships with the United States.

A. Explain how the United States is affected by policies of nation-states, governmental and non-governmental organizations.

B. Explain the role of the United States in world affairs.

C. Explain the effects United States political ideas have had on other nations.

A. Analyze the impact of international economic, technological and cultural developments on the government of the United States.

B. Analyze the United States’ interaction with other nations and governmental groups in world events.

C. Compare how past and present United States’ policy interests have changed over time and analyze the impact on future international relationships.
5.4. How International Relationships Function

<table>
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<th>5.4.3. GRADE 3</th>
<th>5.4.6. GRADE 6</th>
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<td>Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...</td>
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</tbody>
</table>

D. Identify treaties and other agreements between or among nations.

D. Describe the processes that resulted in a treaty or agreement between the United States and another nation-state.

D. Contrast how the three branches of federal government function in foreign policy.

D. Explain how foreign policy is developed and implemented.

E. Identify how nations work together to solve problems.

E. Explain how nations work together on common environmental problems, natural disasters and trade.

E. Explain the development and the role of the United Nations and other international organizations, both governmental and non-governmental.

E. Compare the purposes and functions of international organizations.

• Governmental (e.g., NATO, World Court, OAS)
• Nongovernmental (e.g., International Red Cross, Amnesty International, World Council of Churches)
Amendment (Constitutional): Changes in, or additions to, a constitution. Proposed by a two-thirds vote of both houses of Congress or by a convention called by Congress at the request of two-thirds of the state legislatures. Ratified by approval of three-fourths of the states.


Bill of Rights: First Ten Amendments to the Constitution. Ratified in 1791, these amendments limit government power and protect basic rights and liberties of individuals.

Checks and balances: Constitutional mechanisms that authorize each branch of government to check the activities of the other branches. For example, the president may veto legislation, the judiciary may declare acts of Congress unconstitutional, and the executive may make executive appointments and the courts may review executive actions.

Checks: Members of a political party who have agreed to support the party's candidates and platforms.

Citizen: Member of a political society who therefore owes allegiance to and is entitled to protection by and from the government.

Citizenship: Status of being a member of a state; one who owes allegiance to the government and is entitled to protection by and from the government.

Checks: Members of a political society who have agreed to support the party's candidates and platforms.

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Checks: Members of a political society who have agreed to support the party's candidates and platforms.
Civic life: A manner of existence of an individual concerned with the affairs of communities and the common good rather than solely in pursuit of private and personal interests.

Civic responsibilities: Obligation of citizens to take part in the governance of the school, community, tribe, state, or nation.

Civil disobedience: Refusal to obey laws. This tactic is usually passive and nonviolent, aimed at bringing injustices to the attention of lawmakers and the public at large. An example of civil disobedience was the American Civil Rights Movement in the 1950s and 1960s.

Civil rights: Protections and privileges given to all United States citizens by the Constitution and Bill of Rights.

Civil society: The spheres of voluntary individual, social, and economic relationships and organizations that are not part of governmental institutions.

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Direct democracy:
Form of government in which the people completely exercise political decisions.

Diversity:
State of being different; variety.

Documents of government:
Papers necessary for the organization and powers of government.

Double jeopardy:
A concept established by law that says a person cannot be tried twice for the same offense. It is part of the Fifth Amendment, which states that "no person shall be...subject for the same offense to be twice put in jeopardy of life or limb."
Federal Supremacy Clause:
Article VI of the Constitution provides that the Constitution and all federal laws and treaties shall be the "Supreme Law of the Land." Therefore, all federal laws take precedence over state and local laws.

Federal system (or Federalism):
Form of political organization in which governmental power is divided between a central government and territorial subdivisions (e.g., in the United States—the national, state and local governments).

Federalism:
The distribution of power in a government between a central authority and states with most powers retained by central government.

Foreign Policy:
Actions of the federal government directed to matters beyond United States' borders, especially relations with other countries.

Government:
Institutions and procedures through which a territory and its people are ruled.

Habeas Corpus:
Court order demanding that the individual in custody be brought into court and shown the cause for detention. Habeas corpus is guaranteed by the Constitution and can be suspended only in the case of rebellion or invasion. Courts order demaning that the individual in custody be brought into court, shown the cause for detention, and if needed the individual and people are released.

Interest Group:
Organized body of individuals who share some goals and try to influence public policy to meet those goals.

International Organizations:
Groups formed by nation-states to achieve common political, social or economic goals.

Individual Responsibility:
Fulfilling the moral and legal obligations of membership in society.

Individual Rights:
Just claims due a person by law, morality or tradition as opposed to those due to groups.

Interest Group:
Organized body of individuals who share some goals and try to influence public policy to meet those goals.

International:

Interest Group:

Individual Rights:

International Organizations:

International:

Government:

Habeas Corpus:

Foreign Policy:

Referendum (or Referendum):
The distribution of power in a government between a central authority and states with most powers retained by central government. The central government is divided between a central government and state or local government. The Federal system is divided between a central government and state or local government. The central government has prevalence over state and local government laws. The central government is the "Supreme Law of the Land." Therefore, all Constitution and all federal laws and rules shall be the Constitution and all federal laws and rules shall be Amendment. Article VI of the Constitution provides that the
Judicial Review:
Doctrine that permits the federal courts to declare unconstitutional, and thus null and void, acts of the Congress, the executive branch, and the states. The precedent for judicial review was established in the 1803 case of Marbury v. Madison.

Justice:
That which may be exercised or may invoke the use of force.

Leadership:
State or condition of one who guides or governs.

Liberal Democracy:
Government that recognizes that the individual has rights that exist independently of government and which ought to be protected by and against government.

Liberty:
Freedom from restraint under conditions essential to the equal enjoyment of the same right by others.

Limited Government:
A legal structure where officials in authority do not have enormous power. The Constitution of the United States limits government through methods of checks and balances.

Majority Rule:
Decision by more than half of those participating in the decision-making process.

Minority Rights:
Opportunities that a member is entitled to have or of whose participation in the decision-making process.

Nation-State:
Divisions of the world in which each state claims sovereignty over defined territory and jurisdiction over everyone within it. These states interact using diplomacy, formal agreements, and enforcement of laws.

Ordinal: the first, second, third, etc. of a series. The first, second, or third item in a list, especially when it is the most important or it is a choice between a limited number of options.

Political: relating to government or politics.

Public: relating to the public or the general public.

State Board of Education:
The board that controls and supervises the public education system in a state.

22
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>NATO</td>
<td>North Atlantic Treaty Organization, an international transatlantic partnership consisting of various European states, the United States and Canada, which was designed through cooperation, consultation and collective defense to maintain peace and promote stability throughout Europe.</td>
</tr>
<tr>
<td>Non-governmental organization</td>
<td>A group in a free society that is not a part of any government and does not derive its power from government, but seeks to influence the policies of the government through peaceful means.</td>
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<tr>
<td>OAS</td>
<td>Organization of American States, an intergovernmental organization formed by the states of North and South America for mutual cooperation in the maintenance of their common security.</td>
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<tr>
<td>Oligarchy</td>
<td>A government in which a small group exercises control. These systems are usually based on wealth, military power or social position.</td>
</tr>
<tr>
<td>Patriotism</td>
<td>A feeling of pride in and respect for one's country.</td>
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<tr>
<td>Personal rights</td>
<td>Private legal privileges and decisions that individuals are free to participate in, often without the need to seek public office.</td>
</tr>
<tr>
<td>Political party</td>
<td>Any group, however loosely organized, that seeks to elect government officials under a given label.</td>
</tr>
<tr>
<td>Political rights</td>
<td>Legal claims by citizens to participate in government and be treated fairly. The right to vote, petition, assemble, and seek public office.</td>
</tr>
<tr>
<td>Popular sovereignty</td>
<td>The concept that ultimate political authority rests with the people to create, alter or abolish governments.</td>
</tr>
<tr>
<td>Presumption of innocence</td>
<td>The legal concept that a criminal defendant is not guilty until the prosecution proves every element of the crime beyond a reasonable doubt.</td>
</tr>
</tbody>
</table>
Public service: Action of benefit to local, state or national communities through appointed or elected office.

Representative Democracy: Form of government in which power is held by elected representatives who make decisions. The voters and is exercised indirectly through elected representatives chosen by the voters and to whom power is held by the voters.

Republic: Form of government in which power is held by elected representatives who make decisions. The voters and is exercised indirectly through elected representatives chosen by the voters.

Republicanism or Democracy: Form of government in which power is held by elected representatives who make decisions. The voters and is exercised indirectly through elected representatives chosen by the voters.

Commonwealth: A nation, a civil power. Law: The right of a nation to make the law enforce the law and interpret the law.

Separation of powers: Distribution among the branches of government of the law making, law enforcing and law interpreting powers. Principle that every branch of society, even a principle that every branch of government, must follow the law.

Right of appeal: The right to seek review by a superior court of an injustice done or error committed by an inferior court whose judgment or decision is called upon to correct or revise.

Right against self-incrimination: Individual right found in the Fifth Amendment to the United States Constitution that prevents an individual from being forced to testify against himself or herself.

Right to counsel: Individual right found in the Sixth Amendment to the Constitution that requires criminal defendants to have access to legal representation in their defense.

Rule of Law: Principle that even a society, even a commonwealth, is called upon to make the law and enforce the law.

State: A commonwealth; a nation; a civil power.

Treaty: Treaty is an agreement between or among sovereign nations to create or restrict rights and responsibilities in the United States. Treaties must be approved by a two-thirds vote in the Senate and the President must be a constitutional requirement.

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Trial by jury:
Individual right found in the Sixth and Seventh Amendment of the Constitution that guarantees a person an impartial jury.

Truth:
Agreement of thought and reality that can eventually be verified.

Unitary government:
An authoritative system in which all regulatory power is vested in a central government from which regional and local governments derive their powers (e.g., Great Britain and France as well as the American states within their spheres of authority).

United Nations:
International organization comprising most of the nation-states of the world. It was formed in 1945 to promote peace, security and economic development.

Unlimited government:
A legal structure where officials in authority have unrestricted power. Examples of unlimited governments would be authoritarian or totalitarian systems without restraints on their power.

World Court:
Court in the Hague, the Netherlands, set up by the United Nations Treaty to which nations may voluntarily submit disputes.
The Economic Standards describe what students should know and be able to do at each grade level (third, sixth, ninth and twelfth). They reflect the increasing complexity and sophistication that students are expected to achieve as they do in other academic fields (such as math and English). They reflect the increasing complexity and sophistication that students are expected to achieve as they do in other academic fields (such as math and English). 

This document includes academic standards for Economics that describe what students should know and be able to do in the areas:

XII. INTRODUCTION

Glossary
H. Impact of Interest Rates
C. Costs and Benefits of Saving
F. Entrepreneurship
E. Distribution of Wealth
D. Profits and Losses
C. Types of Businesses
B. Labor Productivity
A. Factors Influencing Wages

Work and Earnings
G. Geographic Patterns of Economic Activities
F. Comparative Advantage
E. Global Production and Consumption of Goods or Services
D. Pennsylvania Economic Patterns
C. Implementation or Reduction of Trade Barriers
B. Trade
A. Specialization

Economic Interdependence
E. Incentives
F. Opportunity Cost
D. Marginal Analysis and Decision-Making
C. Allocation of Resources
B. Economic Reasoning of Choices
A. Scarcity and Limited Resources

Security and Choice
K. Impact of Media on the Cost and Benefits of Decisions
I. Costs and Benefits of Taxation
H. Economic Roles for Governments
G. Sources of Tax Revenue
F. Public Goods
E. Scarcity
D. Supply and Demand
C. Opportunity Cost
B. Marginal Analysis
A. Exchange Rates
in the standards. A glossary is included to assist the reader in clarifying terminology contained in the standards. A scope and sequence for curriculum and planned instruction, social studies, economics, and geography are provided. The scope of standards for social studies, economics, and geography are addressed in Chapter 49 and Chapter 47. Based on these regulations, the document includes a Social Studies in Chapter 4. This identification is consistent with Economics along with Civics and Government, Geography, and History are identified as Social Studies in Chapter 4. This identification is consistent with the regulations. The academic standards for Economics consist of five standard categories (designated as 6.1, 6.2, 6.3, 6.4, and 6.5). Each category has a number of standards designated by a capital letter. Some standards include a number of standard descriptors. The standard descriptors are items within the document to illustrate and enhance the standard statement. The descriptors may be followed by examples to clarify what type of information could be taught. The document is a local decision to include and exclude the standard statement, the categories, and the descriptors. The document is intended to provide direction in learning how economic activity impacts the forces of everyday life.

The academic standards are intended to provide direction in learning how economic activity impacts the forces of everyday life. A recognition of economic independence and how work and earnings influence personal pride is a unique opportunity in learning how economic independence impacts the forces of everyday life. A recognition of economic independence and how work and earnings influence personal pride is a unique opportunity in learning how economic independence impacts the forces of everyday life. A recognition of economic independence and how work and earnings influence personal pride is a unique opportunity in learning how economic independence impacts the forces of everyday life. A recognition of economic independence and how work and earnings influence personal pride is a unique opportunity in learning how economic independence impacts the forces of everyday life.
### 6.1. Economic Systems

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<tr>
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<td><strong>Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...</strong></td>
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</table>

A. Describe how individuals, families and communities with limited resources make choices.

B. Describe alternative methods of allocating goods and services and advantages and disadvantages of each.

C. Identify local economic activities.
   - Employment
   - Output

D. Identify examples of local businesses opening, closing, expanding or contracting.

A. Describe and identify the characteristics of traditional, command and market systems.

B. Explain the three basic questions that all economic systems attempt to answer.
   - What goods and services should be produced?
   - How will goods and services be produced?
   - Who will consume goods and services?

B. Explain how traditional, command and market economies answer the basic economic questions.

C. Define measures of economic activity and relate them to the health of the economy.
   - Prices
   - Employment
   - Output

C. Explain how economic indicators reflect changes in the economy.
   - Consumer Price Index (CPI)
   - Gross Domestic Product (GDP)
   - Unemployment rate

D. Explain the importance of expansion and contraction on individual businesses (e.g., gourmet food shops, auto repair shops, ski resorts).

D. Describe historical examples of expansion, recession and depression in the United States.

A. Analyze the similarities and differences in economic systems.

B. Explain how traditional, command and market economies answer the basic economic questions.

B. Analyze the impact of traditional, command and market economies on the United States economy.

C. Assess the strength of the regional, national and/or international economy and compare it to another time period based upon economic indicators.

D. Describe historical examples of expansion, recession, and depression internationally.
### 6.2. Markets and the Functions of Governments

<table>
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**Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...**

<table>
<thead>
<tr>
<th>A. Define and identify goods, services, consumers and producers.</th>
<th>A. Describe market transactions in terms of goods, services, consumers and producers.</th>
<th>A. Explain the flow of goods, services and resources in a mixed economy.</th>
<th>A. Analyze the flows of products, resources and money in a mixed economy.</th>
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<tr>
<td>B. Identify ways local businesses compete to get customers.</td>
<td>B. Describe the costs and benefits of competition to consumers in markets.</td>
<td>B. Analyze how the number of consumers and producers affects the level of competition within a market.</td>
<td>B. Evaluate the operation of noncompetitive markets.</td>
</tr>
<tr>
<td>C. Identify and compare means of payment.</td>
<td>C. Explain the function of money and its use in society.</td>
<td>C. Explain the structure and purpose of the Federal Reserve System.</td>
<td>C. Analyze policies designed to raise or lower interest rates and how the Federal Reserve Board influences interest rates.</td>
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<td>• Barter</td>
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<tr>
<td>• Money</td>
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<tr>
<td>D. Identify groups of competing producers in the local area.</td>
<td>D. Define economic institutions (e.g., banks, labor unions).</td>
<td>D. Analyze the functions of economic institutions (e.g., corporations, not-for-profit institutions).</td>
<td>D. Evaluate changes in economic institutions over time (e.g., stock markets, nongovernment organizations).</td>
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<td>6.2. Markets and the Functions of Governments</td>
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<td>E. Identify who supplies a product and who demands a product.</td>
<td>E. Explain how the interaction of buyers and sellers determines prices and quantities exchanged.</td>
<td>E. Explain the laws of supply and demand and how these affect the prices of goods and services.</td>
<td>E. Predict how changes in supply and demand affect equilibrium price and quantity sold.</td>
</tr>
</tbody>
</table>
| F. Define price and identify the prices of different items. | F. Describe how prices influence both buyers and sellers and explain why prices may vary for similar products. | F. Analyze how competition among producers and consumers affects price, costs, product quality, service, product design and variety and advertising. | F. Identify and analyze forces that can change price.  
  - Government actions  
  - Weather conditions  
  - International events |
| G. Define what a tax is and identify a tax paid by most families. | G. Explain how taxes affect the price of goods and services. | G. Contrast the largest sources of tax revenue with where most tax revenue is spent in Pennsylvania. | G. Evaluate types of tax systems.  
  - Progressive  
  - Proportional  
  - Regressive |
### 6.2. Markets and the Functions of Governments

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</table>
| H. Identify government involvement in local economic activities. | H. Describe the Pennsylvania and United States governments' roles in monitoring economic activities. | H. Analyze the economic roles of governments in market economies.  
- Economic growth and stability  
- Legal frameworks  
- Other economic goals (e.g., environmental protection, competition) | H. Evaluate the economic roles of governments.  
- Macroeconomics (e.g., tariffs and quotas, exchange rates, trade balance)  
- Microeconomics (e.g., price controls, monopolies, cartels) |
| I. Identify goods and services produced by the government (e.g., postal service, food inspection). | I. Identify and describe public goods. | I. Explain how government provides public goods. | I. Evaluate government decisions to provide public goods. |
| J. Explain the relationship between taxation and government services. | J. Explain the cost and benefits of taxation. | J. Contrast the taxation policies of the local, state and national governments in the economy. | J. Evaluate the social, political and economic changes in tax policy using cost/benefit analysis. |
| K. Identify forms of advertising designed to influence personal choice. | K. Explain how advertisements influence perceptions of the costs and benefits of economic decisions. | K. Interpret how media reports can influence perceptions of the costs and benefits of decisions. | K. Analyze the impact of media on decision-making of consumers, producers and policymakers. |
### 6.2. Markets and the Functions of Governments

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<td>Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...</td>
<td>L. Explain why most countries create their own form of money.</td>
<td>L. Explain what an exchange rate is.</td>
<td>L. Explain how the price of one currency is related to the price of another currency (e.g., Japanese yen in American dollar, Canadian dollar in Mexican nuevo peso).</td>
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</table>
### 6.3. Scarcity and Choice

<table>
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<tr>
<th>6.3.3. GRADE 3</th>
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<th>6.3.12. GRADE 12</th>
</tr>
</thead>
</table>
| **A.** Define scarcity and identify limited resources scarcity. | **A.** Explain how scarcity influences choices and behaviors.  
- Personal decision-making  
- Family decision-making  
- Community decision-making | **A.** Describe ways to deal with scarcity.  
- Community  
- Pennsylvania  
- United States | **A.** Analyze actions taken as a result of scarcity issues in the regional, national and international economies. |
| **B.** Define and identify wants of different people. | **B.** Explain how limited resources and unlimited wants cause scarcity. | **B.** Analyze how unlimited wants and limited resources affect decision-making. | **B.** Evaluate the economic reasoning behind a choice. |
| **C.** Identify and define natural, human and capital resources. | **C.** Describe the natural, human and capital resources used to produce a specific good or service. | **C.** Explain how resources can be used in different ways to produce different goods and services. | **C.** Evaluate the allocation of resources used to produce goods and services. |
| **D.** Identify costs and benefits associated with an economic decision. | **D.** Explain the costs and benefits of an economic decision. | **D.** Explain marginal analysis and decision-making. | **D.** Evaluate regional, national or international economic decisions using marginal analysis. |
| **E.** Explain what is given up when making a choice. | **E.** Define opportunity cost and describe the opportunity cost of a personal choice. | **E.** Explain the opportunity cost of a public choice from different perspectives. | **E.** Analyze the opportunity cost of decisions by individuals, businesses, communities and nations. |

Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...
### 6.3. Scarcity and Choice

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<td></td>
<td></td>
</tr>
<tr>
<td>F. Explain how self interest influences choice.</td>
<td>F. Explain how negative and positive incentives affect choices.</td>
<td>F. Explain how incentives affect the behaviors of workers, savers, consumers and producers.</td>
<td>F. Evaluate in terms of marginal analysis how incentives influence decisions of consumers, producers and policy makers.</td>
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### Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...

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<td>• Forestry (e.g., logging)</td>
<td>migrant workers)</td>
<td>and sea and inland ports (e.g.,</td>
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<td>• Mining and mineral</td>
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## 6.4. Economic Interdependence

**6.4.3. GRADE 3**

- E. Define specialization and identify examples of interdependence.
- F. Explain why some products are produced locally while others are not.
- G. Identify local geographic patterns of economic activities.
  - Agriculture
  - Travel and tourism
  - Mining and mineral extraction
  - Manufacturing
  - Wholesale and retail
  - Health services

**6.4.6. GRADE 6**

- E. Define specialization and trade lead to interdependence.
- F. Explain how opportunity costs influence where goods and services are produced locally and regionally.
- G. Describe geographic patterns of economic activities in Pennsylvania.
  - Agriculture
  - Travel and tourism
  - Mining and mineral extraction
  - Manufacturing
  - Wholesale and retail
  - Health services

**6.4.9. GRADE 9**

- E. Analyze how Pennsylvania consumers and producers participate in the global production and consumption of goods or services.
- F. Explain how opportunity cost can be used to determine the product for which a nation has a comparative advantage.
- G. Describe geographic patterns of economic activities in the United States.
  - Primary—extractive industries (i.e., farming, fishing, forestry, mining)
  - Secondary—materials processing industries (i.e., manufacturing)
  - Tertiary—service industries (e.g., retailing, wholesaling, finance, real estate, travel and tourism, transportation)

**6.4.12. GRADE 12**

- E. Analyze how United States consumers and producers participate in the global production and consumption of goods or services.
- F. Evaluate how trade is influenced by comparative advantage and opportunity costs.
- G. Evaluate characteristics and distribution of international economic activities.
  - Primary—extractive industries (i.e., farming, fishing, forestry, mining)
  - Secondary—materials processing industries (i.e., manufacturing)
  - Tertiary—service industries (e.g., retailing, wholesaling, finance, real estate, travel and tourism, transportation)
### 6.5. Work and Earnings

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**Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...**

| A. Explain why people work to get goods and services. | A. Recognize that the availability of goods and services is the result of work by members of the society. | A. Define wages and explain how wages are determined by the supply of and demand of workers. | A. Analyze the factors influencing wages.  
- Demand for goods and services produced  
- Labor unions  
- Productivity  
- Education/skills |
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<td>B. Identify different occupations.</td>
<td>B. Explain the concept of labor productivity.</td>
<td>B. Describe how productivity is measured and identify ways in which a person can improve his or her productivity.</td>
<td>B. Evaluate how changes in education, incentives, technology and capital investment alter productivity.</td>
</tr>
</tbody>
</table>
| C. Describe businesses that provide goods and services. | C. Compare the number of employees at different businesses.                                      | C. Identify and explain the characteristics of the three types of businesses.  
  - Sole Proprietorship  
  - Partnership  
  - Corporation | C. Analyze the costs and benefits of organizing a business as a sole proprietorship, partnership or corporation. |
| D. Define profit and loss.                           | D. Explain how profits and losses serve as incentives.                                            | D. Analyze how risks influence business decision-making          | D. Analyze the role of profits and losses in the allocation of resources in a market economy. |
6.5. Work and Earnings

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<tr>
<td><strong>E.</strong></td>
<td>Identify examples of assets.</td>
<td>Describe how people accumulate tangible and financial assets through income, saving, and financial investment.</td>
<td>Define wealth and describe its distribution within and among the political divisions of the United States.</td>
<td>Compare distribution of wealth across nations.</td>
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<td></td>
<td>• Tangible (e.g., houses, cars, jewelry)</td>
<td>• Financial assets (e.g., stocks, bonds, savings accounts)</td>
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<td><strong>F.</strong></td>
<td>Define entrepreneurship and identify entrepreneurs in the local community.</td>
<td>Identify entrepreneurs in Pennsylvania. • Historical • Contemporary</td>
<td>Identify leading entrepreneurs in Pennsylvania and the United States and describe the risks they took and the rewards they received.</td>
<td>Assess the impact of entrepreneurs on the economy.</td>
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*Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...*
<table>
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<tr>
<th>Grade</th>
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| 3     | G. Define saving and explain why people save. | 6     | G. Identify the costs and benefits of saving.  
- Piggy banks  
- Savings accounts  
- U.S. Savings Bonds | 9     | G. Explain the differences among stocks, bonds and mutual funds. | 12    | G. Analyze the risks and returns of various investments.  
- Stocks  
- Bonds  
- Mutual funds  
- Savings bonds  
- Retirement savings (e.g., Individual Retirement Account (IRA), Keogh, 401K)  
- Savings accounts (e.g., passbook, certificate of deposit) |
| 6     | H. Explain how banks bring savers and borrowers together. | 6     | H. Describe why there is a difference between interest rates for saving and borrowing. | 9     | H. Explain the impact of higher or lower interest rates for savers, borrowers, consumers and producers. | 12    | H. Evaluate benefits and costs of changes in interest rates to individuals and society. |

Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...
Barter: The direct exchange of goods or services between people.

Bond: A financial promise for an investment issued by a corporation or government with regular interest payments and repayment at a later date.

Capital resources: The physical equipment used in the production of goods and services.

Cartels: A group of sellers acting together in the market.

Circular flow: The movement of resources, goods, and services through an economy. As a diagram, it can show how households and businesses interact with each other and the government.

Command economy: A system in which decisions are made largely by an authority such as a feudal lord or government.

Comparative advantage: Economic theory that a country/individual should sell goods and services which it can produce at relatively lower costs and buy goods and services which it can produce at relatively higher costs.

Competition: The rivalry among people and businesses for resources and consumers.

Consumer: One who buys or rents goods or services and uses them.

Consumer Price Index: The price index most commonly used to measure the impact of changes in prices on households; this index is based on a standard market basket of goods and services purchased by a typical urban family.

Corporation: A business firm that is owned by stockholders and is a legal entity with rights to buy, sell, and make contracts. Its chief advantage is that each owner’s liability is limited to the amount of money he or she has invested in the company.

Cost: What is given up when a choice is made; monetary and/or non-monetary.

Economic theory: The study of how households, businesses, and governments interact in the market.

Planning agencies: Government agencies or departments charged with planning and coordinating economic activity.

The production of goods and services: The physical equipment used in the production of goods and services.

The circular flow: The movement of resources, goods, and services through an economy. As a diagram, it can show how households and businesses interact with each other and the government.

The direct exchange of goods or services between people.

VIII. GLOSSARY

22
Cost/benefit analysis: The process of weighing all predicted costs against the predicted benefits of an economic choice.

Deflation: A general decline in the price level.

Demand: The different quantities of a resource, good, or service that potential buyers are willing and able to purchase at various possible prices during a specific time period.

Depression: A severe recession in terms of magnitude or length, or both.

Division of labor: A method of organizing production whereby each worker specializes in part of the productive process.

Economic growth: An increase in a society's output.

Entrepreneur: Individual who begins, manages and bears the risk of a business (e.g., Milton Hershey, F.W. Woolworth).

Equilibrium price: The price at which quantity demanded equals quantity supplied; market clearing price.

Federal Reserve System: The "Central Bank" of the United States (consisting of the Board of Governors and 12 regional banks) which controls monetary policy.

Equilibrium price: The price of one country's currency measured in terms of another country's currency (e.g., American dollar in German mark, Japanese yen in terms of another country's currency). The exchange rate.

Exchange rate: The price of one country's currency measured in terms of another country's currency (e.g., American dollar in German mark, Japanese yen in terms of another country's currency). The equilibrium price.

Economic systems: The ways societies organize to determine what goods and services should be produced, how goods and services should be produced, and who will consume goods and services. Examples include traditional, command and market.

Economics: The study of the behavior of individuals and institutions involved in the production, distribution and consumption of goods and services.

Entrepreneur: Individual who begins, manages and bears the risk of a business (e.g., Milton Hershey, F.W. Woolworth).

Equilibrium price: The price at which quantity demanded equals quantity supplied; market clearing price.

Entrepreneur: Individual who begins, manages and bears the risk of a business (e.g., Milton Hershey, F.W. Woolworth).
Fiscal policy: Government decisions on taxation and spending to achieve economic goals.

Flow resources: Temporal energy forces that are neither renewable nor nonrenewable, but must be used as, when and where they occur or they are lost (e.g., wind, sunlight).

Gross Domestic Product: The market value of the total output of final goods and services produced by an economy in a given period.

Goods: Objects that can satisfy people's wants.

Household: A group of people living together under one roof.

Human resources: People's intellectual and physical abilities.

Income: Payments earned by people in exchange for providing resources used to produce goods and services.

Inflation: A general rise in the price level.

Interdependence: Ideas, goods and services in one area affect decisions and events in other areas reducing self-sufficiency.

Incentives: Factors that motivate or influence human behavior.

Interest: Payment made for the use of borrowed money.

Law of demand: The lower the price of a good or service, the greater the quantity that people will buy, all else equal.

Labor productivity: The total output divided by the quantity of labor.

Labor union: An organization of workers who seek to improve and collectively bargain over employments, salaries and working conditions.

Labor force: The part of the population which is employed or unemployed.

Labor market: An area of people seeking employment.

Law of supply: The higher the price of a good, the greater the quantity that producers are willing to supply, all else equal.

Labor productivity: The total output divided by the quantity of labor.

Law of supply: The higher the price of a good, the greater the quantity that producers are willing to supply, all else equal.

Marginal productivity: The change in output that results from a small change in the quantity of labor used.

Productivity: The output per unit of inputs.

Price: The amount of money paid for a good or service.

Price level: A measure of the average price of all goods and services produced in an economy.

Price gouging: The practice of increasing prices excessively in response to a shortage.

Price index: A measure of the change in the price level.

Productivity: The output per unit of inputs.

Production function: The relationship between inputs and outputs.

Production possibilities frontier: The set of all combinations of two goods or services that can be produced with all available resources and technology.

Production process: The transformation of inputs into outputs.

Productive capacity: The maximum output that can be produced under given conditions.

Agricultural goods: Goods that are produced by human labor and the use of natural resources.

Human resources: People's intellectual and physical abilities.

Interest: Payment made for the use of borrowed money.

Law of supply: The higher the price of a good, the greater the quantity that producers are willing to supply, all else equal.

Law of demand: The lower the price of a good or service, the greater the quantity that people will buy, all else equal.

Law of supply: The higher the price of a good, the greater the quantity that producers are willing to supply, all else equal.

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Law of supply: The higher the price of a good, the greater the quantity that producers are willing to supply, all else equal.

Law of demand: The lower the price of a good or service, the greater the quantity that people will buy, all else equal.
Law of supply:
The higher the price of a good or service, the greater the quantity that business will sell, all else held constant (e.g., resource costs, technology).

Loss:
The difference that arises when a firm's total revenues are less than its total costs.

Macroeconomics:
Study of aggregate economic activity including how the economy works as a whole. Seeks to identify levels of national income, output, employment and prices.

Marginal analysis:
A decision making tool that weighs additional costs and benefits.

Market:
A place or process through which goods and services are exchanged.

Money supply:
The amount of liquid assets which exists in the economy at a given time (e.g., currency, checkable deposits, traveler's checks).

Opportunity cost:
The highest valued alternative given up when a decision is made.

Output:
The total amount of a commodity produced.

Nonrenewable resources:
Finite elements that cannot be replaced once they're used up, such as fuels, minerals.

Natural resources:
Anything found in nature that can be used to produce a product (e.g., land, water, coal).

Monetary policy:
Government decisions on money supply and interest rates.

Monetary fund:
The amount of liquid assets which exists in the economy at a given time (e.g., currency, checkable deposits, traveler's checks).

Microeconomics:
Study of the behaviors of consumers, firms and determination of the market prices.

Mixed economy:
An economic system in which decisions are made by markets, government and tradition.

Price:
A price is the exchange value of goods and services.

Price elasticity:
A decision making tool that weighs additional costs and benefits.

Profit:
The difference between total revenue and total costs.

Product:
A good or service that is sold to consumers.

Profitability:
The extent to which a business earns a profit.

Profit:
The difference between total revenue and total costs.

Pure economics:
A field of economic activities that is concerned with the study of a single consumer, firm or industry.

Quantity:
The amount of a good or service that is produced or consumed.

Quantity demanded:
The amount of a good or service that consumers are willing and able to purchase at a given price.

Quantity supplied:
The amount of a good or service that producers are willing to supply at a given price.

Revenue:
The amount of money received from the sale of goods and services.

Resource:
Anything found in nature that can be used to produce a product (e.g., land, water, coal).

Resource cost:
The cost of employing a resource.

Revenue:
The amount of money received from the sale of goods and services.

Supply:
The amount of a good or service that is produced or consumed.

Supply curve:
The graphical representation of the relationship between price and quantity supplied.

Supply:
The amount of a good or service that is produced or consumed.
Partnership:
The ownership of a good or service where two or more people share in the profits and risks.

Price:
The amount of money people pay in exchange for a unit of a particular good or service.

Price control:
The government's intervention to keep prices from increasing too much during a specific time period. This is often done to prevent inflation.

Price index:
The average level of costs at one time compared to another time.

Producer:
A person who produces goods or services.

Productivity:
The amount of output per unit of input over a period of time, often used as a measure of efficiency.

Profit:
The total revenue minus total costs.

Progressive tax:
The tax where the percentage of income used to pay the tax decreases as the taxpayer's income increases.

Proportional tax:
The tax where the percentage of income used to pay the tax remains the same as the taxpayer's income increases.

Public goods:
Goods and services provided by the government that are available to everyone, often at no cost.

Public policy:
The course of action taken by the government to achieve certain goals.

Quantity demanded:
The amount of a good or service that customers are willing and able to buy at a given price during a specific time period.

Quantity supplied:
The amount of a good or service that sellers are willing and able to sell at a given price during a specific time period.

Public goods:
Goods and services provided by the government that are available to everyone, often at no cost.

Public policy:
The course of action taken by the government to achieve certain goals.

Quantity demanded:
The amount of a good or service that customers are willing and able to buy at a given price during a specific time period.

Quantity supplied:
The amount of a good or service that sellers are willing and able to sell at a given price during a specific time period.
Quota: A form of import protectionism where the total quantity of imports of a particular commodity is limited.

Recession: A contraction in national production that lasts 6 months or longer. A recession might be marked by job layoffs and high unemployment, stagnant wages, reductions in retail sales and slowing of housing and car markets.

Regressive tax: A levy for which the percentage of income used to pay the levy decreases as the taxpayer’s income increases.

Renewable resources: Substances that can be regenerated if used carefully (e.g., fish, timber).

Resources: Inputs used to produce goods and services; categories include natural, human and capital.

Sole proprietorship: A business owned by an individual who receives all the profits and rewards and bears all the losses.

Standard of living: A form of division of labor in which each individual and family is assigned a share of ownership in a company.

Sustainability: An economic condition that exists when demand is met by the supply available. An economic condition that exists when demand is met by the supply available.

Supply: The different quantities of a resource, good or service that potential sellers are willing and able to sell at various possible prices during a specific time period.

Services: Actions that are valued by others.

Sole proprietorship: A business owned by an individual who receives all the profits and rewards and bears all the losses.

Stock: A certificate representing a share of ownership in a company.

Specialization: A form of division of labor in which each individual concentrates his productive efforts on a single or limited number of activities.

Standard of living: A form of division of labor in which each individual and family is assigned a share of ownership in a company.

Scarcity: An economic condition that exists when demand is greater than supply.

Services: Actions that are valued by others.

Sole proprietorship: A business owned by an individual who receives all the profits and rewards and bears all the losses.

Sustainability: An economic condition that exists when demand is met by the supply available. An economic condition that exists when demand is met by the supply available.

Supply: The different quantities of a resource, good or service that potential sellers are willing and able to sell at various possible prices during a specific time period.
Tariff: A surcharge placed on imported goods and services. The purpose of a tariff is to protect domestic products from foreign competition.

Tertiary: The third level of economic activity. It includes service and service-related industries.

Trade: Voluntary exchange between two parties in which both parties benefit. Trade balances reflect the net balance of imports and exports. A surplus indicates a trade deficit; a deficit indicates a trade surplus.

Trade balance: The difference between a nation's imports and exports. The balance of trade is a measure of a nation's trade surplus or deficit.

Unemployment rate: The percentage of the labor force that is actively seeking employment.

Unemployment rate: The percentage of the labor force that is actively seeking employment.

Wants: Desires that can be satisfied by consuming goods, services, or leisure activities.

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THE ACADEMIC STANDARDS

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A. Impact of Physical Systems on People
B. Impact of People on Physical Systems

Glossary ..................................................... XXI.

XX. INTRODUCTION

This document includes Academic Standards for Geography that describe what students should know and be able to do at any grade level.

Geography is the science of space and place on Earth's surface. Its subject matter is the physical and human phenomena that make up the world's environments and places. These standards build on using geographic tools as a means for asking and answering geographic questions; setting information into a range of spatial contexts; recognizing places and regions as human concepts; understanding the physical processes that have shaped Earth's surface and the patterns resulting from those processes; and recognizing people's actions and the consequences of these actions as major forces in the development of human geography. In the primary grade levels (1-3), the emphasis should be on developing the basic understandings of the world (answer the question). In the intermediate grade levels (4-6), the emphasis should be on developing the basic understandings in the primary grade levels (answer the question). In the secondary grade levels (7-12), the emphasis should be on developing the basic understandings in the intermediate grade levels (answer the question) and answering the why question.

At each grade level, instructional content should be selected to support the development of geographic understanding. This includes identifying the basic characteristics of the world (answer the what question); describing spatial patterns of phenomena (answering the where and when questions); explaining spatial patterns of phenomena (answering the how question); and analyzing spatial patterns of phenomena (answering the why question). Although the emphasis may focus on specific questions, these questions may be encountered at any grade level.

Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS

4-249
Geography is an integrative discipline that enables students to apply geography skills and knowledge to life situations at home, at work and in the community. Therefore, these standards should be crosswalked with those in Civics and Government, Economics and History to create an interdisciplinary view of the world. Topics and concepts in Geography directly relate to standards identified in Civics and Government, Economics and History. Geographers study and describe the world and its interactions. Geography is an integrative discipline that enables students to apply geography skills and knowledge to life situations at home, at work and in the community. Therefore, these standards should be crosswalked with those in Civics and Government.

### The Five Fundamental Themes of Geography

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<tr>
<th>Theme Description</th>
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<td>Location</td>
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These are the Five Fundamental Themes of Geography:

- **Location**: The absolute and relative position of a place on Earth's surface
- **Place**: How physical and human characteristics define and distinguish a place
- **Human-Environment Interactions**: How humans modify and adapt to natural settings
- **Movement**: How people, ideas and materials move between and among locations
- **Regions**: How an area displays unity in terms of physical and human characteristics

The academic standards for Geography consist of four standard categories (designated as 7.1., 7.2., 7.3., and 7.4.). Each category has two to five standard statements (designated by a capital letter). The standards describe what students should know and be able to do when they complete a course in Geography. The descriptors are items within the document to illustrate and enhance the standard statements. The descriptors may be followed by "e.g.", which are examples to clarify what type of information could be taught. These are suggestions and the choice of specific content is a local decision as is the method of instruction.
Social Studies/Citizenship programs should include the four sets of standards as an entity in developing a scope and sequence for curriculum and planned instruction. A glossary is included to assist the reader in clarifying terminology contained in the standards.
7.1. Basic Geographic Literacy

<table>
<thead>
<tr>
<th>7.1.3. GRADE 3</th>
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<th>7.1.9. GRADE 9</th>
<th>7.1.12. GRADE 12</th>
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<tbody>
<tr>
<td><strong>A. Identify geographic tools and their uses.</strong>&lt;br&gt;• Characteristics and purposes of different geographic representations&lt;br&gt;• Maps and basic map elements&lt;br&gt;• Globes&lt;br&gt;• Graphs&lt;br&gt;• Diagrams&lt;br&gt;• Photographs&lt;br&gt;• Geographic representations to display spatial information&lt;br&gt;• Sketch maps&lt;br&gt;• Thematic maps&lt;br&gt;• Mental maps to describe the human and physical features of the local area</td>
<td><strong>A. Describe geographic tools and their uses.</strong>&lt;br&gt;• Basis on which maps, graphs and diagrams are created&lt;br&gt;• Aerial and other photographs&lt;br&gt;• Reference works&lt;br&gt;• Field observations&lt;br&gt;• Surveys&lt;br&gt;• Geographic representations to display spatial information&lt;br&gt;• Absolute location&lt;br&gt;• Relative location&lt;br&gt;• Flows (e.g., goods, people, traffic)&lt;br&gt;• Topography&lt;br&gt;• Historic events&lt;br&gt;• Mental maps to organize an understanding of the human and physical features of Pennsylvania and the home county&lt;br&gt;• Basic spatial elements for depicting the patterns of physical and human features</td>
<td><strong>A. Explain geographic tools and their uses.</strong>&lt;br&gt;• Development and use of geographic tools&lt;br&gt;• Geographic information systems [GIS]&lt;br&gt;• Population pyramids&lt;br&gt;• Cartograms&lt;br&gt;• Satellite-produced images&lt;br&gt;• Climate graphs&lt;br&gt;• Access to computer-based geographic data (e.g., Internet, CD-ROMs)&lt;br&gt;• Construction of maps&lt;br&gt;• Projections&lt;br&gt;• Scale&lt;br&gt;• Symbol systems&lt;br&gt;• Level of generalization&lt;br&gt;• Types and sources of data&lt;br&gt;• Geographic representations to track spatial patterns&lt;br&gt;• Weather&lt;br&gt;• Migration&lt;br&gt;• Environmental change (e.g., tropical forest reduction, sea-level changes)</td>
<td><strong>A. Analyze data and issues from a spatial perspective using the appropriate geographic tools.</strong>&lt;br&gt;• Spatial patterns of human features that change over time (e.g., intervening opportunity, distance decay, central place theory, locational preference)&lt;br&gt;• Physical patterns of physical features that change over time (e.g., climate change, erosion, ecological invasion and succession)&lt;br&gt;• Human and physical features of the world through mental maps</td>
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Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...
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<tr>
<td>• Point, line, area, location, distance, scale</td>
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<td>• Map grids</td>
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<td>• Alpha-numeric system</td>
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<td>• Cardinal and intermediate directions</td>
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<tr>
<td>• Mental maps to organize and understand the human and physical features of the United States</td>
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## 7.1. Basic Geographic Literacy

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<tr>
<td>B. Identify and locate places and regions.</td>
<td>B. Describe and locate places and regions.</td>
<td>B. Explain and locate places and regions.</td>
<td>B. Analyze the location of places and regions.</td>
</tr>
<tr>
<td>- Physical features</td>
<td>- Coordinate systems (e.g., latitude and longitude, time zones)</td>
<td>- How regions are created to interpret Earth’s complexity (i.e., the differences among formal regions, functional regions, perceptual regions)</td>
<td>- Changing regional characteristics (e.g., short- and long-term climate shifts; population growth or decline; political instability)</td>
</tr>
<tr>
<td>- Continents and oceans</td>
<td>- Physical features</td>
<td>- How characteristics contribute to regional changes (e.g., economic development, accessibility, demographic change)</td>
<td>- Criteria to define a region (e.g., the reshaping of south Florida resulting from changing migration patterns; the US-Mexico border changes as a function of NAFTA; metropolitan growth in the Philadelphia region)</td>
</tr>
<tr>
<td>- Major landforms, rivers and lakes in North America</td>
<td>- In the United States (e.g., Great Lakes, Rocky Mountains, Great Plains)</td>
<td>- How culture and experience influence perceptions of places and regions</td>
<td>- Cultural change (e.g., influence on people’s perceptions of places and regions)</td>
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<tr>
<td>- Local community</td>
<td>- In Pennsylvania (e.g., Coastal Plain, Piedmont, Appalachians)</td>
<td>- How structures and alliances impact regions</td>
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<tr>
<td>- Human features</td>
<td>- Human features</td>
<td>- Development (e.g., First vs. Third World, North vs. South)</td>
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<td>- Countries (i.e., United States, Mexico, Canada)</td>
<td>- Countries (e.g., United Kingdom, Argentina, Egypt)</td>
<td>- Trade (e.g., NAFTA, the European Union)</td>
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<td>- States (i.e., Pennsylvania, Delaware, Maryland, New Jersey, New York, Ohio, West Virginia)</td>
<td>- Provinces (e.g., Ontario, Quebec, Nova Scotia)</td>
<td>- International treaties (e.g., NATO, OAS)</td>
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<tr>
<td>- Cities (i.e., Philadelphia, Erie, Altoona, Pittsburgh, Scranton, Harrisburg, Johnstown, Allentown, Washington D.C., Baltimore, New York, Toronto, Cleveland)</td>
<td>- Major regions (e.g., Mid Atlantic, New England, Southwest)</td>
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<tr>
<td>- Local community</td>
<td>- States (e.g., California, Massachusetts, Florida)</td>
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<tr>
<td>- Regions as areas with unifying geographic characteristics</td>
<td>- Major cities (e.g., London, Los Angeles, Tokyo)</td>
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<tr>
<td>- Physical regions (e.g., landform regions, climate regions, river basins)</td>
<td>- Counties (e.g., Lancaster, Lackawanna, Jefferson)</td>
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*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to . . .*
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<tr>
<td>• Human regions (e.g., neighborhoods, cities, states, countries)</td>
<td>• Townships (e.g., Dickinson, Lower Mifflin, Southampton)</td>
<td>• How regions are connected (e.g., watersheds and river systems, patterns of world trade, cultural ties, migration)</td>
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<td>• Ways in which different people view places and regions (e.g., places to visit or to avoid)</td>
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<td>• Community connections to other places</td>
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<td>• Dependence and interdependence</td>
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<td>• Access and movement</td>
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Basic Geography Literacy must include local-to-global progression (scales) for all students at all grade levels for the standard statements and their descriptors. Basic concepts introduced in lower grade levels must be developed more fully throughout higher grade levels. Portions of Basic Geography Literacy relate directly to the Mathematics Standards.
## 7.2 The Physical Characteristics of Places and Regions

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### A. Identify the physical characteristics of places and regions.
- Physical properties
  - Landforms (e.g., plains, hills, plateaus and mountains)
  - Bodies of water (e.g., rivers, lakes, seas and oceans)
  - Weather and climate
  - Vegetation and animals
- Earth’s basic physical systems
  - Lithosphere
  - Hydrosphere
  - Atmosphere
  - Biosphere

### A. Describe the physical characteristics of places and regions.
- Components of Earth’s physical systems (e.g., clouds, storms, relief and elevation [topography], tides, biomes, tectonic plates)
- Comparison of the physical characteristics of different places and regions (e.g., soil, vegetation, climate, topography)
- Climate types (e.g., marine west coast, humid continental, tropical wet and dry)

### A. Explain the physical characteristics of places and regions including spatial patterns of Earth’s physical systems.
- Climate regions
  - Landform regions

### A. Analyze the physical characteristics of places and regions including the interrelationships among the components of Earth’s physical systems.
- Biomes and ecosystem regions
- Watersheds and river basins
- World patterns of biodiversity
Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...

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<td><strong>B. Identify the basic physical processes that affect the physical characteristics of places and regions.</strong></td>
<td><strong>B. Describe the physical processes that shape patterns on Earth’s surface.</strong></td>
<td><strong>B. Explain the dynamics of the fundamental processes that underlie the operation of Earth’s physical systems.</strong></td>
<td><strong>B. Analyze the significance of physical processes in shaping the character of places and regions.</strong></td>
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<tr>
<td>• Earth-sun relationships (i.e., seasons and length of daylight, weather and climate)</td>
<td>• Earth-sun relationships (i.e., differences between equinoxes and solstices, reasons they occur and their relationship to latitude)</td>
<td>• Wind systems</td>
<td>• Circulation of the oceans</td>
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<tr>
<td>• Extreme physical events (e.g., earthquakes, floods, hurricanes, tornadoes)</td>
<td>• Climate influences (e.g., elevation, latitude, nearby ocean currents)</td>
<td>• Water cycle</td>
<td>• Ecosystem processes</td>
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<td>• Climate change, (e.g., global warming/cooling, decertification, glaciations)</td>
<td>• Erosion/deposition cycle</td>
<td>• Atmospheric systems</td>
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<td></td>
<td>• Plate tectonics</td>
<td>• Plate tectonics</td>
<td>• Extreme natural events</td>
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<td>• Hydrologic cycle</td>
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The Physical Characteristics of Places and Regions must include local-to-global progression (scales) for all students at all grade levels for the standard statements and their descriptors. Basic concepts must be developed more fully throughout higher grade levels. Portions of Physical Characteristics of Places and Regions relate directly to Science and Technology and Environment and Ecology standards.
7.3 The Human Characteristics of Places and Regions

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A. Identify the human characteristics of places and regions by their population characteristics.
- The number and distribution of people in the local community
- Human movement in the local community (e.g., mobility in daily life, migration)

A. Describe the human characteristics of places and regions by their population characteristics.
- Spatial distribution, size, density and demographic characteristics of population at the county and state level.
- Causes of human movement
  - Mobility (e.g., shopping, commuting, recreation)
  - Migration models (e.g., push/pull factors, barriers to migration)

A. Explain the human characteristics of places and regions by their population characteristics.
- Spatial distribution, size, density and demographic characteristics of population at the state and National level
- Demographic structure of a population (e.g., life expectancy, fertility rate, mortality rate, infant mortality rate, population growth rate, the demographic transition model)
- Effects of different types and patterns of human movement
  - Mobility (e.g., travel for business)
  - Migration (e.g., rural to urban, short term vs. long term, critical distance)

A. Analyze the significance of human activity in shaping places and regions by their population characteristics:
- Spatial distribution, size, density and demographic characteristics of population at the international level
- Demographic trends and their impacts on patterns of population distribution (e.g., carrying capacity, changes in fertility, changes in immigration policy, the mobility transition model)
- Impact of movement on human systems (e.g., refugees, guest workers, illegal aliens)
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</table>
| B. Identify the human characteristics of places and regions by their cultural characteristics.  
  - Components of culture (e.g., language, belief systems and customs, social organizations, foods, ethnicity)  
  - Ethnicity of people in the local community (e.g., customs, celebrations, languages, religions) | B. Describe the human characteristics of places and regions by their cultural characteristics.  
  - Ethnicity of people at the county and state levels (e.g., customs, celebrations, languages, religions)  
  - Spatial arrangement of cultures creates distinctive landscapes (e.g., cultural regions based on languages, customs, religion, building styles as in the Pennsylvania German region) | B. Explain the human characteristics of places and regions by their cultural characteristics.  
  - Ethnicity of people at national levels (e.g., customs, celebrations, languages, religions)  
  - Culture distribution (e.g., ethnic enclaves and neighborhoods)  
  - Cultural diffusion (e.g., acculturation and assimilation, cultural revivals of language) | B. Analyze the significance of human activity in shaping places and regions by their cultural characteristics.  
  - Cultural conflicts (e.g., over language (Canada), over political power (Spain), over economic opportunities (Mexico))  
  - Forces for cultural convergence (e.g., the diffusion of foods, fashions, religions, language) |

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<tr>
<td>C. Identify the human characteristics of places and regions by their settlement characteristics.</td>
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<td>• Types of settlements (e.g., villages, towns, suburbs, cities, metropolitan areas)</td>
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<td>• Factors that affect where people settle (e.g., water, resources, transportation)</td>
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<td>C. Describe the human characteristics of places and regions by their settlement characteristics.</td>
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<tr>
<td>• Current and past settlement patterns in the local area</td>
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<tr>
<td>• Factors that affect the growth and decline of settlements (e.g., immigration, transportation development, depletion of natural resources, site and situation)</td>
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<tr>
<td>C. Explain the human characteristics of places and regions by their settlement characteristics.</td>
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<tr>
<td>• Current and past settlement patterns in Pennsylvania and the United States</td>
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<tr>
<td>• Forces that have re-shaped modern settlement patterns (e.g., central city decline, suburbanization, the development of transport systems)</td>
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<tr>
<td>• Internal structure of cities (e.g., manufacturing zones, inner and outer suburbs, the location of infrastructure)</td>
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<tr>
<td>C. Analyze the significance of human activity in shaping places and regions by their settlement characteristics.</td>
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<tr>
<td>• Description of current and past settlement patterns at the international scale (e.g., global cities)</td>
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<td>• Use of models of the internal structure of cities (e.g., concentric zone, sector, multiple nuclei)</td>
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<td>• Forces that have reshaped settlement patterns (e.g., commuter railroads, urban freeways, the development of megalopolis and edge cities)</td>
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### 7.3 The Human Characteristics of Places and Regions

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| Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to. |

#### D. Identify the human characteristics of places and regions by their economic activities.
- Location factors in the spatial distribution of economic activities (e.g., market, transportation, workers, materials)
  - Producers of consumer products and services (e.g., bread, pizza, television, shopping malls)
  - Products of farms and factories at the local and regional level (e.g., mushrooms, milk, snack foods, furniture)
- Spatial distribution of resources
  - Non-renewable resources
  - Renewable resources
  - Flow resources (e.g., water power, wind power)

#### D. Describe the human characteristics of places and regions by their economic activities.
- Spatial distribution of economic activities in the local area (e.g., patterns of agriculture, forestry, mining, retailing, manufacturing, services)
- Factors that influence the location and spatial distribution of economic activities (e.g., market size for different types of business, accessibility, modes of transportation used to move people, goods and materials)
- Spatial distribution of resources and their relationship to population distribution
  - Historical settlement patterns and natural resource use (e.g.,)

#### D. Explain the human characteristics of places and regions by their economic activities.
- Spatial distribution of economic activities in Pennsylvania and the United States (e.g., patterns of agriculture, forestry, mining, retailing, manufacturing, services)
- Factors that shape spatial patterns of economic activity both Nationally and internationally (e.g., comparative advantage in location of economic activities; changes in resource trade; disruption of trade flows)
- Technological changes that affect the definitions of, access to, and use of natural resources (e.g., the role of exploration, extraction, use and depletion of resources)

#### D. Analyze the significance of human activity in shaping places and regions by their economic characteristics.
- Changes in spatial distribution of economic activities at the global scale (e.g., patterns of agriculture, forestry, mining, retailing, manufacturing, services)
- Forces that are reshaping business (e.g., the information economy, business globalization, the development of off-shore activities)
- Effects of changes and movements in factors of production (e.g., resources, labor, capital)
# 7.3 The Human Characteristics of Places and Regions

<table>
<thead>
<tr>
<th>7.3.3. GRADE 3</th>
<th>7.3.6. GRADE 6</th>
<th>7.3.9. GRADE 9</th>
<th>7.3.12. GRADE 12</th>
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<tbody>
<tr>
<td>Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to.</td>
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</table>

- **E. Identify the human characteristics of places and regions by their political activities.**
  - Type of political units (e.g., townships, boroughs, towns, cities, counties, states, countries (nation-state))
  - Political units in the local area

- **E. Describe the human characteristics of places and regions by their political activities.**
  - Spatial pattern of political units in Pennsylvania
  - Functions of political units (e.g., counties, municipalities, townships, school districts, PA General Assembly districts (House and Senate), U.S. Congressional districts, states)

- **E. Explain the human characteristics of places and regions by their political activities.**
  - Spatial pattern of political units in the United States
  - Geographic factors that affect decisions made in the United States (e.g., territorial expansion, boundary delineation, allocation of natural resources)
  - Political and public policies that affect geography (e.g., open space, urban development)

- **E. Analyze the significance of human activity in shaping places and regions by their political characteristics:**
  - Spatial pattern of political units in the global system
  - Role of new political alliances on the international level (e.g., multinational organizations, worker’s unions, United Nations’ organizations)
  - Impact of political conflicts (e.g., secession, fragmentation, insurgencies, invasions)

The Human Characteristics of Places and Regions must include local-to-global progression (scales) for all students at all grade levels for the standard statements and their descriptors. Basic concepts found in lower grade levels must be developed more fully throughout higher grade levels. Portions of Human Characteristics of Places and Regions relate directly to the Civics and Government and Economics Standards.
### 7.4 The Interactions Between People and Places

<table>
<thead>
<tr>
<th>7.4.3. GRADE 3</th>
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<tr>
<td>A. Identify the impacts of physical systems on people.</td>
<td>A. Describe the impacts of physical systems on people.</td>
<td>A. Explain the impacts of physical systems on people.</td>
<td>A. Analyze the impacts of physical systems on people.</td>
</tr>
<tr>
<td>- How people depend on, adjust to and modify physical systems on a local scale (e.g., soil quality and agriculture, snowfall and daily activities, drought and water use)</td>
<td>- How people depend on, adjust to and modify physical systems on regional scale (e.g., coastal industries, development of coastal communities, flood control)</td>
<td>- How people depend on, adjust to and modify physical systems on National scale (e.g., soil conservation programs, projects of The Corps of Engineers)</td>
<td>- How people depend on, adjust to and modify physical systems on international scales (e.g., resource development of oil, coal, timber)</td>
</tr>
<tr>
<td>- Ways in which natural hazards affect human activities (e.g., storms, lightning, flooding)</td>
<td>- Ways in which people adjust to life in hazard-prone areas (e.g., California and earthquakes, Florida and hurricanes, Oklahoma and tornadoes)</td>
<td>- Ways in which people adjust their ways of life (e.g., building design in earthquake areas, dry-farming techniques in drought-prone areas)</td>
<td>- Ways in which people modify ways of life to accommodate different environmental contexts (e.g., building in permafrost areas; the role of air-conditioning in the United States South and Southwest; the development of enclosed spaces for movement in cold climates)</td>
</tr>
</tbody>
</table>
### 7.4 The Interactions Between People and Places

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<tr>
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**Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...**

<table>
<thead>
<tr>
<th><strong>B. Identify the impacts of people on physical systems.</strong></th>
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<tbody>
<tr>
<td>• Effects of energy use (e.g., water quality, air quality, change in natural vegetation)</td>
</tr>
<tr>
<td>• Ways humans change local ecosystems (e.g., land use, dams and canals on waterways, reduction and extinction of species)</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th><strong>B. Describe the impacts of people on physical systems.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Changing spatial patterns on Earth’s surface that result from human activities (e.g., lake desiccation as in the Aral Sea, construction of dikes, dams and storm surge barriers in the Netherlands, designation of State parks and forests throughout Pennsylvania)</td>
</tr>
<tr>
<td>• Ways humans adjust their impact on the habitat (e.g., Endangered Species Act, replacement of wetlands, logging and replanting trees)</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th><strong>B. Explain the impacts of people on physical systems.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Forces by which people modify the physical environment (e.g., increasing population; new agricultural techniques; industrial processes and pollution)</td>
</tr>
<tr>
<td>• Spatial effects of activities in one region on another region (e.g., scrubbers on power plants to clean air, transportation systems such as Trans-Siberian Railroad, potential effects of fallout from nuclear power plant accidents)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>B. Analyze the impacts of people on physical systems.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• How people develop international agreements to manage environmental issues (e.g., Rio de Janeiro Agreement, the Law of the Sea, the Antarctica Treaty)</td>
</tr>
<tr>
<td>• How local and regional processes can have global effects (e.g., wind and hydroelectric power transmitted across regions, water use and irrigation for crop production)</td>
</tr>
<tr>
<td>• Sustainability of resources (e.g., reforestation, conservation)</td>
</tr>
<tr>
<td>• World patterns of resource distribution and utilization (e.g., oil trade, regional electrical grids)</td>
</tr>
</tbody>
</table>

The Interactions Between People and Places must include local to global scales for all students at all grade levels for the standard statements and their descriptors. Basic concepts found in lower grade levels must be developed more fully throughout higher grade levels.
XXI. Glossary

Absolute location: The position of a point on Earth's surface that can usually be described by latitude and longitude. Another example of absolute location would be the use of a nine digit zip code and street address.

Acculturation: The process of adopting the traits of a cultural group by an individual or a social group, a state or nation through contact and movement of people.

Assimilation: The acceptance, by one culture or community, of cultural traits associated with another. The assimilation of a culture or community by one culture group or another.

Atmosphere: The body of gases, aerosols and other materials that surrounds Earth and is held close by gravity. The atmosphere includes the earth's surface, the air, and all of the gaseous substance of the earth's surface.

Barriers to migration: Factors that keep people from moving (e.g., lack of information about potential destination, lack of finances that keep people from moving). The source of information about potential destination, factors that keep people from moving (e.g., lack of finances that keep people from moving). The source of information about potential destination, factors that keep people from moving (e.g., lack of finances that keep people from moving).

Biomes: A community of living organisms of a single ecological region. The earth's surface, the air, and all of the gaseous substance of the earth's surface.

Boundary: The limit or extent within which a system exists or functions. Including a social group, a state or nation through contact and movement of people.

Biosphere: The domain of Earth that includes all plant and animal life forms.

Basic map elements: Materials included on geographic representations. These include a title, directions, date of map, mapmaker's name, a legend, and scale. Often a geographic grid, the source of information and sometimes an index of places on the map are also included.

Ch. 4 Academic Standards and Assessments
Capital: One of the factors of production of goods and services. Capital can be goods (e.g., factories and equipment, highways, information, communications systems) and/or funds (investment and working capital) used to increase production and wealth. Other factors are land, water and labor.

Cardinal directions: The four main points of the compass; north, east, south and west.

Carrying capacity: Maximum population that an area can support over time depending upon environmental conditions and human interventions.

Central Place Theory: The conceptual framework that explains the size, spacing and distribution of settlements and their interdependence.

Climate graph (climagraph): A diagram that combines average monthly temperature and precipitation data for a particular place.

Comparative advantage: The specialization by a given area in the production of one or a few commodities for which it has a particular advantage.

Concentric Zone Model: A framework that proposes that urban functions and the associated land uses are arranged in rings that grow outward from a central area. The other models developed to explain how cities and their economic relationships with their market areas are the Sector and the Multiple Nuclei.

Country: Unit of political space often referred to as a state.
Culture: Learned behavior of people, which includes their belief systems and languages, their social relationships, their institutions and organizations and their material goods—food, clothing, buildings, tools and machines.

Cultural diffusion: The spread of cultural elements from one culture to another.

Cultural landscape: The human imprint on the physical environment: The spread of cultural elements from one culture to another; the human imprint on the physical environment; the spread of cultural elements from one culture to another; the human imprint on the physical environment.

Demographic change: Variation in population size, composition, rates of growth, density, fertility and mortality rates and patterns of migration.

Decertification: The spread of desert conditions in arid and semiarid regions resulting from a combination of climatic changes and increasing human pressures on semiarid regions resulting from a combination of climatic changes and increasing human pressures.

Density: The population of a region expressed per unit area (e.g., per square kilometer or mile).

Desertification: The spread of desert conditions in arid and semiarid regions resulting from a combination of climatic changes and increasing human pressures on semiarid regions resulting from a combination of climatic changes and increasing human pressures.

Diffusion: The spread of people, ideas, technology and products among places.

Distance decay: The tendency for the acceptance of new ideas and products among places to decrease with distance from their source.

Earthquake: Vibrations and shock waves caused by the sudden movement of tectonic plates along fracture zones.

Earthquakes: Vibrations and shock waves caused by the sudden movement of tectonic plates along fracture zones.

Developed country: An area of the world that is technologically advanced, highly industrialized and wealthy and has an area of the world that is technologically advanced, highly industrialized and wealthy.

Decay: The spread of cultural elements from one culture to another; the human imprint on the physical environment; the spread of cultural elements from one culture to another; the human imprint on the physical environment.

Developing country: An area of the world that is technologically advanced, highly industrialized and wealthy and has an area of the world that is technologically advanced, highly industrialized and wealthy.

Demographic change: Variation in population size, composition, rates of growth, density, fertility and mortality rates and patterns of migration.

Desertification: The spread of desert conditions in arid and semiarid regions resulting from a combination of climatic changes and increasing human pressures on semiarid regions resulting from a combination of climatic changes and increasing human pressures.

Density: The population of a region expressed per unit area (e.g., per square kilometer or mile).

Determinant: The spread of cultural elements from one culture to another; the human imprint on the physical environment; the spread of cultural elements from one culture to another; the human imprint on the physical environment.
Ecosystem (ecological system): A network formed by the interaction of all living organisms (plants, animals, humans) with each other and with the physical and chemical factors of the environment in which they live.

Elevation: Height of a point or place above sea level (e.g., Mount Everest has an elevation of 29,028 feet above sea level).

Enclaves: A country, territorial or culturally distinct unit enclosed within a larger country or community.

Environment: Everything in and on Earth's surface and its atmosphere within which organisms, communities and ecosystems exist and develop.

Erosional processes: The removal and transportation of weathered (loose) rock material by water, wind, waves and glaciers. Deposition is the end result of erosion (loose rock material is dropped).

Equilibration: The point in the operation of a system where driving forces and resisting forces are in balance.

Equihemispheres: The two hemispheres (northern and southern) that make up the globe.

Fall Line: A linear connection joining the watershed on one side of a river to the navigable part of the same river on the other side.

Fertility rate: A measure of the number of births per woman in a period of time (usually one year) in a particular place.

Flood plain: A low-lying area immediately adjacent to a river that becomes flooded during high water levels.

Meadows: Low-lying areas with abundant grasses and other vegetation, typically found near streams and lakes.

Mountains: High regions of the Earth's surface characterized by rugged peaks and steep slopes.

Population: The total number of people living in a particular area.

Equinoxes: The two days during the calendar year (usually September 22 and March 21) when the sun is directly overhead (at the Equator), resulting in equal hours of daylight and darkness.

Fall Line: The point where rivers lose their navigable qualities due to changes in elevation or other factors, marking the boundary between the upland and the coastal plain.
Formal region: An area defined by the uniformity or homogeneity of certain characteristics (e.g., precipitation, landforms, subculture).

Functional region: An area united by a strong core (node) or center of human population and activity (e.g., banking linkages between large cities and smaller cities and towns).

Geographic Information System: A geographic database that contains information about the distribution of physical and human characteristics of places. In order to test hypotheses, maps of one characteristic or a combination can be produced from the database to analyze the data relationships.

Geographic Scale: The size of Earth's surface being studied. Study scale refers to the relationship between the size of an area on a map and the size of a similar area on Earth's surface. Study scale varies from local to regional to global. Scale bar graphs or representative fractions express map scale.

Global warming: The theory that Earth's atmosphere is gradually warming due to the buildup of certain gases, including carbon dioxide and methane, which are released by human activities. These gases trap heat, which is then released as warm air, leading to an increase in global temperatures.

Globe: A scale model of Earth that correctly represents area, relative size and shape of physical features, distance between points and true compass direction.

Grid: A pattern of lines on a chart or map, such as those representing latitude and longitude, which helps determine absolute location and assists in the analysis of distribution patterns.
Human features:
Tangible and intangible ideas associated with the culture, society and economy of places or areas. These include the spatial arrangement of land uses including transportation, the design of buildings and the nature and timing of activities that people conduct in these spaces.

Hydroelectric power:
Electrical energy generated by the force of falling water which rotates turbines housed in power plants on rivers.

Hydrosphere:
The water realm of Earth which includes water contained in the oceans, lakes, rivers, ground, glaciers and water vapor in the atmosphere.

Infant mortality rate:
The annual number of deaths among infants under 1 year of age per every 1,000 live births. It usually provides an indication of health care levels. For example, the United States, for example, has a 1994 rate of 8.3 infant deaths per 1,000 live births, while Angola has a rate of 137 infant deaths per 1,000 births.

Interdependence:
Ideas, goods and services in one area affect decisions and events in other areas reducing self-sufficiency.

Intermediate directions:
The points of the compass that fall between north and south and east and west, such as NE, NW, SE and SW.

Intervening opportunity:
An alternate area that is a source of a product or service or a destination in the case of migration.

Lake desiccation:
The reduction in water level (drying out) of an inland water body.

Land use:
The range of uses of Earth's surface made by humans. Uses are classified in urban, rural, agricultural, forested, etc., with more specific sub-classifications useful for specific purposes.

Landform:
The shape, form or nature of a specific physical feature of Earth's surface (e.g., plain, hill, plateau, mountain).

Like desiccation:
The reduction in water level (drying out) of an inland water body.

Like classification:
The classification of like or similar items or concepts into categories.

Local mortality rate:
The annual number of deaths among infants under 1 year of age per every 1,000 live births, for example, 1977 infant deaths per 1,000 births in the United States, as compared to 301 infant deaths per 1,000 births in Angola.

Hydroelectric power:
Electricity generated by the force of falling water which rotates turbines housed in power plants on rivers.

Human features:
Tangible and intangible ideas associated with the culture, society and economy of places or areas. Including transportation, the design of buildings and the nature and timing of activities that people conduct in these spaces. Include the spatial arrangement of land uses. Include the gender, society and economy of places or areas.
Life expectancy: The average number of years a person can expect to live under current mortality levels in a society. Life expectancy at birth is the most common use of this measure.

Lithosphere: The uppermost portion of the solid Earth including soil, land and geologic formations.

Location: The position of a point on Earth’s surface expressed by means of a grid (absolute) or in relation (relative) to the position of other places.

Map: A graphic representation of a portion of Earth that is usually drawn to scale on a flat surface.

Materials: Raw or processed substances that are used in manufacturing (secondary economic activities).

Megalopolis: The intermingling of two or more large metropolitan areas into a continuous or almost continuous built-up urban complex; sometimes referred to as a conurbation.

Mental map: A geographic representation which conveys the cognitive image a person has of an area, including knowledge of features and spatial relationships as well as the individual’s perceptions and attitudes toward locations in the environment. A mental map may be referred to as a cognitive map.

Metropolitan area: The Federal Office of Management and Budget’s designation for the functional area surrounding and including a central city; has a minimum population of 50,000; is contained in the same county as the central city; includes adjacent counties having at least 15% of their residents working in the central city; and includes adjacent counties having a minimum population of 250,000.

Migration: The act or process of people moving from one place to another with the intent or expectation of staying at the destination permanently or for a relatively long period of time.

Mnemonics: A system of mnemonics is usually drawn to scale on a flat surface.

A graphic representation of a portion of Earth that

A mental map is a geographic representation which conveys the cognitive image a person has of an area, including knowledge of features and spatial relationships as well as the individual’s perceptions and attitudes toward locations in the environment. A mental map may be referred to as a cognitive map.

The Federal Office of Management and Budget’s designation for the functional area surrounding and including a central city; has a minimum population of 50,000; is contained in the same county as the central city; includes adjacent counties having at least 15% of their residents working in the central city; and includes adjacent counties having a minimum population of 250,000.

The act or process of people moving from one place to another with the intent or expectation of staying at the destination permanently or for a relatively long period of time.

A graphic representation of a portion of Earth that is usually drawn to scale on a flat surface.

The position of a point on Earth’s surface expressed by means of a grid (absolute) or in relation (relative) to the position of other places.

A geographic representation which conveys the cognitive image a person has of an area, including knowledge of features and spatial relationships as well as the individual’s perceptions and attitudes toward locations in the environment. A mental map may be referred to as a cognitive map.

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The act or process of people moving from one place to another with the intent or expectation of staying at the destination permanently or for a relatively long period of time.
Multinational organizations: An association of nations aligned around a common economic or political cause (e.g., the Organization of Petroleum Exporting Countries, the Organization of American States).

Multiple Nuclei Model: A representation of urban structure based on the idea that the functional areas (land use) of cities develop around various points rather than just one in the Central Business District.

Municipality: A political unit incorporated for local self-government (e.g., Pennsylvania’s boroughs, townships).

NAFTA: North American Free Trade Agreement. NAFTA is an accord to establish clear and mutually advantageous rules governing commerce among Canada, Mexico and the United States.

NATO: North Atlantic Treaty Organization. An international transatlantic partnership consisting of various European states, the United States and Canada, which was designed through cooperation, consultation and collective defense to maintain peace and promote stability throughout Europe.

Nation: A cultural concept for a group of people bound together by shared values and beliefs, by a sense of shared identity and history.

Natural catastrophe: A natural hazard that is destructive to human life and property.

Natural hazard: An event in the physical environment, such as a hurricane or earthquake, that is destructive to human life and property.

Natural resource: An element of the physical environment that people value and use to meet a need for fuel, food, industrial product or something else of value. Natural resources are renewable if they can be replenished once they are used or consumed.

Nonrenewable resource: A finite element that cannot be replaced once it is used or consumed (e.g., petroleum, minerals).

Ocean currents: Persistent patterns of circulation in the atmosphere, water in the oceans, usually in response to wind or other factors.
Population density:

The number of individuals occupying a given area. It is usually expressed as the number of people per square mile.

Pollution:

The direct or indirect process resulting from human activity that makes any part of the environment potentially or actually unhealthy, unsafe or hazardous to the welfare of the organisms which live in it.

Place:

An area with distinctive human and physical characteristics. Place is composed of physical environment, place features, place relations, and place identities.

Perceptual region:

The organizational framework for the development of perceptual regions. It is composed of the Organization of American States (OAS), the Organization of Petroleum Exporting Countries (OPEC), and the Organization of American States (OAS).

Plate tectonics:

The theory that Earth's surface is composed of rigid slabs or plates. The movement of these plates is responsible for present-day configurations of continents, ocean basins, and major mountain ranges.

Population:

The number of individuals occupying a given area. It is usually expressed as the number of people per square mile.

Physical feature:

An aspect of a place or area that derives from the physical environment. Physical features can include mountains, valleys, rivers, and other natural elements.

Physical process:

A course or method of operation that produces, maintains, or alters Earth's physical system. Physical processes can include erosion, deposition, and weathering.

Perceptual region:

An area with distinctive human and physical characteristics. Perceptual regions are formed by the interaction of physical and cultural elements.
Population pyramid:
A bar graph showing the distribution by gender and age of a country's population.

Primary economic activity:
The production of naturally existing or culturally improved resources (i.e., agriculture, ranching, forestry, fishing, extraction of minerals and ores).

Pull factors:
In migration theory, the social, political, economic and environmental attractions of new areas that draw people away from their previous location.

Push factors:
In migration theory, the social, political, economic and environmental forces that drive people from their previous location.

Region:
An area with one or more common characteristics or features that give it a measure of consistency and make it different from surrounding areas.

Relative location:
The site of a place or region in relation to other places or regions (e.g., northwest, downstream).

Renewable resource:
A substance that can be regenerated if used carefully (e.g., fish, timber).

Resource:
An aspect of the physical environment that people value and use to meet a need for fuel, food, water, or other products or services.

Scale:
On maps, the relationship of a unit of distance on a map and the corresponding unit on Earth's surface. For example, the scale 1:1,000,000 means one unit (inch or centimeter) on the map represents 1,000,000 of the same units on Earth's surface. For earthquakes, the scale measurement on a map and the corresponding measurement on a seismograph can be expressed in a form that can be measured and recorded (e.g., magnitude, epicenter).

Satellite image:
A representation produced by a variety of sensors that measure and record electromagnetic radiation. The collected data are turned into digital form for transmission to ground receiving stations. The data can be reconverted into imagery in a form resembling a photograph.
Sector Model: A theory of urban structure that recognizes the impact of transportation on land prices within the city and the resulting tendency for functional areas to be organized into sectors.

Secondary economic activity: Processing of raw and manufactured materials into products with added value.

Settlement pattern: The spatial distribution and arrangement of human habitation and human elements.

Site: The specific location where something may be found, including its physical setting (e.g., on a floodplain).

Situation: The general location of something in relation to other places or features of a larger region (e.g., in the center of a group of cities).

Soil: Unconsolidated material found on the surface of the Earth, which is divided into layers (or horizons) characterized by the accumulation or loss of organic and inorganic compounds. Loam types and depths vary greatly over the Earth's surface and are very much influenced by climate, organisms, rock, and time and often exhibit soil moisture and unique chemical properties.

Spatial: Pertains to space on the Earth's surface.

Spatial distribution: The distribution of physical and human elements on the Earth's surface.

Spatial organization: The arrangement on the Earth's surface of physical and human elements.

Suburbanization: The shift in population from living in higher density urban areas to lower density developments on the edge of cities.

Technology: The application of knowledge to meet the goals, goods, and services needed and desired by people.
Tectonic plates: Sections of Earth's rigid crust that move as distinct units on a plastic-like ledge (mantle) on which they rest. As many as twenty different plates have been identified, but only seven are considered to be major (e.g., Eurasian Plate, South American Plate).

Thematic map: A geographic representation of a specific spatial distribution, theme or topic (e.g., population density, cattle production, climates of the world).

Time zone: A division of Earth, usually 15 degrees longitude, into which the time at the central meridian of the division represents the whole division.

Topography: The shape of Earth's surface.

Water cycle: The continuous circulation of water from the oceans, through the air, to the land and back to the oceans. Evaporation of water from the oceans, through the air, and back to the oceans is known as the water cycle. Water evaporates from oceans, lakes, rivers, and the land surfaces and condenses into clouds in the atmosphere. This results in precipitation, which returns water to the land and back to the oceans. Water also seeps into the soil or flows into rivers and seas.

Academic Standards for History

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Academic Standards for History

CHAPTER 7

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Topography:

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The thematic map:

The essential meaning of "The essential meaning of a phrase" and "The essential meaning of a sentence" are different. However, these phrases are not quite distinct.
XXII. INTRODUCTION

The Academic Standards for History are grounded in the Public School Code of 1949 which directs "... study in the history and government of that portion of America which has become the United States of America, and of the Commonwealth of Pennsylvania..." Chapter 4—Academic Standards and Assessment in § 4.21 (relating to elementary education; primary and intermediate levels) reinforces the School Code by indicating that the history of the United States and the Commonwealth must be taught once by the end of elementary school. In addition, § 4.22 (relating to middle level education) indicates that planned instruction in history must be taught once by the end of elementary school. In § 4.23 (relating to secondary education; junior and senior high school) planned instruction in history must be taught once by the end of secondary school.

The Academic Standards for History are included in the Public School Code and in the Academic Standards for History. These Academic Standards provide guidance for schools in selecting and using instructional materials in the areas of the United States and Pennsylvania, and the Commonwealth. These Academic Standards for History are designed to meld historical thinking with historical understanding to describe what students should know and be able to do.

XXIII. INTRODUCTION

This document includes Academic Standards for History that describe what students should know and be able to do.

8.4. World History

8.3. United States History

8.2. Pennsylvania History

8.1. Historical Analysis and Skills Development

Glossary

A. Contributions of Individuals and Groups
B. Documents, Artifacts and Historical Places
C. Influences of Continuity and Change
D. Conflict and Cooperation Among Groups

United States History

World History

Academic Standards and Assessments
Standard category 8.1. Historical Analysis and Skill Development provides the basis for learning the content within the other three standard categories. The intent of the history standards is to instill in each student an ability to comprehend chronology, develop historical comprehension, evaluate historical interpretation and to understand historical research. One should not view these standards as a list of facts to recall, rather as stated in the opening phrase to the Pennsylvania, United States and World standard categories, "Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze the interaction of cultural, economic, geographic, political and social relations."

These standards provide a history framework to permit every school and teacher to create planned instruction. The content within this document is general and does not represent a course or even a portion thereof. Every school is encouraged to move beyond these standards. These standards are merely a starting point for the study of history. Planned instruction to meet these standards is required; however, the methodology, resources and time are not recommended nor implied. History is a discipline that interprets and analyzes the past. It is a narrative—a story. In order to tell the story it is not sufficient to simply recall facts; it is also necessary to understand the context of the time and place and to apply historical thinking skills. It is with this concept established, that the content delineated in Pennsylvania, United States and World histories should be approached. Having established the need to move beyond recall, it is the intent of these standards to give students throughout Pennsylvania a common cultural literacy.

Pennsylvania, United States, and World History standard categories use the same four standard statements to guide teachers in developing planned instruction: (A) Political and Cultural Contributions of Individuals and Groups; (B) Primary Documents, Material Artifacts and Historical Places; (C) How Continuity and Change Has Influenced History; (D) Conflict and Cooperation Among Social Groups and Organizations. The chart Four Standard Statements within the Academic Standards for History: An Overview outlines standard statements and descriptors.

Although the standard statements are similar across grade levels and standard categories, the degree of comprehension, change in content and shifts in chronological periods within the standards, it is intended that the specified chronological eras be linked to past learnings and that all eras be linked to the present. Linking to past learnings and the present is important, but so is addressing the standard statements in more depth. Therefore, the following chronological time periods for the standard categories are established for the standard categories.

22
A glossary is included to assist the reader in understanding terminology. A copy in developing a scope and sequence for curriculum and planned instruction, social studies/credit-bearing programs should include the core set of standards in social studies/credit-bearing programs. Based on these expectations, districts are encouraged to delineate each chronological period into less expansive historical eras within their planned instruction.

Grades 1-3 Beginnings to Present
Grades 4-6 Beginnings to 1824
Grades 7-9 1787 to 1914
Grades 10-12 1890 to Present

Districts are encouraged to delineate each chronological period into less expansive historical eras within their planned instruction. Based on these expectations, districts are encouraged to delineate each chronological period into less expansive historical eras within their planned instruction.

History along with civics and government, economics, and geography are seen as the method of instruction. Social studies/citizenship programs should include the four sets of standards as an entity in developing a scope and sequence for curriculum and planned instruction.

A glossary is included to assist the reader in understanding terminology. A copy in developing a scope and sequence for curriculum and planned instruction, social studies/credit-bearing programs should include the core set of standards in social studies/credit-bearing programs. Based on these expectations, districts are encouraged to delineate each chronological period into less expansive historical eras within their planned instruction.

The Academic Standards for History consist of four standard categories (designated as 8.1., 8.2., 8.3., and 8.4.). Each category has four standard statements (designated A, B, C, and D). Most standard statements have punctuated items known as standard descriptors. The standard descriptors are items within the document to illustrate and enhance the standard statement. The categories, statements and descriptors are the regulations. The descriptors many times are followed by an "e.g." The "e.g."s are examples to clarify what type of information could be included. These are suggestions and the choice of specific content is a local decision. The Academic Standards for History consist of four standard categories (designated as 8.1., 8.2., 8.3., and 8.4.). Each category has four standard statements (designated A, B, C, and D). Most standard statements have punctuated items known as standard descriptors. The standard descriptors are items within the document to illustrate and enhance the standard statement.
### Four Standard Statements within the Academic Standards for History:

**Overview**

- Political and cultural contributions of individuals and groups
  - Inhabitants (cultures, subcultures, groups)
  - Political leaders (monarchs, governors, elected officials)
  - Military leaders (generals, noted military figures)
  - Cultural and commercial leaders (entrepreneurs, corporate executives, artists, entertainers, writers)
  - Innovators and reformers (inventors, philosophers, religious leaders, social change agents, improvers of technology)

- How continuity and change have influenced history
  - Belief systems and religions (ideas, beliefs, values)
  - Commerce and industry (types, goods, services)
  - Politics (political party systems, administration of government, rules, regulations and laws, political and judicial interpretation)
  - Transportation (methods of moving people and goods over time, transportation routes, circulation systems)
  - Settlement patterns and expansion (population density and diversity, settlement types, land use, colonization)
  - Social organization (social structure, identification of social groups, families, groups and communities, education, school population, curriculum)
  - Women's movement (changing roles of women, social change)

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An overview of the academic standards for History.
### Four Standard Statements within the Academic Standards for History: An Overview

<table>
<thead>
<tr>
<th>Primary Documents, Material, Artifacts and Oral Traditions</th>
<th>Conflict and Cooperation Among Social Groups and Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Domestic Insitutional (political, educational, social)</td>
<td>• Domestic, National and International (police, military)</td>
</tr>
<tr>
<td>• Historical Places (historic sites, museums, monuments)</td>
<td>• Aboriginal, African, and Asian (residual, mass)</td>
</tr>
<tr>
<td>• Newspapers and other media, fiction, non-fiction works</td>
<td>• International (government, official)</td>
</tr>
<tr>
<td>• Document, letters, diaries</td>
<td>• Cultural symbols, currents, relationships, and information</td>
</tr>
<tr>
<td>• Traditional (government, cultural)</td>
<td>• Historical, political, economic, and social</td>
</tr>
</tbody>
</table>

Each standard statement outlines its respective standard descriptors. Each standard descriptor suggests content that may be addressed. These are not all encompassing and local planned instruction is not limited to these examples.
8.1. Historical Analysis and Skills Development

<table>
<thead>
<tr>
<th>8.1.3. GRADE 3</th>
<th>8.1.6. GRADE 6</th>
<th>8.1.9. GRADE 9</th>
<th>8.1.12. GRADE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Understand chronological thinking and distinguish between past, present and future time.</strong></td>
<td><strong>A. Understand chronological thinking and distinguish between past, present and future time.</strong></td>
<td><strong>A. Analyze chronological thinking.</strong></td>
<td><strong>A. Evaluate chronological thinking.</strong></td>
</tr>
<tr>
<td>• Calendar time</td>
<td>• Calendar time</td>
<td>• Difference between past, present and future.</td>
<td>• Sequential order of historical narrative</td>
</tr>
<tr>
<td>• Time lines</td>
<td>• Time lines</td>
<td>• Sequential order of historical narrative</td>
<td>• Continuity and change</td>
</tr>
<tr>
<td>• Continuity and change</td>
<td>• People and events in time</td>
<td>• Data presented in time lines</td>
<td>• Context for events</td>
</tr>
<tr>
<td>• Events (time and place)</td>
<td>• Patterns of continuity and change</td>
<td>• Continuity and change</td>
<td></td>
</tr>
<tr>
<td>• Sequential order</td>
<td>• Sequential order</td>
<td>• Context for events knowledge and skills needed to...</td>
<td></td>
</tr>
<tr>
<td>• Context for events</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B. Develop an understanding of historical sources.</strong></td>
<td><strong>B. Explain and analyze historical sources.</strong></td>
<td><strong>B. Analyze and interpret historical sources.</strong></td>
<td><strong>B. Synthesize and evaluate historical sources.</strong></td>
</tr>
<tr>
<td>• Data in historical maps</td>
<td>• Literal meaning of a historical passage</td>
<td>• Literal meaning of historical passages</td>
<td>• Literal meaning of historical passages</td>
</tr>
<tr>
<td>• Visual data from maps and tables</td>
<td>• Data in historical and contemporary maps, graphs, and tables</td>
<td>• Data in historical and contemporary maps, graphs, and tables</td>
<td>• Data in historical and contemporary maps, graphs, and tables</td>
</tr>
<tr>
<td>• Mathematical data from graphs and tables</td>
<td>• Author or historical source</td>
<td>• Different historical perspectives</td>
<td>• Different historical perspectives</td>
</tr>
<tr>
<td>• Author or historical source</td>
<td>• Multiple historical perspectives</td>
<td>• Data from maps, graphs and tables</td>
<td>• Data presented in maps, graphs and tables</td>
</tr>
<tr>
<td></td>
<td>• Visual evidence</td>
<td>• Visual data presented in historical evidence</td>
<td>• Visual data presented in historical evidence</td>
</tr>
<tr>
<td></td>
<td>• Mathematical data from graphs and tables</td>
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</tbody>
</table>
### 8.1. Historical Analysis and Skills Development

<table>
<thead>
<tr>
<th><strong>8.1.3. GRADE 3</strong></th>
<th><strong>8.1.6. GRADE 6</strong></th>
<th><strong>8.1.9. GRADE 9</strong></th>
<th><strong>8.1.12. GRADE 12</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Understand fundamentals of historical interpretation.</td>
<td>C. Explain the fundamentals of historical interpretation.</td>
<td>C. Analyze the fundamentals of historical interpretation.</td>
<td>C. Evaluate historical interpretation of events.</td>
</tr>
<tr>
<td>• Difference between fact and opinion</td>
<td>• Difference between fact and opinion</td>
<td>• Fact versus opinion</td>
<td>• Impact of opinions on the perception of facts</td>
</tr>
<tr>
<td>• The existence of multiple points of view</td>
<td>• Multiple points of view</td>
<td>• Reasons/causes for multiple points of view</td>
<td>• Issues and problems in the past</td>
</tr>
<tr>
<td>• Illustrations in historical stories</td>
<td>• Illustrations in historical stories</td>
<td>• Causes and results</td>
<td>• Multiple points of view</td>
</tr>
<tr>
<td>• Causes and results</td>
<td>• Causes and results</td>
<td>• Author or source used to develop historical narratives</td>
<td>• Illustrations in historical stories and sources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Central issue</td>
<td>• Connections between causes and results</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Author or source of historical narratives' points of view</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Central issue</td>
</tr>
</tbody>
</table>

*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...*
### 8.1. Historical Analysis and Skills Development

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<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>• Event (time and place)</td>
<td>• Historical events (time and place)</td>
<td>• Historical event (time and place)</td>
<td>• Historical event (time and place)</td>
</tr>
<tr>
<td>• Facts, folklore and fiction</td>
<td>• Facts, folklore and fiction</td>
<td>• Facts, folklore and fiction</td>
<td>• Facts, folklore and fiction</td>
</tr>
<tr>
<td>• Formation of historical question</td>
<td>• Historical questions</td>
<td>• Historical questions</td>
<td>• Historical questions</td>
</tr>
<tr>
<td>• Primary sources</td>
<td>• Primary sources</td>
<td>• Primary sources</td>
<td>• Primary sources</td>
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<tr>
<td>• Secondary sources</td>
<td>• Secondary sources</td>
<td>• Secondary sources</td>
<td>• Secondary sources</td>
</tr>
<tr>
<td>• Conclusions (e.g., storytelling, role playing, diorama)</td>
<td>• Conclusions (e.g., simulations, group projects, skits and plays)</td>
<td>• Conclusions (e.g., History Day projects, mock trials, speeches)</td>
<td>• Conclusions (e.g., Senior Projects, research papers, debates)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Credibility of evidence</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Pennsylvania History, 8.3.</td>
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<td></td>
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<td></td>
<td>United States History and 8.4.</td>
</tr>
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<td></td>
<td>World History.</td>
</tr>
</tbody>
</table>

Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...

Historical Analysis and Skill Development are learned through and applied to the standards statements and their descriptors for 8.2 Pennsylvania History, 8.3 United States History and 8.4 World History.
Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations to...

<table>
<thead>
<tr>
<th>8.2. Pennsylvania History</th>
<th>8.2.3. GRADE 3</th>
<th>8.2.6. GRADE 6</th>
<th>8.2.9. GRADE 9</th>
<th>8.2.12. GRADE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Understand the political and cultural contributions of individuals and groups to Pennsylvania history.</td>
<td>• William Penn</td>
<td>• Identify and explain the political and cultural contributions of individuals and groups to Pennsylvania history from Beginnings to 1824.</td>
<td>• Analyze the political and cultural contributions of individuals and groups to Pennsylvania history from 1787 to 1914.</td>
<td>• Evaluate the political and cultural contributions of individuals and groups to Pennsylvania history from 1890 to Present.</td>
</tr>
<tr>
<td>• Benjamin Franklin</td>
<td>• Inhabitants (e.g., Native Americans, Europeans, Africans)</td>
<td>• Political Leaders (e.g., James Buchanan, Thaddeus Stevens, Andrew Curtin)</td>
<td>• Political Leaders (e.g., Gifford Pinchot, Genevieve Blatt, K. Leroy Irvis)</td>
<td>• Political Leaders (e.g., Tasker H. Bliss, Henry “Hap” Arnold, George C. Marshall)</td>
</tr>
<tr>
<td>• Pennsylvanians impacting American Culture (e.g., John Chapman, Richard Allen, Betsy Ross, Mary Ludwig Hayes, Rachel Carson, Elizabeth Jane Cochran, Marian Anderson)</td>
<td>• Military Leaders (e.g., Anthony Wayne, Oliver H. Perry, John Muhlenberg)</td>
<td>• Military Leaders (e.g., George Meade, George McClellan, John Hartranft)</td>
<td>• Military Leaders (e.g., Tasker H. Bliss, Henry “Hap” Arnold, George C. Marshall)</td>
<td>• Cultural and Commercial Leaders (e.g., Milton Hershey, Marian Anderson, Fred Rogers)</td>
</tr>
<tr>
<td>• Local historical figures in municipalities and counties.</td>
<td>• Political Leaders (e.g., William Penn, Hannah Penn, Benjamin Franklin)</td>
<td>• Cultural and Commercial Leaders (e.g., John J. Audubon, Rebecca Webb Lukens, Stephen Foster)</td>
<td>• Cultural and Commercial Leaders (e.g., Milton Hershey, Marian Anderson, Fred Rogers)</td>
<td>• Innovators and Reformers (e.g., George Westinghouse, Edwin Drake, Lucretia Mott)</td>
</tr>
<tr>
<td></td>
<td>• Cultural and Commercial Leaders (e.g., Robert Morris, John Bartram, Albert Gallatin)</td>
<td>• Innovators and Reformers (e.g., Society of Friends, Richard Allen, Sybilla Masters)</td>
<td>• Innovators and Reformers (e.g., Frank Conrad, Rachel Carson, Joseph Rothrock)</td>
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<tr>
<td>8.2. Pennsylvania History</td>
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<td><strong>8.2.3. GRADE 3</strong></td>
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<td><strong>8.2.9. GRADE 9</strong></td>
<td><strong>8.2.12. GRADE 12</strong></td>
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<tr>
<td><strong>Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations to . . .</strong></td>
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</tr>
<tr>
<td>B. Identify and describe primary documents, material artifacts and historic sites important in Pennsylvania history.</td>
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<tr>
<td>• Documents, Writings and Oral Traditions (e.g., Penn’s Charter, Pennsylvania “Declaration of Rights”)</td>
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<tr>
<td>• Artifacts, Architecture and Historic Places (e.g., Local historical sites, museum collections, Independence Hall)</td>
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<tr>
<td>• Liberty Bell</td>
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<tr>
<td>• Official Commonwealth symbols (e.g., tree, bird, dog, insect)</td>
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<tr>
<td>B. Identify and explain primary documents, material artifacts and historic sites important in Pennsylvania history from Beginnings to 1824.</td>
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</tr>
<tr>
<td>• Documents, Writings and Oral Traditions (e.g., Charter of Privileges, The Gradual Abolition of Slavery Act of 1780, Letters from a Pennsylvania Farmer)</td>
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<tr>
<td>• Artifacts, Architecture and Historic Places (e.g., Conestoga Wagon, Pennsylvania rifle, Brig Niagara)</td>
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<tr>
<td>B. Identify and analyze primary documents, material artifacts and historic sites important in Pennsylvania history from 1787 to 1914.</td>
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</tr>
<tr>
<td>• Documents, Writings and Oral Traditions (e.g., Pennsylvania Constitutions of 1838 and 1874, The “Gettysburg Address,” The Pittsburgh Survey)</td>
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<tr>
<td>• Artifacts, Architecture and Historic Places (e.g., Gettysburg, Eckley Miners’ Village, Drake’s Well)</td>
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<tr>
<td>B. Identify and evaluate primary documents, material artifacts and historic sites important in Pennsylvania history from 1890 to Present.</td>
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<tr>
<td>• Documents, Writings and Oral Traditions (e.g., Constitution of 1968, Silent Spring by Rachel Carson, Pennsylvania historical markers)</td>
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<tr>
<td>• Artifacts, Architecture and Historic Places (e.g., 28th Division Shrine, Fallingwater, Levittown, Allegheny Ridge heritage corridor)</td>
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</table>
### Pennsylvania History

<table>
<thead>
<tr>
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</thead>
</table>

Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations to...

C. Identify and describe how continuity and change have influenced Pennsylvania history.
- Belief Systems and Religions (e.g., Native Americans, early settlers, contemporary religions)
- Commerce and Industry (e.g., jobs, trade, environmental change)
- Innovations (e.g., technology, ideas, processes)
- Politics (e.g., rules, regulations, laws)
- Settlement Patterns (e.g., farms, towns, rural communities, cities)
- Social Organization (e.g., relationships of individuals, families, groups, communities; ability to be educated)
- Transportation (e.g., methods of moving people and goods over time)
- Women’s Movement (e.g., changes in roles and rights over time)

C. Identify and explain how continuity and change have influenced Pennsylvania history from the Beginnings to 1824.
- Belief Systems and Religions (e.g., Native Americans, Quakers)
- Commerce and Industry (e.g., iron production, sailing, fur trade)
- Innovations (e.g., steam boat, Conestoga Wagon)
- Politics (e.g., The Mason-Dixon Line, Pennsylvania’s acquisition and detachment of the “lower three counties,” movements of State capital)
- Settlement Patterns (e.g., native settlements, Westward expansion, development of towns)
- Social Organization (e.g., relationships of individuals, families, groups, communities; ability to be educated)
- Transportation (e.g., methods of moving people and goods over time)
- Women’s Movement (e.g., changes in roles and rights over time)

C. Identify and analyze how continuity and change have influenced Pennsylvania history from 1787 to 1914.
- Belief Systems and Religions (e.g., Ephrata Cloister, Harmonists, Amish, immigrant influences)
- Commerce and Industry (e.g., mining coal, producing iron, harvesting timber)
- Innovations (e.g., John Roebling’s steel cable, steel-tipped plow, improved techniques for making iron, steel and glass)
- Politics (e.g., Fugitive Slave Act reaction, canal system legislation, The Free School Act of 1834)
- Settlement Patterns (e.g., farms and growth of urban centers)

C. Identify and evaluate how continuity and change have influenced Pennsylvania history from the 1890s to Present.
- Belief Systems and Religions (e.g., Buddhism, Christianity, Hinduism, Islam, Judaism)
- Commerce and Industry (e.g., work of defense industries, rise and decline of the steel industry, increase of service industries)
- Innovations (e.g., polio vaccine, air pollution examined, nuclear power plants)
- Politics (e.g., Great Depression special legislative session, creation of the state income tax)
- Settlement Patterns (e.g., growth and decline of cities, coal towns, Pittsburgh Renaissance)
### 8.2. Pennsylvania History

<table>
<thead>
<tr>
<th>8.2.3. GRADE 3</th>
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<th>8.2.12. GRADE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Transportation (e.g., trade routes, turnpikes, post roads)</td>
<td>• Transportation (e.g., canals, National Road, Thompson’s Horseshoe Curve)</td>
<td>• Transportation (e.g., Pennsylvania Turnpike, Interstate highways, international airports)</td>
<td>• Social Organization (e.g., creation of the State Soil Conservation Commission, First Amendment challenges to education, social services)</td>
</tr>
<tr>
<td>• Women’s Movement (e.g., voting qualifications, role models)</td>
<td>• Women’s Movement (e.g., work of the Equal Rights League of Pennsylvania)</td>
<td>• Women’s Movement (e.g., League of Women Voters, Commission for Women)</td>
<td>• Social Organization (e.g., the Philadelphia Centennial Exposition of 1876, prohibition of racial discrimination in schools)</td>
</tr>
</tbody>
</table>

Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations to...
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<th>8.2.12. GRADE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D.</strong> Identify and describe conflict and cooperation among social groups and organizations in Pennsylvania history.</td>
<td>• Domestic Instability (e.g., political, economic and geographic impact on daily activities)</td>
<td>• Domestic Instability (e.g., religious diversity, toleration and conflicts, incursion of the Iroquois)</td>
<td>• Domestic Instability (e.g., impact of war, 1889 Johnstown Flood)</td>
<td>• Domestic Instability (e.g., The Great Depression, Three-Mile Island nuclear accident, floods of 1936, 1972 and 1977)</td>
</tr>
<tr>
<td></td>
<td>• Ethnic and Racial Relations (e.g., treatment of various ethnic and racial groups in history)</td>
<td>• Ethnic and Racial Relations (e.g., Penn’s Treaties with Indians, the Underground Railroad, the abolition of slavery)</td>
<td>• Ethnic and Racial Relations (e.g., Christiana riots, disenfranchisement and restoration of suffrage for African-Americans, Carlisle Indian School)</td>
<td>• Ethnic and Racial Relations (e.g., segregation, desegregation, racial profiling)</td>
</tr>
<tr>
<td></td>
<td>• Labor Relations (e.g., working conditions, over time)</td>
<td>• Labor Relations (e.g., indentured servants, working conditions)</td>
<td>• Labor Relations (e.g., National Trade Union, The “Molly Maguires,” Homestead steel strike)</td>
<td>• Labor Relations (e.g., strikes, work stoppages, collective bargaining)</td>
</tr>
<tr>
<td></td>
<td>• Immigration (e.g., diverse groups inhabiting the state)</td>
<td>• Immigration (e.g., Germans, Irish)</td>
<td>• Immigration (e.g., Anti-Irish Riot of 1844, new waves of immigrants)</td>
<td>• Immigration (e.g., increased immigration from Europe, migration of African-Americans from the South, influx of Hispanic and Asian peoples)</td>
</tr>
<tr>
<td></td>
<td>• Military Conflicts (e.g., struggle for control)</td>
<td>• Military Conflicts (e.g., Dutch, Swedish and English struggle for control of land, Wyoming Massacre, The Whiskey Rebellion)</td>
<td>• Military Conflicts (e.g., Battle of Lake Erie, the Mexican War, the Civil War)</td>
<td>• Military Conflicts (e.g., World War I, World War II, Persian Gulf War)</td>
</tr>
</tbody>
</table>

D. Identify and explain conflict and cooperation among social groups and organizations in Pennsylvania history from Beginnings to 1824.

D. Identify and analyze conflict and cooperation among social groups and organizations in Pennsylvania history from 1787 to 1914.

D. Identify and evaluate conflict and cooperation among social groups and organizations in Pennsylvania history from 1890 to Present.
8.2. Pennsylvania History

| Standard Category 8.1. Historical Analysis and Skills Development should be applied to the above standard statements and descriptors. Suggested chronology for grade levels 4-6, 7-9 and 10-12 focus on a particular century; however, instruction is encouraged that draws on prior and later events in history so that students may develop a seamless view of the world. |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| 8.2.3. GRADE 3                  | 8.2.6. GRADE 6                  | 8.2.9. GRADE 9                  | 8.2.12. GRADE 12                |
Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations to . . .

<table>
<thead>
<tr>
<th>A. Identify contributions of individuals and groups to United States history.</th>
<th>A. Identify and explain the political and cultural contributions of individuals and groups to United States history from Beginnings to 1824.</th>
<th>A. Identify and analyze the political and cultural contributions of individuals and groups to United States history from 1787 to 1914.</th>
<th>A. Identify and evaluate the political and cultural contributions of individuals and groups to United States history from 1890 to Present.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• George Washington&lt;br&gt;• Thomas Jefferson&lt;br&gt;• Abraham Lincoln&lt;br&gt;• Theodore Roosevelt&lt;br&gt;• Franklin D. Roosevelt&lt;br&gt;• Individuals who are role models (e.g., Abigail Adams, Sacajawea, Frederick Douglass, Clara Barton, Jackie Robinson, Rosa Parks, Archbishop Patrick Flores, Jamie Escalante, Sally Ride, Tiger Woods, Cal Ripken, Jr., Sammy Sosa)</td>
<td>• Native Americans, Africans and Europeans&lt;br&gt;• Political Leaders (e.g., John Adams, Thomas Jefferson, John Marshall)&lt;br&gt;• Military Leaders (e.g., George Washington, Meriwether Lewis, Henry Knox)&lt;br&gt;• Cultural and Commercial Leaders (e.g., Paul Revere, Phyllis Wheatley, John Rolfe)&lt;br&gt;• Innovators and Reformers (e.g., Ann Hutchinson, Roger Williams, Junipero Serra)</td>
<td>• Political Leaders (e.g., Daniel Webster, Abraham Lincoln, Andrew Johnson)&lt;br&gt;• Military Leaders (e.g., Andrew Jackson, Robert E. Lee, Ulysses S. Grant)&lt;br&gt;• Cultural and Commercial Leaders (e.g., Jane Addams, Jacob Riis, Booker T. Washington)&lt;br&gt;• Innovators and Reformers (e.g., Alexander G. Bell, Frances E. Willard, Frederick Douglass)</td>
<td>• Political Leaders (e.g., Theodore Roosevelt, Woodrow Wilson, Franklin D. Roosevelt)&lt;br&gt;• Military Leaders (e.g., John Pershing, Douglas MacArthur, Dwight D. Eisenhower)&lt;br&gt;• Cultural and Commercial Leaders (e.g., Abby Aldrich Rockefeller, Langston Hughes, Alan Greenspan)&lt;br&gt;• Innovators and Reformers (e.g., Wilbur and Orville Wright, John L. Lewis, Reverend Dr. Martin Luther King)</td>
</tr>
</tbody>
</table>
## 8.3. United States History

<table>
<thead>
<tr>
<th>8.3.3. GRADE 3</th>
<th>8.3.6. GRADE 6</th>
<th>8.3.9. GRADE 9</th>
<th>8.3.12. GRADE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B.</strong> Identify and describe primary documents, material artifacts and historic sites important in United States history.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Documents (e.g., Declaration of Independence, U.S. Constitution, Bill of Rights)</em></td>
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<tr>
<td><em>Writings and Communications (e.g., Pledge of Allegiance, famous quotations and sayings)</em></td>
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<tr>
<td><em>Historic Places (e.g., The White House, Mount Rushmore, Statue of Liberty)</em></td>
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<tr>
<td><em>The Flag of the United States</em></td>
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</tr>
<tr>
<td><strong>B.</strong> Identify and explain primary documents, material artifacts and historic sites important in United States history from Beginnings to 1824.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><em>Documents (e.g., Mayflower Compact, Northwest Ordinance, Washington’s Farewell Address)</em></td>
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<tr>
<td><em>18th Century Writings and Communications (e.g., Paine’s Common Sense; Franklin’s “Join, or Die,” Henry’s “Give me liberty or give me death”)</em></td>
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<tr>
<td><em>Historic Places (e.g., Cahokia Mounds, Spanish Missions, Jamestown)</em></td>
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</tr>
<tr>
<td><strong>B.</strong> Identify and analyze primary documents, material artifacts and historic sites important in United States history from 1787 to 1914.</td>
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</tr>
<tr>
<td><em>Documents (e.g., Fugitive Slave Law, Treaty of Guadalupe Hidalgo, Emancipation Proclamation)</em></td>
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<tr>
<td><em>19th Century Writings and Communications (e.g., Stowe’s Uncle Tom’s Cabin, Brown’s “Washed by Blood,” Key’s Star Spangled Banner)</em></td>
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<td></td>
</tr>
<tr>
<td><em>Historic Places (e.g., The Alamo, Underground Railroad sites, Erie Canal)</em></td>
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</tbody>
</table>

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**Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations to...**

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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>B.</strong> Identify and analyze primary documents, material artifacts and historic sites important in United States history from 1787 to 1914.</td>
<td></td>
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<tr>
<td><em>Documents (e.g., Fugitive Slave Law, Treaty of Guadalupe Hidalgo, Emancipation Proclamation)</em></td>
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</tbody>
</table>

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**B. Identify and evaluate primary documents, material artifacts and historic sites important in United States history from 1890 to Present.**

| Documents (e.g., Treaty of Versailles, North Atlantic Treaty, Neutrality Acts) |
| 20th Century Writings and Communication (e.g., Coolidge’s “The Business of America is Business,” King’s “I Have A Dream,” Armstrong’s “One Small Step for Man”) |
| Historic Places (e.g., Ellis Island, Pearl Harbor, Los Alamos) |

---

**B. Identify and evaluate primary documents, material artifacts and historic sites important in United States history from 1890 to Present.**

| Documents (e.g., Treaty of Versailles, North Atlantic Treaty, Neutrality Acts) |
| 20th Century Writings and Communication (e.g., Coolidge’s “The Business of America is Business,” King’s “I Have A Dream,” Armstrong’s “One Small Step for Man”) |
| Historic Places (e.g., Ellis Island, Pearl Harbor, Los Alamos) |
### 8.3. United States History

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</tr>
</thead>
<tbody>
<tr>
<td><strong>C. Identify important changes in United States history (e.g., Belief Systems and Religions, Commerce and Industry, Innovations, Politics, Settlement Patterns and Expansion, Social Organization, Transportation, Women’s Movement).</strong></td>
<td><strong>C. Explain how continuity and change has influenced United States history from Beginnings to 1824.</strong></td>
<td><strong>C. Analyze how continuity and change has influenced United States history from 1787 to 1914.</strong></td>
<td><strong>C. Evaluate how continuity and change has influenced United States history from 1890 to Present.</strong></td>
</tr>
<tr>
<td>- Belief Systems and Religions (e.g., impact on daily life, colonial government established religions, communal sects)</td>
<td>- Belief Systems and Religions (e.g., 19th century trends and movements)</td>
<td>- Belief Systems and Religions (e.g., 20th century movements, religions of recent immigrants)</td>
<td>- Belief Systems and Religions (e.g., 20th century movements, religions of recent immigrants)</td>
</tr>
<tr>
<td>- Commerce and Industry (e.g., fur trade, development of cash crops)</td>
<td>- Commerce and Industry (e.g., growth of manufacturing industries, economic nationalism)</td>
<td>- Commerce and Industry (e.g., corporations, conglomerates, multinational corporations)</td>
<td>- Commerce and Industry (e.g., corporations, conglomerates, multinational corporations)</td>
</tr>
<tr>
<td>- Innovations (e.g., cotton gin, Whitney; wooden clock, Banneker; stove, Franklin)</td>
<td>- Innovations (e.g., Brooklyn Bridge, refrigerated shipping, telephone)</td>
<td>- Innovations (e.g., The Tin Lizzie, radio, World Wide Web)</td>
<td>- Innovations (e.g., The Tin Lizzie, radio, World Wide Web)</td>
</tr>
<tr>
<td>- Politics (e.g., Hamilton’s defense of John Peter Zenger, The Great Compromise, Marbury v. Madison)</td>
<td>- Politics (e.g., election of 1860, impeachment of Andrew Johnson, Jim Crow Laws)</td>
<td>- Politics (e.g., New Deal legislation, Brown v. Topeka, isolationist/non-isolationist debate)</td>
<td>- Politics (e.g., New Deal legislation, Brown v. Topeka, isolationist/non-isolationist debate)</td>
</tr>
<tr>
<td>- Settlement Patterns and Expansion (e.g., Manifest Destiny, successive waves of immigrants, purchase of Alaska and Hawaii)</td>
<td>- Settlement Patterns and Expansion (e.g., Manifest Destiny, successive waves of immigrants, purchase of Alaska and Hawaii)</td>
<td>- Settlement Patterns (e.g., suburbs, large urban centers, decline of city population)</td>
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</tr>
<tr>
<td>- Social Organization (e.g., community structure on the frontier, cultural and language barriers)</td>
<td>- Social Organization (e.g., social class differences, women’s rights and antislavery movement, education reforms)</td>
<td>- Social Organization (e.g., compulsory school laws, court decisions expanding individual rights, technological impact)</td>
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</tr>
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</table>
### 8.3. United States History

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</table>

Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations...  

- Transportation and Trade (e.g., methods of overland travel, water transportation, National Road)  
- Women’s Movement (e.g., roles and changing status of women, Margaret Brent’s vote, soldier Deborah Sampson)

- Transportation and Trade (e.g., Pony Express, telegraph, Transcontinental Railroad)  
- Women’s Movement (e.g., roles in the Civil War, medical college for women, Seneca Falls Conference)

- Transportation and Trade (e.g., expansion and decline of railroads, increased mobility, Internet)  
- Women’s Movement (e.g., right to vote, women in the war effort, Women’s Peace Party)
Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations to...

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>8.3.3. GRADE 3</strong></td>
</tr>
<tr>
<td>D. Identify conflict and cooperation among social groups and organizations in United States history.</td>
</tr>
<tr>
<td>• Domestic Instability (e.g., impact on daily activities)</td>
</tr>
<tr>
<td>• Ethnic and Racial Relations (e.g., treatment of minority groups in history)</td>
</tr>
<tr>
<td>• Labor Relations (e.g., working conditions over time)</td>
</tr>
<tr>
<td>• Immigration (e.g., diverse groups inhabiting the state)</td>
</tr>
<tr>
<td>• Military Conflicts (e.g., struggle for control)</td>
</tr>
</tbody>
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8.3. United States History

<table>
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<th>8.3.9. GRADE 9</th>
<th>8.3.12. GRADE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Military Conflicts (e.g., French and Indian War, American Revolutionary War, War of 1812)</td>
<td>Military Conflicts (e.g., Native American opposition to expansion and settlement, Civil War, Spanish-American War)</td>
<td>Military Conflicts (e.g., World War I, World War II, War on Terrorism)</td>
<td></td>
</tr>
</tbody>
</table>

Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations to . . .

Standard Category 8.1. Historical Analysis and Skills Development should be applied to the above standard statements and descriptors. Suggested chronology for grade levels 4-6, 7-9 and 10-12 focus on a particular century; however, instruction is encouraged that draws on prior or later events in history so that students may develop a seamless view of the world.
Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations to . . .

<table>
<thead>
<tr>
<th>8.4.3. GRADE 3</th>
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<th>8.4.9. GRADE 9</th>
<th>8.4.12. GRADE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Identify individuals and groups who have made significant political and cultural contributions to world history.</td>
<td>A. Identify and explain how individuals and groups made significant political and cultural contributions to world history.</td>
<td>A. Analyze the significance of individuals and groups who made major political and cultural contributions to world history before 1500.</td>
<td>A. Evaluate the significance of individuals and groups who made major political and cultural contributions to world history since 1450.</td>
</tr>
<tr>
<td>• Africa (e.g., Nefertiti, Mansa Musa, Nelson Mandela)</td>
<td>• Africa (e.g., Nelson Mandela, Desmond Tutu, F. W. de Klerk, Pieter Botha, African National Congress)</td>
<td>• Political and Military Leaders (e.g., King Ashoka, Montezuma I, Ghenghis Khan, William the Conqueror)</td>
<td>• Political and Military Leaders (e.g., Askia Daud, Simon Bolivar, Napoleon Bonaparte, Mao Zedong)</td>
</tr>
<tr>
<td>• Americas (e.g., Montezuma, Simon Bolivar, Fidel Castro)</td>
<td>• Americas (e.g., Pizarro, Atahualpa, Aztecs, Incas, Montezuma, Cortez)</td>
<td>• Cultural and Commercial Leaders (e.g., Mansa Musa, Yak Pac, Cheng Ho, Marco Polo)</td>
<td>• Cultural and Commercial Leaders (e.g., Chinua Achebe, Gabriel Garcia Marquez, Akira Kurosawa, Christopher Columbus)</td>
</tr>
<tr>
<td>• Asia (e.g., Hammurabi, Mohandas Gandhi, Benazir Bhutto)</td>
<td>• Asia (e.g., Tokugawa Ieyasu, Toyotomi clan, shogun Iemitsu, Commodore Perry, daimyo)</td>
<td>• Innovators and Reformers (e.g., Erastostenes, Tupac Inka Yupanqui, Johannes Gutenberg)</td>
<td>• Innovators and Reformers (e.g., Nelson Mandela, Louis-Joseph Papineau, Mohandas Gandhi, Alexander Fleming)</td>
</tr>
<tr>
<td>• Europe (e.g., Julius Caesar, Joan of Arc, Pope John Paul)</td>
<td>• Europe (e.g., Pope Leo X, John Calvin, John Wesley, Martin Luther, Ignatius of Loyola)</td>
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</table>
8.4. World History

<table>
<thead>
<tr>
<th>8.4.3. GRADE 3</th>
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<th>8.4.9. GRADE 9</th>
<th>8.4.12. GRADE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Identify historic sites and material artifacts important to world history.</td>
<td>B. Identify and explain important documents, material artifacts and historic sites in world history.</td>
<td>B. Analyze historical documents, material artifacts and historic sites important to world history before 1500.</td>
<td>B. Evaluate historical documents, material artifacts and historic sites important to world history since 1450.</td>
</tr>
<tr>
<td>- Africa (e.g., Pyramids, treasures of Tutankhamen, Nefertiti’s sculpture)</td>
<td>- Africa (e.g., Prohibition of Marriages Act, prison on Robben Island)</td>
<td>- Documents, Writings and Oral Traditions (e.g., Rosetta Stone, Aztec glyph writing, Dead Sea Scrolls, Magna Carta)</td>
<td>- Documents, Writings and Oral Traditions (e.g., Declaration of the International Conference on Sanctions Against South Africa; Monroe Doctrine, Communist Manifesto, Luther’s Ninety-five Theses)</td>
</tr>
<tr>
<td>- Americas (e.g., Olmec ritualistic centers, Mayan pyramids, arrowheads)</td>
<td>- Americas (e.g., Tenochtitlan, Aztec masks)</td>
<td>- Artifacts, Architecture and Historic Places (e.g., Ethiopian rock churches, Mayan pyramids, Nok terra cotta figures, megaliths at Stonehenge)</td>
<td>- Artifacts, Architecture and Historic Places (e.g., Robben Island, New York Trade Center, Hiroshima Ground Zero Memorial, Nazi concentration camps)</td>
</tr>
<tr>
<td>- Asia (e.g., Code of Hammurabi, Ziggurat at Ur, canals)</td>
<td>- Asia (e.g., samurai sword, Commodore Perry’s Black Ships)</td>
<td>- Historic districts (e.g., Memphis and its Nécropolis, Sanctuary of Machu Picchu, Old City of Jerusalem and its Walls, Centre of Rome and the Holy See)</td>
<td>- Historic districts (e.g., Timbuktu, Centre of Mexico City and Xochimilco, Taj Mahal and Gardens, Kremlin and Red Square)</td>
</tr>
<tr>
<td>- Europe (e.g., ancient megaliths, Arc de Triomphe, Acropolis)</td>
<td>- Europe (e.g., Luther’s Ninety-Five Theses, Wittenberg Castle Church)</td>
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</tbody>
</table>
Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations to . . .

<table>
<thead>
<tr>
<th>8.4. World History</th>
<th>8.4.3. GRADE 3</th>
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<th>8.4.9. GRADE 9</th>
<th>8.4.12. GRADE 12</th>
</tr>
</thead>
</table>
| C. Compare similarities and differences between earliest civilizations and life today. (e.g., Africa, Egypt; Asia, Babylonia; Americas, Olmec; Europe, Neolithic settlements). | C. Identify and explain how continuity and change has affected belief systems, commerce and industry, innovations, settlement patterns, social organizations, transportation and women’s roles in world history.  
  - Africa (e.g., Apartheid)  
  - Americas (e.g., European conquest)  
  - Asia (e.g., Japanese society prior to the Meiji Restoration)  
  - Europe (e.g., Impact of the Great Schism and Reformation) | C. Analyze how continuity and change throughout history has impacted belief systems and religions, commerce and industry, innovations, settlement patterns, social organization, transportation and roles of women before 1500.  
  - Africa  
  - Americas  
  - Asia  
  - Europe | C. Evaluate how continuity and change throughout history has impacted belief systems and religions, commerce and industry, innovations, settlement patterns, social organization, transportation and roles of women since 1450.  
  - Africa  
  - Americas  
  - Asia  
  - Europe |
8.4. World History

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<tr>
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Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to analyze cultural, economic, geographic, political and social relations to...

D. Identify how conflict and cooperation among social groups and organizations affected world history.
- Domestic Instability (e.g., political, economic and geographic impact on normal activities)
- Labor Relations (e.g., working conditions over time)
- Racial and Ethnic Relations (e.g., treatment of various ethnic and racial groups in history)
- Immigration and migration (e.g., diverse groups inhabiting a territory)
- Military Conflicts (e.g., struggle for control)

D. Explain how conflict and cooperation among social groups and organizations affected world history.
- Africa (e.g., imperialism)
- Americas (e.g., European diseases)
- Asia (e.g., trade routes)
- Europe (e.g., Counter reformation)

D. Analyze how conflict and cooperation among social groups and organizations impacted world history through 1500 in Africa, Americas, Asia and Europe.
- Domestic Instability
- Ethnic and Racial Relations
- Labor Relations
- Immigration and Migration
- Military Conflicts

D. Evaluate how conflict and cooperation among social groups and organizations impacted world history from 1450 to Present in Africa, Americas, Asia and Europe.
- Domestic Instability
- Ethnic and Racial Relations
- Labor Relations
- Immigration and Migration
- Military Conflicts

Standard Category 8.1. Historical Analysis and Skills Development should be applied to the above standard statements and descriptors. Suggested chronology in organizing the content for grade levels 7-9 and 10-12 use the 15th century as the dividing point; however, instruction is encouraged that draws on prior and later events in history so that students may develop a seamless view of the world.
Pennsylvania Core Standards for Reading in History and Social Studies

Grades 6-12

INTRODUCTION

These standards describe what students in the social studies classroom should know and be able to do in order to progress through the educational program and graduate. These standards provide the framework for instruction and student learning, and each standard implies an end of year goal—with the understanding that exceeding the standard is an even more desirable end goal.

Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS

Academic standards and assessments in science, social studies, and technical subjects are integrated into the K-5 Reading standards. The English Language Arts standards for History and Social Studies also pro-
### 8.5 Reading Informational Text

Students read, understand, and respond to informational text—with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Key Ideas and Details</th>
<th>GRADE 6-8</th>
<th>GRADE 9-10</th>
<th>GRADE 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CC.8.5.6-8.A.</strong></td>
<td>Cite specific textual evidence to support analysis of primary and secondary sources.</td>
<td>CC.8.5.9-10.A. Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.</td>
<td>CC.8.5.11-12.A. Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.</td>
</tr>
<tr>
<td><strong>CC.8.5.6-8.B.</strong></td>
<td>Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.</td>
<td>CC.8.5.9-10.B. Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</td>
<td>CC.8.5.11-12.B. Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.</td>
</tr>
<tr>
<td><strong>CC.8.5.6-8.C.</strong></td>
<td>Identify key steps in a text’s description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).</td>
<td>CC.8.5.9-10.C. Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.</td>
<td>CC.8.5.11-12.C. Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.</td>
</tr>
</tbody>
</table>
8.5 Reading Informational Text
Students read, understand, and respond to informational text—with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>Craft and Structure</th>
<th>GRADE 6-8</th>
<th>GRADE 9-10</th>
<th>GRADE 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.8.5.6-8.D.</td>
<td>Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.</td>
<td>CC.8.5.9-10.D. Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.</td>
<td>CC.8.5.11-12.D. Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).</td>
</tr>
<tr>
<td>CC.8.5.6-8.E.</td>
<td>Describe how a text presents information (e.g., sequentially, comparatively, causally).</td>
<td>CC.8.5.9-10.E. Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.</td>
<td>CC.8.5.11-12.E. Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.</td>
</tr>
<tr>
<td>CC.8.5.6-8.F.</td>
<td>Identify aspects of a text that reveal an author’s point of view or purpose (e.g., loaded language, inclusion or avoidance of particular facts).</td>
<td>CC.8.5.9-10.F. Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.</td>
<td>CC.8.5.11-12.F. Evaluate authors’ differing points of view on the same historical event or issue by assessing the authors’ claims, reasoning, and evidence.</td>
</tr>
</tbody>
</table>
### 8.5 Reading Informational Text

Students read, understand, and respond to informational text—with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.

<table>
<thead>
<tr>
<th>GRADE 6-8</th>
<th>GRADE 9-10</th>
<th>GRADE 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Integration of Knowledge and Ideas</strong></td>
<td><strong>Integration of Knowledge and Ideas</strong></td>
<td><strong>Integration of Knowledge and Ideas</strong></td>
</tr>
<tr>
<td>CC.8.5.6-8.G. Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.</td>
<td>CC.8.5.9-10.G. Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.</td>
<td>CC.8.5.11-12.G. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.</td>
</tr>
<tr>
<td>CC.8.5.6-8.H. Distinguish among fact, opinion, and reasoned judgment in a text.</td>
<td>CC.8.5.9-10.H. Assess the extent to which the reasoning and evidence in a text support the author’s claims.</td>
<td>CC.8.5.11-12.H. Evaluate an author’s premises, claims, and evidence by corroborating or challenging them with other information.</td>
</tr>
<tr>
<td>CC.8.5.6-8.I. Analyze the relationship between a primary and secondary source on the same topic.</td>
<td>CC.8.5.9-10.I. Compare and contrast treatments of the same topic in several primary and secondary sources.</td>
<td>CC.8.5.11-12.I. Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.</td>
</tr>
<tr>
<td><strong>Range and Level of Complex Texts</strong></td>
<td><strong>Range and Level of Complex Texts</strong></td>
<td><strong>Range and Level of Complex Texts</strong></td>
</tr>
<tr>
<td>CC.8.5.6-8.J. By the end of grade 8, read and comprehend history/social studies texts in the grades 6-8 text complexity band independently and proficiently.</td>
<td>CC.8.5.9-10.J. By the end of grade 10, read and comprehend history/social studies texts in the grades 9-10 text complexity band independently and proficiently.</td>
<td>CC.8.5.11-12.J. By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.</td>
</tr>
</tbody>
</table>
Pennsylvania Core Standards for Writing in History and Social Studies

Grades 6-12

INTRODUCTION

These standards describe what students in the social studies classroom should know and be able to do with the English language in writing. School districts and classroom teachers should use them to develop a local school curriculum that will meet local needs. Although the English Language Arts Standards for History and Social Studies provide the foundation for instruction, teachers should use them in all academic areas. These standards do not prescribe a set of activities. School districts and classroom teachers are encouraged to develop additional classroom standards that address the unique needs of their students.

The standards below begin at Grade 6, Standards for K-5 reading in history/social studies, science, and technical subjects are integrated into the K-5 Writing standards. Social studies, science, and technical subjects are integrated into the K-5 Writing standards.

Each standard implies an end-of-year goal — with the understanding that exceeding the standard is an even more desirable end goal.
### 8.6 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>Text Types and Purposes</th>
<th>GRADES 6-8</th>
<th>GRADES 9-10</th>
<th>GRADES 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.8.6.6-8.A.</td>
<td>Write arguments focused on discipline-specific content.</td>
<td>Write arguments focused on discipline-specific content.</td>
<td>Write arguments focused on discipline-specific content.</td>
</tr>
<tr>
<td>• Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.</td>
<td>• Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</td>
<td>• Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</td>
<td></td>
</tr>
<tr>
<td>• Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.</td>
<td>• Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience’s knowledge level and concerns.</td>
<td>• Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience’s knowledge level, concerns, values, and possible biases.</td>
<td></td>
</tr>
<tr>
<td>• Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.</td>
<td>• Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</td>
<td>• Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</td>
<td></td>
</tr>
<tr>
<td>• Establish and maintain a formal style.</td>
<td>• Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.</td>
<td>• Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.</td>
<td></td>
</tr>
<tr>
<td>• Provide a concluding statement or section that follows from and supports the argument presented.</td>
<td>• Provide a concluding statement or section that follows from or supports the argument presented.</td>
<td>• Provide a concluding statement or section that follows from or supports the argument presented.</td>
<td></td>
</tr>
</tbody>
</table>
### 8.6 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
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<th>GRADES 9-10</th>
<th>GRADES 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.8.6.6-8.B.*</td>
<td>Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</td>
<td>Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</td>
</tr>
<tr>
<td></td>
<td>• Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.</td>
<td>• Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</td>
</tr>
<tr>
<td></td>
<td>• Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.</td>
<td>• Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.</td>
</tr>
<tr>
<td></td>
<td>• Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.</td>
<td>• Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</td>
</tr>
<tr>
<td></td>
<td>• Use precise language and domain-specific vocabulary to inform about or explain the topic.</td>
<td>• Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</td>
</tr>
<tr>
<td></td>
<td>• Establish and maintain a formal style and objective tone.</td>
<td>• Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.</td>
</tr>
<tr>
<td></td>
<td>• Provide a concluding statement or section that follows from and supports the information or explanation presented.</td>
<td>• Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</td>
</tr>
</tbody>
</table>
### 8.6 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
<th>GRADERS 6-8</th>
<th>GRADERS 9-10</th>
<th>GRADERS 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Production and Distribution of Writing</strong></td>
<td><strong>Production and Distribution of Writing</strong></td>
<td><strong>Production and Distribution of Writing</strong></td>
</tr>
<tr>
<td>CC.8.6.6-8.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</td>
<td>CC.8.6.9-10.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</td>
<td>CC.8.6.11-12.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</td>
</tr>
<tr>
<td>CC.8.6.6-8.D. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</td>
<td>CC.8.6.9-10.D. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</td>
<td>CC.8.6.11-12.D. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</td>
</tr>
<tr>
<td>CC.8.6.6-8.E. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.</td>
<td>CC.8.6.9-10.E. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.</td>
<td>CC.8.6.11-12.E. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</td>
</tr>
</tbody>
</table>
8.6 Writing
Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
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<th>GRADES 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.8.6.6-8.F. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</td>
<td>CC.8.6.9-10.F. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</td>
<td>CC.8.6.11-12.F. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</td>
</tr>
<tr>
<td>CC.8.6.6-8.G. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.</td>
<td>CC.8.6.9-10.G. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</td>
<td>CC.8.6.11-12.G. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</td>
</tr>
<tr>
<td>CC.8.6.6-8.H. Draw evidence from informational texts to support analysis, reflection, and research.</td>
<td>CC.8.6.9-10.H. Draw evidence from informational texts to support analysis, reflection, and research.</td>
<td>CC.8.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.</td>
</tr>
</tbody>
</table>
8.6 Writing

Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.

<table>
<thead>
<tr>
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<th>GRADES 9-10</th>
<th>GRADES 11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range of Writing</strong></td>
<td><strong>Range of Writing</strong></td>
<td><strong>Range of Writing</strong></td>
</tr>
<tr>
<td>CC.8.6.6-8.1. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
<td>CC.8.6.9-10.1. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
<td>CC.8.6.11-12.1. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
</tr>
</tbody>
</table>

* Students’ narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.
Artifact: Any object made by human work or skill.

Beginnings: A demarcation of time designating studies to commence with the written historical record.

Central issue: The primary concern from which other problems or matters are derived. For example, today's world's migration flows are a central issue from which other concerns such as economic, political, and cultural implications flow and are derived. For example, today's world's migration flows are a central issue from which other concerns such as economic, political, and cultural implications flow and are derived.

Chronology: The science of measuring time and of dating events. Examples include BCE (Before the Common Era) and CE (Common Era). Another reference to chronology is CA, around the time, circa.

Conflict: The opposition of persons or groups that gives rise to dramatic action. Such actions could include the use of force as in combat.

Central issue: The primary concern from which other problems or matters are derived. For example, today's world's migration flows are a central issue from which other concerns such as economic, political, and cultural implications flow and are derived.

Current year: A demarcation of time designating studies to commence with the written historical record.

Document: Anything written or printed used to record or prove something.

Innovation: The introduction of something new; an idea, method or practice. Examples include BCE (Before the Common Era) and CE (Common Era).

Interpretation: Explanation or reply to a situation in order to make sense of it, in order to connect with a given idea or concept.

Innovation: The introduction of something new; an idea, method or practice. Examples include BCE (Before the Common Era) and CE (Common Era). Another reference to innovation is CA, around the time, circa.

Memorial: An object or ceremony serving as a remembrance.

Museum: A historical display in a building, room, etc., for the permanent or temporary exhibition of artistic, historical or scientific objects.

Historical evidence: Something that makes something else noticeable, obvious or evident.

Historical passage: An article or section of a longer work that has importance to the past.

Present: An object or ceremony serving as a remembrance. An object or ceremony serving as a remembrance.

Reference to chronology is CA, around the time, circa. Another reference to chronology is CE (Common Era) and BCE (Before the Common Era). Examples include BCE (Before the Common Era) and CE (Common Era).

XXIV. GLOSSARY

C. 4. ACADEMIC STANDARDS AND ASSESSMENTS
A belief based not on certainty but on what seems to be true or probable.

A work stoppage by employees organized against the management of a business entity.

A measure of a period during which something exists or happens; usually displayed in chronological order on a graph or linear lines.

A conflict in which two or more nations or two or more entities inside a nation are at odds.

An intense fear or dislike of groups unknown or not within one’s experience including the group’s customs and culture.

A three-legged stool on a graph or linear lines, usually displayed in a measure of a period during which something happens to be true or probable.

The provisions of this Appendix D adopted January 10, 2003, effective January 11, 2003, 33 Pa.B. 255, unless otherwise noted.

Source: Physical Education and Family and Consumer Sciences

Academic Standards for the Arts and Humanities and Health, Safety and Physical Education and Family and Consumer Sciences

APPENDIX D

Academic Standards for the Arts and Humanities and Health, Safety and Physical Education and Family and Consumer Sciences

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E. Themes in Art Form

F. Historical and Cultural Production, Performance and Exhibition

G. Function and Analysis of Rehearsals and Practice Sessions

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J. Technologies in the Arts

K. Technologies in the Humanities

L. Chronologies of Groups in the Arts

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A. Context of Works in the Arts

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lii.
The Academic Standards for the Arts and Humanities describe what students should know and be able to do at the end of grades 3, 5, 8, and 12 in the visual and performing arts and humanities. The arts include dance, music, theatre, and visual arts. The arts and humanities are interconnected through the inclusion of history, criticism, and aesthetics. The academic standards for the arts and humanities are divided into five areas:

- Production, Performance, and Exhibition of Dance, Music, Theatre, and Visual Arts
- Historical and Cultural Contexts
- Critical Response
- Aesthetic Response
- Vocabulary for Criticism

The Academic Standards for the Arts and Humanities define the content for planned instruction that will result in measurable gains for all students in knowledge and skills and provide a basis for continued study in the arts. The standards documents for the arts and humanities areas are divided into these standards categories: The interconnected arts and humanities areas are divided into five areas:

- Production, Performance, and Exhibition of Dance, Music, Theatre, and Visual Arts
- Historical and Cultural Contexts
- Critical Response
- Aesthetic Response
- Vocabulary for Criticism

The academic standards for the arts and humanities describe what students should know and be able to do at the end of grades 3, 5, 8, and 12 in the visual and performing arts.
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Pt. I

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unifying themes of production, history, criticism and aesthetics are common to
each area of study within the Academic Standards in the Arts and Humanities.
• Dance Education is a kinesthetic art form that satisfies the human need to
respond to life experiences through movement of the physical being.
• Music Education is an aural art form that satisfies the human need to respond
to life experiences through singing, listening and/or playing an instrument.
• Theatre Education is an interdisciplinary art form that satisfies the human
need to express thoughts and feelings through written text, dramatic interpretation and multimedia production.
• Visual Arts Education is a spatial art form that satisfies the human need to
respond to life experiences through images, structures and tactile works.
• Humanities Education is the understanding and integration of human thought
and accomplishment.
Knowledge of the Academic Standards for the Arts and Humanities incorporates carefully developed and integrated components:
• Application of problem solving skills
• Extensive practice in the comprehension of basic symbol systems and
abstract concepts
• Application of technical skills in practical production and performance
• Comprehension and application of the creative process
• Development and practice of creative thinking skills
• Development of verbal and nonverbal communication skills
These standards provide the targets essential for success in student learning in
arts and humanities. They describe the expectations for students’ achievement
and performance throughout their education in Pennsylvania schools. Utilizing
these standards, school entities can develop a local school curriculum that will
meet their students’ needs.
The arts represent society’s capacity to integrate human experience with individual creativity. Comprehensive study of the arts provides an opportunity for all
students to observe, reflect and participate both in the arts of their culture and the
cultures of others. Sequential study in the arts and humanities provides the
knowledge and the analytical skills necessary to evaluate and critique a mediasaturated culture. An arts education contributes to the development of productive
citizens who have gained creative and technological knowledge necessary for
employment in the 21st Century.
A glossary is included to assist the reader in understanding terminology contained in the standards.

(295016) No. 340 Mar. 03


### 9.1. Production, Performance and Exhibition of Dance, Music, Theatre and Visual Arts

<table>
<thead>
<tr>
<th></th>
<th>9.1.3. GRADE 3</th>
<th>9.1.5. GRADE 5</th>
<th>9.1.8. GRADE 8</th>
<th>9.1.12. GRADE 12</th>
</tr>
</thead>
</table>

**Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:**

<table>
<thead>
<tr>
<th>A. Know and use the elements and principles of each art form to create works in the arts and humanities.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements</td>
<td></td>
</tr>
<tr>
<td>Dance: • energy/force • space • time</td>
<td></td>
</tr>
<tr>
<td>Music: • duration • intensity • pitch • timbre</td>
<td></td>
</tr>
<tr>
<td>Theatre: • scenario • script/text • set design</td>
<td></td>
</tr>
<tr>
<td>Visual Arts: • color • form/shape • line • space • texture • value</td>
<td></td>
</tr>
<tr>
<td>Principles</td>
<td></td>
</tr>
<tr>
<td>Dance: • choreography • form • genre • improvisation • style • technique</td>
<td></td>
</tr>
<tr>
<td>Music: • composition • form • genre • harmony • rhythm • texture</td>
<td></td>
</tr>
<tr>
<td>Theatre: • balance • collaboration • discipline • emphasis • focus • intention • movement • rhythm • style voice</td>
<td></td>
</tr>
<tr>
<td>Visual Arts: • balance • contrast • emphasis/focal point • movement/rhythm • proportion/scale • repetition</td>
<td></td>
</tr>
<tr>
<td>unity/harmony</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Recognize, know, use and demonstrate a variety of appropriate arts elements and principles to produce, review and revise original works in the arts.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dance: • move • perform • read and notate dance • create and choreograph • improvise</td>
<td></td>
</tr>
<tr>
<td>Music: • sing • play an instrument • read and notate music • compose and arrange • improvise</td>
<td></td>
</tr>
<tr>
<td>Theatre: • stage productions • read and write scripts • improvise • interpret a role • design sets • direct</td>
<td></td>
</tr>
<tr>
<td>Visual Arts: • paint • draw • craft • sculpt • print • design for environment, communication, multi-media</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Recognize and use fundamental vocabulary within each of the arts forms.</th>
<th>C. Know and use fundamental vocabulary within each of the arts forms.</th>
<th>C. Identify and use comprehensive vocabulary within each of the arts forms.</th>
<th>C. Integrate and apply advanced vocabulary to the arts forms.</th>
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### 9.1. Production, Performance and Exhibition of Dance, Music, Theatre and Visual Arts

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<tr>
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<tbody>
<tr>
<td>D</td>
<td>Use knowledge of varied styles within each art form through a performance or exhibition of unique work.</td>
<td>D. Demonstrate knowledge of at least two styles within each art form through performance or exhibition of unique works.</td>
<td>D. Demonstrate specific styles in combination through the production or performance of a unique work of art (e.g., a dance composition that combines jazz dance and African dance).</td>
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<td>E</td>
<td>Demonstrate the ability to define objects, express emotions, illustrate an action or relate an experience through creation of works in the arts.</td>
<td>E. Know and demonstrate how arts can communicate experiences, stories or emotions through the production of works in the arts.</td>
<td>E. Communicate a unifying theme or point of view through the production of works in the arts.</td>
<td>E. Delineate a unifying theme through the production of a work of art that reflects skills in media processes and techniques.</td>
</tr>
<tr>
<td>F</td>
<td>Identify works of others through a performance or exhibition (e.g., exhibition of student paintings based on the study of Picasso).</td>
<td>F. Describe works of others through performance or exhibition in two art forms.</td>
<td>F. Explain works of others within each art form through performance or exhibition.</td>
<td>F. Analyze works of arts influenced by experiences or historical and cultural events through production, performance or exhibition.</td>
</tr>
<tr>
<td>G</td>
<td>Recognize the function of rehearsals and practice sessions.</td>
<td>G. Identify the function and benefits of rehearsal and practice sessions.</td>
<td>G. Explain the function and benefits of rehearsal and practice sessions.</td>
<td>G. Analyze the effect of rehearsal and practice sessions.</td>
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| **H. Handle materials, equipment and tools safely at work and performance spaces.**  
- Identify materials used.  
- Identify issues of cleanliness related to the arts.  
- Recognize some mechanical/electrical equipment.  
- Recognize differences in selected physical space/environments.  
- Recognize the need to select safe props/stage equipment.  
- Identify methods for storing materials in the arts. | **H. Use and maintain materials, equipment and tools safely at work and performance spaces.**  
- Describe some materials used.  
- Describe issues of cleanliness related to the arts.  
- Describe types of mechanical/electrical equipment usage.  
- Know how to work in selected physical space/environments.  
- Identify the qualities of safe props/stage equipment.  
- Describe methods for storing materials in the arts. | **H. Demonstrate and maintain materials, equipment and tools safely at work and performance spaces.**  
- Analyze the use of materials.  
- Explain issues of cleanliness related to the arts.  
- Explain the use of mechanical/electrical equipment.  
- Demonstrate how to work in selected physical space/environment.  
- Demonstrate the selection of safe props/stage equipment.  
- Demonstrate methods for storing materials in the arts. | **H. Incorporate the effective and safe use of materials, equipment and tools into the production of works in the arts at work and performance spaces.**  
- Evaluate the use and applications of materials.  
- Evaluate issues of cleanliness related to the arts.  
- Evaluate the use and applications of mechanical/electrical equipment.  
- Evaluate differences among selected physical space/environment.  
- Evaluate the use and apply safe methods for storing materials in the arts. |
| **I. Identify arts events that take place in schools and in communities.** | **I. Describe arts events that take place in schools and in communities.** | **I. Know where arts events, performances and exhibitions occur and how to gain admission.** | **I. Distinguish among a variety of regional arts events and resources and analyze methods of selection and admission.** |
### 9.1. Production, Performance and Exhibition of Dance, Music, Theatre and Visual Arts

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<td><strong>J. Know and use traditional and contemporary technologies for producing, performing and exhibiting works in the arts or the works of others.</strong></td>
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<tr>
<td>- Know and use traditional technologies (e.g., charcoal, pigments, clay, needle/thread, quill pens, stencils, tools for wood carving, looms, stage equipment).</td>
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<tr>
<td>- Know and use contemporary technologies (e.g., CDs/software, audio/sound equipment, polymers, clays, board-mixers, photographs, recorders).</td>
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<td><strong>J. Apply traditional and contemporary technologies for producing, performing and exhibiting works in the arts or the works of others.</strong></td>
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<tr>
<td>- Experiment with traditional technologies (e.g., ceramic/wooden tools, earthen clays, masks, instruments, folk shoes, etching tools, folk looms).</td>
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<tr>
<td>- Experiment with contemporary technologies (e.g., color fills on computers, texture methods on computers, fonts/point systems, animation techniques, video teleconferencing, multimedia techniques, internet access, library computer card catalogues).</td>
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<td><strong>J. Incorporate specific uses of traditional and contemporary technologies within the design for producing, performing and exhibiting works in the arts or the works of others.</strong></td>
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<tr>
<td>- Explain and demonstrate traditional technologies (e.g., paint, tools, sponges, weaving designs, instruments, natural pigments/glazes).</td>
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<tr>
<td>- Explain and demonstrate contemporary technologies (e.g., MIDI keyboards, internet design, computers, interactive technologies, audio/sound equipment, board-mixer, video equipment, computerized lighting design).</td>
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<td><strong>J. Analyze and evaluate the use of traditional and contemporary technologies for producing, performing and exhibiting works in the arts or the works of others.</strong></td>
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<tr>
<td>- Analyze traditional technologies (e.g., acid printing, etching methods, musical instruments, costume materials, eight track recording, super 8 movies).</td>
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<tr>
<td>- Analyze contemporary technologies (e.g., virtual reality design, instrument enhancements, photographic tools, broadcast equipment, film cameras, preservation tools, web graphics, computer generated marching band designs).</td>
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<td><strong>K. Know and use traditional and contemporary technologies for furthering knowledge and understanding in the humanities.</strong></td>
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<tr>
<td><strong>K. Apply traditional and contemporary technology in furthering knowledge and understanding in the humanities.</strong></td>
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<td><strong>K. Analyze and evaluate the use of traditional and contemporary technologies in furthering knowledge and understanding in the humanities.</strong></td>
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Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to identify, compare, contrast and analyze works in the arts in their historical and cultural context appropriate for each grade level in concert with districts’ social studies, literature and language standards.

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<th>9.2. Historical and Cultural Contexts</th>
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<tbody>
<tr>
<td><strong>A.</strong> Explain the historical, cultural and social context of an individual work in the arts.</td>
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<tr>
<td><strong>B.</strong> Relate works in the arts chronologically to historical events (e.g., 10,000 B.C. to present).</td>
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<tr>
<td><strong>C.</strong> Relate works in the arts to varying styles and genre and to the periods in which they were created (e.g., Bronze Age, Ming Dynasty, Renaissance, Classical, Modern, Post-Modern, Contemporary, Futuristic, others).</td>
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<tr>
<td><strong>D.</strong> Analyze a work of art from its historical and cultural perspective.</td>
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<tr>
<td><strong>E.</strong> Analyze how historical events and culture impact forms, techniques and purposes of works in the arts (e.g., Gilbert and Sullivan operettas).</td>
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<td><strong>F.</strong> Know and apply appropriate vocabulary used between social studies and the arts and humanities.</td>
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<td><strong>G.</strong> Relate works in the arts to geographic regions:</td>
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<td>• South America</td>
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<tr>
<td><strong>H.</strong> Identify, describe and analyze the work of Pennsylvania Artists in dance, music, theatre and visual arts.</td>
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<tr>
<td><strong>I.</strong> Identify, explain and analyze philosophical beliefs as they relate to works in the arts (e.g., classical architecture, rock music, Native American dance, contemporary American musical theatre).</td>
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Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to identify, compare, contrast and analyze works in the arts in their historical and cultural context appropriate for each grade level in concert with districts' social studies, literature and language standards.

J. Identify, explain and analyze historical and cultural differences as they relate to works in the arts (e.g., plays by Shakespeare, works by Michelangelo, ethnic dance and music).

K. Identify, explain and analyze traditions as they relate to works in the arts (e.g., story telling—plays, oral histories—poetry, work songs—blue grass).

L. Identify, explain and analyze common themes, forms and techniques from works in the arts (e.g., Copland and Graham’s Appalachian Spring and Millet’s The Gleaners).
<table>
<thead>
<tr>
<th>9.3. Critical Response</th>
<th>9.3.3. GRADE 3</th>
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</table>
| **Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:** | **A. Recognize critical processes used in the examination of works in the arts and humanities.**  
• Compare and contrast  
• Analyze  
• Interpret  
• Form and test hypotheses  
• Evaluate/form judgments | **A. Identify critical processes in the examination of works in the arts and humanities.**  
• Compare and contrast  
• Analyze  
• Interpret  
• Form and test hypotheses  
• Evaluate/form judgments | **A. Know and use the critical process of the examination of works in the arts and humanities.**  
• Compare and contrast  
• Analyze  
• Interpret  
• Form and test hypotheses  
• Evaluate/form judgments | **A. Explain and apply the critical examination processes of works in the arts and humanities.**  
• Compare and contrast  
• Analyze  
• Interpret  
• Form and test hypotheses  
• Evaluate/form judgments |
| **B. Know that works in the arts can be described by using the arts elements, principles and concepts (e.g., use of color, shape and pattern in Mondrian’s Broadway Boogie-Woogie; use of dynamics, tempo, texture in Ravel’s Bolero).** | **B. Describe works in the arts comparing similar and contrasting characteristics (e.g., staccato in Grieg’s In the Hall of the Mountain King and in tap dance).** | **B. Analyze and interpret specific characteristics of works in the arts within each art form (e.g., pentatonic scales in Korean and Indonesian music).** | **B. Determine and apply criteria to a person’s work and works of others in the arts (e.g., use visual scanning techniques to critique the student’s own use of sculptural space in comparison to Julio Gonzales’ use of space in Woman Combing Her Hair).** |  |
| **C. Know classification skills with materials and processes used to create works in the arts (e.g., sorting and matching textiles, musical chants, television comedies).** | **C. Classify works in the arts by forms in which they are found (e.g., farce, architecture, graphic design).** | **C. Identify and classify styles, forms, types and genre within art forms (e.g., modern dance and the ethnic dance, a ballad and a patriotic song).** | **C. Apply systems of classification for interpreting works in the arts and forming a critical response.** |  |
### 9.3. Critical Response

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<td>D. Explain meanings in the arts and humanities through individual works and the works of others using a fundamental vocabulary of critical response.</td>
<td>D. Compare similar and contrasting important aspects of works in the arts and humanities based on a set of guidelines using a comprehensive vocabulary of critical response.</td>
<td>D. Evaluate works in the arts and humanities using a complex vocabulary of critical response.</td>
<td>D. Analyze and interpret works in the arts and humanities from different societies using culturally specific vocabulary of critical response.</td>
</tr>
</tbody>
</table>
| E. Recognize and identify types of critical analysis in the arts and humanities.  
- Contextual criticism  
- Formal criticism  
- Intuitive criticism | E. Describe and use types of critical analysis in the arts and humanities.  
- Contextual criticism  
- Formal criticism  
- Intuitive criticism | E. Interpret and use various types of critical analysis in the arts and humanities.  
- Contextual criticism  
- Formal criticism  
- Intuitive criticism | E. Examine and evaluate various types of critical analysis of works in the arts and humanities.  
- Contextual criticism  
- Formal criticism  
- Intuitive criticism |
| F. Know how to recognize and identify similar and different characteristics among works in the arts (e.g., Amish and Hawaiian quilts, Navaho weavings and Kente cloth from West Africa). | F. Know how to recognize the process of criticism in identifying and analyzing characteristics among works in the arts. | F. Apply the process of criticism to identify characteristics among works in the arts. | F. Analyze the processes of criticism used to compare the meanings of a work in the arts in both its own and present time. |
### 9.3. Critical Response

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<td>G. Know and demonstrate what a critic’s position or opinion is related to works in the arts and humanities (e.g., I like patriotic songs because ...; The movie was enjoyed for its exceptional special effects).</td>
<td>G. Describe a critic’s position or opinion about selected works in the arts and humanities (e.g., student’s presentation of a critical position on Walt Disney’s <em>Evolution of Mickey and Minnie Mouse</em>).</td>
<td>G. Compare and contrast critical positions or opinions about selected works in the arts and humanities (e.g., critic’s review and comparison of Alvin Ailey’s <em>Revelations</em> to Tchaikovsky’s <em>Swan Lake</em>).</td>
<td>G. Analyze works in the arts by referencing the judgments advanced by arts critics as well as one’s own analysis and critique.</td>
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### 9.4. Aesthetic Response

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<tr>
<td>A.</td>
<td>Know how to respond to a philosophical statement about works in the arts and humanities (e.g., “Can artworks that depict or are about ugly or unpleasant things ever be beautiful?”).</td>
<td>Identify uses of expressive symbols that show philosophical meanings in works in the arts and humanities (e.g., American TV ads versus Asian TV ads).</td>
<td>Compare and contrast examples of group and individual philosophical meanings of works in the arts and humanities (e.g., group discussions on musical theatre versus the individual’s concept of musical theatre).</td>
<td>Evaluate an individual’s philosophical statement on a work in the arts and its relationship to one’s own life based on knowledge and experience.</td>
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<tr>
<td>B.</td>
<td>Know how to communicate an informed individual opinion about the meaning of works in the arts (e.g., works of an artist of the month).</td>
<td>Investigate and communicate multiple philosophical views about works in the arts.</td>
<td>Compare and contrast informed individual opinions about the meaning of works in the arts to others (e.g., debate philosophical opinions within a listserv or at an artist’s website).</td>
<td>Describe and analyze the effects that works in the arts have on groups, individuals and the culture (e.g., Orson Welles’ 1938 radio broadcast, <em>War of the Worlds</em>).</td>
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<tr>
<td>C.</td>
<td>Recognize that the environment of the observer influences individual aesthetic responses to works in the arts (e.g., the effect of live music as opposed to listening to the same piece on a car radio).</td>
<td>Identify the attributes of various audiences’ environments as they influence individual aesthetic response (e.g., Beatles’ music played by the Boston Pops versus video taped concerts from the 1970s).</td>
<td>Describe how the attributes of the audience’s environment influence aesthetic responses (e.g., the ambiance of the theatre in a performance of Andrew Lloyd Weber’s <em>Cats</em>).</td>
<td>Compare and contrast the attributes of various audiences’ environments as they influence individual aesthetic response (e.g., viewing traditional <em>Irish</em> dance at county fair versus the performance of <em>River Dance</em> in a concert hall).</td>
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*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:*

- A. Know how to respond to a philosophical statement about works in the arts and humanities (e.g., “Can artworks that depict or are about ugly or unpleasant things ever be beautiful?”).
- B. Know how to communicate an informed individual opinion about the meaning of works in the arts (e.g., works of an artist of the month).
- C. Recognize that the environment of the observer influences individual aesthetic responses to works in the arts (e.g., the effect of live music as opposed to listening to the same piece on a car radio).
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<td>D. Recognize that choices made by artists regarding subject matter and themes communicate ideas through works in the arts and humanities (e.g., artist’s interpretation through the use of classical ballet of the American West in Agnes De Mille’s <em>Rodeo</em>).</td>
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<tr>
<td>D. Explain choices made regarding media, technique, form, subject matter and themes that communicate the artist’s philosophy within a work in the arts and humanities (e.g., selection of stage lighting in Leonard Bernstein’s <em>West Side Story</em> to communicate mood).</td>
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<tr>
<td>D. Describe to what purpose philosophical ideas generated by artists can be conveyed through works in the arts and humanities (e.g., T. Ganson’s <em>Destructive Periods in Russia During Stalin’s and Deniken’s Leadership</em> conveys her memories and emotions of a specific incident).</td>
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<tr>
<td>D. Analyze and interpret a philosophical position identified in works in the arts and humanities.</td>
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XXVII. GLOSSARY

Aesthetics:
A branch of philosophy that focuses on the nature of beauty, the nature and value of the arts and the inquiry processes and human responses they produce.

Aesthetic criteria:
Standards on which to make judgments about the artistic merit of a work of art, derived from cultural and emotional values and cognitive meaning.

Aesthetic response:
A philosophical reply to works in the arts.

Artistic choices:
Selections made by artists in order to convey meaning.

Arts resource:
An outside community asset (e.g., performances, exhibitions, performers) that influence and give meaning to the works in the arts.

Assess:
To analyze and determine the nature and quality of the process/product through means appropriate to the art form.

Assessment:
The process of examining and discussing the effective uses of specific aspects of works in the arts.

Community:
A group of people who share a common social, historical, regional or cultural heritage.

Context:
A set of interrelated background conditions (e.g., social, economic, political) that influence and give meaning to the works in the arts.

Contemporary technology:
Tools, machines or implements emerging and used today for the practice or production of works in the arts.

Create:
To produce works in the arts.

Critical analysis:
The process of examining and discussing the effective uses of specific aspects of works in the arts.

Contextual criticism:
Discussion and evaluation with consideration of factors surrounding the origin and heritage to works in the arts.
Created by performing or visual artists.
Dance, music, theatre and visual arts pieces.

CD-ROMS, HD video, digital film and the Internet.

The combined use of media such as movies,
a MIDI keyboard set-up to music and play music.
Musician Instrument Digital Interface (MIDI)

Improvisation:
Spontaneous creation requiring focus and
and accomplishment.

MIDI Keyboard:

Culture:
The way of life of a group of people, including
customs, beliefs, arts, institutions and worldview.
Culture is acquired through many means and is
always changing.

Genres:
A type of category (e.g., music—opera, oratorio;
dance—modern, ballet; visual arts—pastoral, scenes of
everyday life).

Elements:
Core components that support the principles of the
arts.

Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS
22
## Principles

- Essential assumptions, basic or essential qualities determining intrinsic characteristics.

## Style

- A distinctive or characteristic manner of expression.

## Technique

- Specific skills and details employed by an artist, crafts-person or performer in the production of works in the arts.

## Timbre

- A unique quality of sound.

## Traditions

- Knowledge, opinions and customs a group feels is so important that members continue to practice it.

## Traditional Technologies

- Essential assumptions, basic of essential qualities determining intrinsic characteristics.

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<td>A. Health and the Environment</td>
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## Vocabulary

- Age-appropriate terms used in the instruction of the arts and humanities that demonstrate levels of proficiency as defined in local curriculum (i.e., fundamental—grade 3, comprehensive—grade 5, discriminating—grade 8 and advanced—grade 12).
This document includes Academic Standards for Health, Safety and Physical Education in these categories:

- 10.1 Concepts of Health
- 10.2 Healthful Living
- 10.3 Safety and Injury Prevention
- 10.4 Physical Activity
- 10.5 Concepts, Principles and Strategies of Movement

The Academic Standards for Health, Safety, and Physical Education describe what students should know and be able to do by the end of each grade level. The standards are sequential across the grade levels and reflect the increasing complexity and rigor that students are expected to achieve. The standards define the content for planned instruction and will result in measurable gains for all students in knowledge and skill. School entities will use these standards to develop local school curriculum and assessments that meet the needs of the students.

The Academic Standards for Health, Safety, and Physical Education provide students with the knowledge and skills that will enable them to achieve and maintain a physically active and healthful life. The attainment of these standards will increase their chances of achieving to their highest academic potential.

Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS 22

(295031) No. 340 Mar. 03
The Academic Standards for Health, Safety and Physical Education provide parents with specific information about the knowledge and skills students should be developing as they progress through their educational programs. With the standards serving as clearly defined targets, parents, students, teachers and community members will be able to become partners in helping children achieve educational success. A glossary is included to assist the reader in understanding terminology contained in the standards.
Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

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<tbody>
<tr>
<td><strong>A. Identify and describe the stages of growth and development.</strong></td>
<td>Identify and describe the stages of growth and development.</td>
<td>Describe growth and development changes that occur between childhood and adolescence and identify factors that can influence these changes.</td>
<td>Analyze factors that impact growth and development between adolescence and adulthood.</td>
<td>Evaluate factors that impact growth and development during adulthood and late adulthood.</td>
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<tr>
<td>- infancy</td>
<td>- education</td>
<td>- relationships (e.g., dating, friendships, peer pressure)</td>
<td>- acute and chronic illness</td>
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<td>- childhood</td>
<td>- socioeconomic</td>
<td>- interpersonal communication</td>
<td>- communicable and non-communicable disease</td>
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<tr>
<td>- adolescence</td>
<td>- risk factors (e.g., physical inactivity, substance abuse, intentional/unintentional injuries, dietary patterns)</td>
<td>- health status</td>
<td>- relationships (e.g., marriage, divorce, loss)</td>
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<tr>
<td>- adulthood</td>
<td>- abstinence</td>
<td>- career choice</td>
<td>- aging process</td>
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<tr>
<td>- late adulthood</td>
<td>- STD and HIV prevention</td>
<td>- retirement</td>
<td>- aging process</td>
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</table>

| **B. Identify and know the location and function of the major body organs and systems.** | Identify and describe the structure and function of the major body systems. | Analyze the interdependence existing among the body systems. | Evaluate factors that impact the body systems and apply protective/preventive strategies. |
| - circulatory | - nervous | - fitness level | - fitness level |
| - respiratory | - muscular | - environment (e.g., pollutants, available health care) | - environment (e.g., pollutants, available health care) |
| - muscular | - integumentary | - health status (e.g., physical, mental, social) | - health status (e.g., physical, mental, social) |
| - skeletal | - urinary | - nutrition | - nutrition |
| - digestive | - endocrine | | |
### 10.1. Concepts of Health

<table>
<thead>
<tr>
<th>10.1.3. GRADE 3</th>
<th>10.1.6. GRADE 6</th>
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<th>10.1.12. GRADE 12</th>
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</thead>
</table>
| **C. Explain the role of the food guide pyramid in helping people eat a healthy diet.**  
  - food groups  
  - number of servings  
  - variety of food  
  - nutrients | **C. Analyze nutritional concepts that impact health.**  
  - caloric content of foods  
  - relationship of food intake and physical activity (energy output)  
  - nutrient requirements  
  - label reading  
  - healthful food selection | **C. Analyze factors that impact nutritional choices of adolescents.**  
  - body image  
  - advertising  
  - dietary guidelines  
  - eating disorders  
  - peer influence  
  - athletic goals | **C. Analyze factors that impact nutritional choices of adults.**  
  - cost  
  - food preparation (e.g., time, skills)  
  - consumer skills (e.g., understanding food labels, evaluating fads)  
  - nutritional knowledge  
  - changes in nutritional requirements (e.g., age, physical activity level) |
| **D. Know age appropriate drug information.**  
  - definition of drugs  
  - effects of drugs  
  - proper use of medicine  
  - healthy/unhealthy risk-taking (e.g., inhalant use, smoking)  
  - skills to avoid drugs | **D. Explain factors that influence childhood and adolescent drug use.**  
  - peer influence  
  - body image (e.g., steroids, enhancers)  
  - social acceptance  
  - stress  
  - media influence  
  - decision-making/refusal skills  
  - rules, regulations and laws  
  - consequences | **D. Analyze prevention and intervention strategies in relation to adolescent and adult drug use.**  
  - decision-making/refusal skills  
  - situation avoidance  
  - goal setting  
  - professional assistance (e.g., medical, counseling, support groups)  
  - parent involvement | **D. Evaluate issues relating to the use/non-use of drugs.**  
  - psychology of addiction  
  - social impact (e.g., cost, relationships)  
  - chemical use and fetal development  
  - laws relating to alcohol, tobacco and chemical substances  
  - impact on the individual  
  - impact on the community |

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### 10.1. Concepts of Health

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<tr>
<td><strong>E. Identify types and causes of common health problems of children.</strong></td>
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<td>• infectious diseases (e.g., colds, flu, chickenpox)</td>
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<td>• noninfectious diseases (e.g., asthma, hay fever, allergies, lyme disease)</td>
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<td>• germs</td>
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<td>• pathogens</td>
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<td>• heredity</td>
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<td><strong>E. Identify health problems that can occur throughout life and describe ways to prevent them.</strong></td>
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<td>• Diseases (e.g., cancer, diabetes, STD/HIV/AIDS, cardiovascular disease)</td>
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<td>• Preventions (i.e. do not smoke, maintain proper weight, eat a balanced diet, practice sexual abstinence, be physically active)</td>
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<td><strong>E. Analyze how personal choice, disease and genetics can impact health maintenance and disease prevention.</strong></td>
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<td><strong>E. Identify and analyze factors that influence the prevention and control of health problems.</strong></td>
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<td>• research</td>
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<td>• medical advances</td>
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<td>• technology</td>
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<td>• government policies/regulations</td>
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<td>10.2. Healthful Living</td>
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</tbody>
</table>
| **A.** Identify personal hygiene practices and community helpers that promote health and prevent the spread of disease. | **A.** Explain the relationship between personal health practices and individual well-being.  
- immunizations  
- health examinations | **A.** Identify and describe health care products and services that impact adolescent health practices. | **A.** Evaluate health care products and services that impact adult health practices. |
| **B.** Identify health-related information.  
- signs and symbols  
- terminology  
- products and services | **B.** Explain the relationship between health-related information and consumer choices.  
- dietary guidelines/food selection  
- sun exposure guidelines/sunscreen selection | **B.** Analyze the relationship between health-related information and adolescent consumer choices.  
- tobacco products  
- weight control products | **B.** Assess factors that impact adult health consumer choices.  
- access to health information  
- access to health care  
- cost  
- safety |
| **C.** Identify media sources that influence health and safety. | **C.** Explain the media’s effect on health and safety issues. | **C.** Analyze media health and safety messages and describe their impact on personal health and safety. | **C.** Compare and contrast the positive and negative effects of the media on adult personal health and safety. |

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<tbody>
<tr>
<td>D. Identify the steps in a decision making process.</td>
<td>D. Identify the steps in a decision making process to health and safety issues.</td>
<td>D. Analyze and apply a decision making process to adolescent health and safety issues.</td>
<td>D. Examine and apply a decision making process to the development of short and long-term health goals.</td>
</tr>
</tbody>
</table>
| E. Identify environmental factors that affect health.  
  • pollution (e.g., air, water, noise, soil)  
  • waste disposal  
  • temperature extremes  
  • insects/animals | E. Analyze environmental factors that impact health.  
  • indoor air quality (e.g., second-hand smoke, allergens)  
  • chemicals, metals, gases (e.g., lead, radon, carbon monoxide)  
  • radiation  
  • natural disasters | E. Explain the interrelationship between the environment and personal health.  
  • ozone layer/skin cancer  
  • availability of health care/individual health  
  • air pollution/respiratory disease  
  • breeding environments/lyme disease/West Nile virus  
  | E. Analyze the interrelationship between environmental factors and community health.  
  • public health policies and laws/health promotion and disease prevention  
  • individual choices/maintenance of environment  
  • recreational opportunities/health status |
### 10.3. Safety and Injury Prevention

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<th>10.3.9. GRADE 9</th>
<th>10.3.12. GRADE 12</th>
</tr>
</thead>
</table>
| **A.** Recognize safe/unsafe practices in the home, school and community.  
- general (e.g., fire, electrical, animals)  
- modes of transportation (e.g., pedestrian, bicycle, vehicular)  
- outdoor (e.g., play, weather, water)  
- safe around people (e.g., safe/unsafe touch, abuse, stranger, bully) | **A.** Explain and apply safe practices in the home, school and community.  
- emergencies (e.g., fire, natural disasters)  
- personal safety (e.g., home alone, latch key, harassment)  
- communication (e.g., telephone, Internet)  
- violence prevention (e.g., gangs, weapons) | **A.** Analyze the role of individual responsibility for safe practices and injury prevention in the home, school and community.  
- modes of transportation (e.g., pedestrian, bicycle, vehicular, passenger, farm vehicle, all-terrain vehicle)  
- violence prevention in school  
- self-protection in the home  
- self-protection in public places | **A.** Assess the personal and legal consequences of unsafe practices in the home, school or community.  
- loss of personal freedom  
- personal injury  
- loss of income  
- impact on others  
- loss of motor vehicle operator’s license |
| **B.** Recognize emergency situations and explain appropriate responses.  
- importance of remaining calm  
- how to call for help  
- simple assistance procedures  
- how to protect self | **B.** Know and apply appropriate emergency responses.  
- basic first aid  
- Heimlich maneuver  
- universal precautions | **B.** Describe and apply strategies for emergency and long-term management of injuries.  
- rescue breathing  
- water rescue  
- self-care  
- sport injuries | **B.** Analyze and apply strategies for the management of injuries.  
- CPR  
- advanced first aid |
10.3. Safety and Injury Prevention

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<tr>
<td>C. Recognize conflict situations and</td>
<td>C. Describe strategies to avoid or</td>
<td>C. Analyze and apply strategies to</td>
<td>C. Analyze the impact of violence on</td>
</tr>
<tr>
<td>identify strategies to avoid or</td>
<td>manage conflict and violence.</td>
<td>avoid or manage conflict and</td>
<td>the victim and surrounding</td>
</tr>
<tr>
<td>resolve.</td>
<td>• anger management</td>
<td>violence during adolescence.</td>
<td>community.</td>
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<tr>
<td>• walk away</td>
<td>• peer mediation</td>
<td>• effective negotiation</td>
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<tr>
<td>• I-statements</td>
<td>• reflective listening</td>
<td>• assertive behavior</td>
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<td>• refusal skills</td>
<td>• negotiation</td>
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<td>• adult intervention</td>
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<tr>
<td>D. Identify and use safe practices in physical activity settings (e.g., proper equipment, knowledge of rules, sun safety, guidelines of safe play, warm-up, cool-down).</td>
<td>D. Analyze the role of individual responsibility for safety during physical activity.</td>
<td>D. Evaluate the benefits, risks and safety factors associated with self-selected life-long physical activities.</td>
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</table>
### 10.4. Physical Activity

<table>
<thead>
<tr>
<th>A. Identify and engage in physical activities that promote physical fitness and health.</th>
<th>A. Identify and engage in moderate to vigorous physical activities that contribute to physical fitness and health.</th>
<th>A. Analyze and engage in physical activities that are developmentally/individually appropriate and support achievement of personal fitness and activity goals.</th>
<th>A. Evaluate and engage in an individualized physical activity plan that supports achievement of personal fitness and activity goals and promotes life-long participation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Know the positive and negative effects of regular participation in moderate to vigorous physical activities.</td>
<td>B. Explain the effects of regular participation in moderate to vigorous physical activities on the body systems.</td>
<td>B. Analyze the effects of regular participation in moderate to vigorous physical activities in relation to adolescent health improvement. • stress management • disease prevention • weight management</td>
<td>B. Analyze the effects of regular participation in a self-selected program of moderate to vigorous physical activities. • social • physiological • psychological</td>
</tr>
</tbody>
</table>

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<th>10.4.9. GRADE 9</th>
<th>10.4.12. GRADE 12</th>
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</thead>
</table>
| C. Know and recognize changes in body responses during moderate to vigorous physical activity.  
  • heart rate  
  • breathing rate | C. Identify and apply ways to monitor and assess the body’s response to moderate to vigorous physical activity.  
  • heart rate monitoring  
  • checking blood pressure  
  • fitness assessment | C. Analyze factors that affect the responses of body systems during moderate to vigorous physical activities.  
  • exercise (e.g., climate, altitude, location, temperature)  
  • healthy fitness zone  
  • individual fitness status (e.g., cardiorespiratory fitness, muscular endurance, muscular strength, flexibility)  
  • drug/substance use/abuse | C. Evaluate how changes in adult health status may affect the responses of the body systems during moderate to vigorous physical activity.  
  • aging  
  • injury  
  • disease |
| D. Identify likes and dislikes related to participation in physical activities. | D. Describe factors that affect childhood physical activity preferences.  
  • enjoyment  
  • personal interest  
  • social experience  
  • opportunities to learn new activities  
  • parental preference  
  • environment | D. Analyze factors that affect physical activity preferences of adolescents.  
  • skill competence  
  • social benefits  
  • previous experience  
  • activity confidence | D. Evaluate factors that affect physical activity and exercise preferences of adults.  
  • personal challenge  
  • physical benefits  
  • finances  
  • motivation  
  • access to activity  
  • self-improvement |
10.4. Physical Activity

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<tr>
<td>E. Identify reasons why regular participation in physical activities improves motor skills.</td>
<td>E. Identify factors that have an impact on the relationship between regular participation in physical activity and the degree of motor skill improvement.</td>
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<tr>
<td>- success-oriented activities</td>
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<td>- school-community resources</td>
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<td>- variety of activities</td>
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<td>- time on task</td>
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<td>F. Recognize positive and negative interactions of small group activities.</td>
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<td>- roles (e.g., leader, follower)</td>
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<td>- cooperation/sharing</td>
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<td>- on task participation</td>
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<td>F. Identify and describe positive and negative interactions of group members in physical activities.</td>
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<td>- leading</td>
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<td>- following</td>
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<td>- teamwork</td>
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<td>- etiquette</td>
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<td>- adherence to rules</td>
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<td>E. Analyze factors that impact on the relationship between regular participation in physical activity and motor skill improvement.</td>
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<td>- personal choice</td>
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<td>- developmental differences</td>
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<td>- amount of physical activity</td>
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<td>- authentic practice</td>
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<tr>
<td>F. Analyze the effects of positive and negative interactions of adolescent group members in physical activities.</td>
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<td>- group dynamics</td>
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<td>- social pressure</td>
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<td>F. Assess and use strategies for enhancing adult group interaction in physical activities.</td>
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<td>- shared responsibility</td>
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<td>- open communication</td>
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<td>- goal setting</td>
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### 10.5. Concepts, Principles and Strategies of Movement

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</table>

A. Recognize and use basic movement skills and concepts.
- locomotor movements (e.g., run, leap, hop)
- non-locomotor movements (e.g., bend, stretch, twist)
- manipulative movements (e.g., throw, catch, kick)
- relationships (e.g., over, under, beside)
- combination movements (e.g., locomotor, non-locomotor, manipulative)
- space awareness (e.g., self-space, levels, pathways, directions)
- effort (e.g., speed, force)

A. Explain and apply the basic movement skills and concepts to create and perform movement sequences and advanced skills.

A. Describe and apply the components of skill-related fitness to movement performance.
- agility
- balance
- coordination
- power
- reaction time
- speed

A. Apply knowledge of movement skills, skill-related fitness and movement concepts to identify and evaluate physical activities that promote personal lifelong participation.
### 10.5. Concepts, Principles and Strategies of Movement

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</tr>
<tr>
<td><strong>B. Recognize and describe the concepts of motor skill development using appropriate vocabulary.</strong></td>
<td><strong>B. Identify and apply the concepts of motor skill development to a variety of basic skills.</strong></td>
<td><strong>B. Describe and apply concepts of motor skill development that impact the quality of increasingly complex movement.</strong></td>
<td><strong>B. Incorporate and synthesize knowledge of motor skill development concepts to improve the quality of motor skills.</strong></td>
</tr>
<tr>
<td>- form</td>
<td>- transfer between skills</td>
<td>- response selection</td>
<td>- open and closed skills</td>
</tr>
<tr>
<td>- developmental differences</td>
<td>- selecting relevant cues</td>
<td>- stages of learning a motor skill i.e. verbal cognitive, motor, automatic</td>
<td>- short-term and long-term memory</td>
</tr>
<tr>
<td>- critical elements</td>
<td>- types of feedback</td>
<td>- types of skill i.e. discrete, serial, continuous</td>
<td>- aspects of good performance</td>
</tr>
<tr>
<td>- feedback</td>
<td>- movement efficiency</td>
<td>- product (outcome/result)</td>
<td></td>
</tr>
<tr>
<td><strong>C. Know the function of practice.</strong></td>
<td><strong>C. Describe the relationship between practice and skill development.</strong></td>
<td><strong>C. Identify and apply practice strategies for skill improvement.</strong></td>
<td><strong>C. Evaluate the impact of practice strategies on skill development and improvement.</strong></td>
</tr>
<tr>
<td><strong>D. Identify and use principles of exercise to improve movement and fitness activities.</strong></td>
<td><strong>D. Describe and apply the principles of exercise to the components of health-related and skill-related fitness.</strong></td>
<td><strong>D. Identify and describe the principles of training using appropriate vocabulary.</strong></td>
<td><strong>D. Incorporate and synthesize knowledge of exercise principles, training principles and health and skill-related fitness components to create a fitness program for personal use.</strong></td>
</tr>
<tr>
<td>- frequency/how often to exercise</td>
<td>- cardiorespiratory endurance</td>
<td>- specificity</td>
<td></td>
</tr>
<tr>
<td>- intensity/how hard to exercise</td>
<td>- muscular strength</td>
<td>- overload</td>
<td></td>
</tr>
<tr>
<td>- time/how long to exercise</td>
<td>- muscular endurance</td>
<td>- progression</td>
<td></td>
</tr>
<tr>
<td>- type/what kind of exercise</td>
<td>- flexibility</td>
<td>- aerobic/anaerobic</td>
<td></td>
</tr>
<tr>
<td>- body composition</td>
<td>- circuit/interval</td>
<td>- repetition/set</td>
<td></td>
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</tbody>
</table>
Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

<table>
<thead>
<tr>
<th>10.5. Concepts, Principles and Strategies of Movement</th>
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</thead>
<tbody>
<tr>
<td><strong>E.</strong> Know and describe scientific principles that affect movement and skills using appropriate vocabulary.</td>
</tr>
<tr>
<td>- gravity</td>
</tr>
<tr>
<td>- force production/absorption</td>
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<tr>
<td>- balance</td>
</tr>
<tr>
<td>- rotation</td>
</tr>
<tr>
<td>F. Recognize and describe game strategies using appropriate vocabulary.</td>
</tr>
<tr>
<td>- faking/dodging</td>
</tr>
<tr>
<td>- passing/receiving</td>
</tr>
<tr>
<td>- moving to be open</td>
</tr>
<tr>
<td>- defending space</td>
</tr>
<tr>
<td>- following rules of play</td>
</tr>
</tbody>
</table>
Abstinence: Choosing not to do something or completely giving something up in order to gain something.

Acute illness: A health condition of sudden onset, sharp rises and short course.

Adolescence: The period of life following the end of childhood and prior to adulthood.

Aerobic: Physical activity or exercise done at a steady pace for an extended period of time so that the heart can supply as much oxygen as the body needs.

Agility: A component of physical fitness that relates to the ability to rapidly change the position of the entire body in space with speed and accuracy.

Allergen: A substance that stimulates the production of antibodies and subsequently results in allergic reactions (e.g., mold spores, cat/dog dander, dust).

Anaerobic: Physical activity or exercise done in short, fast bursts so that the heart cannot supply oxygen as fast as the body needs.

Ankle: A joint located at the foot, where the leg and foot meet.

Arthritis: A condition characterized by inflammation of the joints and surrounding tissues, resulting in pain, swelling, and stiffness.

Asthma: A chronic lung condition characterized by inflammation of the airways, which leads to shortness of breath, wheezing, and coughing.

Automated Stage of Learning: Movement responses flow and the individual can perform them without conscious awareness.

Balance: The expression of thoughts and feelings without experiencing anxiety or feelings of anger.

Biomechanical principles: The science concerned with the action of forces, the science concerned with the movement of objects, and the science concerned with the maintenance of equilibrium while stationary or moving.

Biomechanics: The science concerned with the action of forces, the science concerned with the movement of objects, and the science concerned with the maintenance of equilibrium while stationary or moving.

Bicep: A muscle on the front of the upper arm.

Biomechanical principles: The science concerned with the action of forces, the science concerned with the movement of objects, and the science concerned with the maintenance of equilibrium while stationary or moving.
Body composition:
A health-related component of physical fitness that relates to the percentage of fat tissue and lean tissue in the body.

Body systems:
Anatomically or functionally related parts of the body, such as the skeletal, nervous, respiratory, digestive, and immune systems.

Caloric content:
The amount of energy supplied by food. The more calories in the food, the more fattening.

Cardiorespiratory fitness:
A health-related component of physical fitness relating to the ability of the circulatory and respiratory systems to supply oxygen during sustained physical activity.

Centrifugal:
The force that seems to pull an object away from the center as it moves in a circle.

Centripetal:
The force that seems to pull an object toward the center as it moves in a circle.

Chronic illness:
A health condition of long duration or frequent recurrence.

Circuit training:
An exercise program, similar to an obstacle course, in which the person goes from one place to another while performing a different exercise at each place. Time is a factor of the course, and no change of heart rate is required.

Closed:
Skills that are performed in an environment that does not change or that changes very little, such as archery or the foul shot in basketball.

Communicable:
Illness caused by pathogens that enter the body through direct or indirect contact and can be transmitted from one host to another.

Community helpers:
Any group of individuals who play a role in health promotion or disease prevention such as doctors, nurses, dentists, teachers, parents, friends, neighbors, health clubs, and physical educators.

Continuous:
Two or more repetitions of the same skill or exercise without stopping.

Cool-down:
Brief, mild exercise done after vigorous exercise to help the body safely return to a resting state.

Exercises:
A health condition of long duration or frequent recurrence.

Exercise program:
A health-related component of physical fitness that involves movement around a circular path. The force that is required to keep an object in motion is equal to the sum of its mass times its acceleration.

Exercise training:
A health-related component of physical fitness that involves movement around a circular path. The force that is required to keep an object in motion is equal to the sum of its mass times its acceleration.

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A health-related component of physical fitness that involves movement around a circular path. The force that is required to keep an object in motion is equal to the sum of its mass times its acceleration.
Coordination: A skill-related component of physical fitness that relates to the ability to use the senses together with body parts in performing motor tasks smoothly and accurately.

CPR: A first aid technique, which involves rescue breathing and chest (heart) compressions, that is used to revive a person whose heart has stopped beating.

Critical elements: The important parts of a skill.

Decision-making process: An organized approach to making choices.

Developmental differences: Learners are at different levels of motor, cognitive, emotional, social, and physical development. The learners' developmental status will affect their ability to learn or improve.

Developmentally appropriate: Motor skill development and change that occur in a natural, sequential fashion and are age and experience related.

Directions: Forward, backward, left, right, up, down.

Discrete: Single skill performed in isolation from other motor skills such as the soccer penalty kick and golf stroke.

Dynamic balance: The ability to maintain balance while performing tasks on one foot. Equilibrium: The state in which a body is in motion or at rest. Equilibrium used when in motion, standing and sitting.

Eating disorders: Food-related dysfunction in which a person changes eating habits in a way that is harmful to the mind or body (e.g., bulimia, anorexia nervosa).

Efficiency of movement: The ability to perform a task with minimum expenditure of time and effort. The state or quality of competence in performance.

Equilibrium: The state in which there is no change in the motion of a body.

Falling disorders:

Discrete: Single skill performed in isolation from other motor skills.

Eating disorders: Food-related dysfunction in which a person changes eating habits in a way that is harmful to the mind or body (e.g., bulimia, anorexia nervosa).

Efficiency of movement: The ability to perform a task with minimum expenditure of time and effort. The state or quality of competence in performance.

Equilibrium: The state in which there is no change in the motion of a body.

Flexibility: A health-related component of physical fitness that relates to the range of motion available at a joint.
Food guide pyramid: A visual tool used to help people plan healthy diets according to the Dietary Guidelines for America.

Force: Any external agent that causes a change in the motion of a body.

Form: Manner or style of performing a movement according to recognized standards of technique.

Good performance: The ability to execute the section appropriately according to recognized standards of technique.

Health: A state of complete physical, mental and social well-being and not merely the absence of disease and infirmity.

Health-related fitness: Components of physical fitness that have a relationship with good health. Components are cardiorespiratory endurance, muscular strength and endurance, muscular flexibility and body composition.

Heimlich maneuver: A first aid technique that is used to relieve complete airway obstruction.

HIV: Human immunodeficiency virus that infects cells of the immune system and other tissues and causes acquired immunodeficiency syndrome (AIDS).

Inertia: A body at rest will remain at rest and a body in motion will remain in motion unless acted upon by a force.

Inhalant: Chemicals that produce vapors that act on the respiratory system, central nervous system and alter moods and behavior.

Hygiene: Health education: A planned, sequential K—12 program of curricula and instruction that helps students develop knowledge, attitudes and skills related to the physical, mental, emotional and social dimensions of health.

I-statement: A statement describing a specific behavior or event and the effect that behavior or event has on the feelings that result.
Integumentary system:
A body system composed of the skin, hair, nails, and glands.

Intensity:
How hard a person should exercise to improve fitness.

Interval training:
An anaerobic exercise program that consists of runs of short distance followed by rest.

Kinetic:
Energy that an object possesses because it is moving, such as a pitched baseball or a person running.

Levels:
Positions of the body (e.g., sitting, standing, lying).

Linear motion:
Movement which occurs in a straight path.

Locomotor movement:
Movement which occurs in a series of steps.

Long-term memory:
Ability to recall information that was learned days, weeks, or months ago.

Locomotor skill:
Way a child learns to perform specific skills.

Media sources:
Various forms of mass communication such as television, radio, magazines, newspapers, and the Internet.

Mechanical advantage:
The ratio between the force put into a machine and the force that comes out of the same machine.

Mechanical advantage:
The ratio between the force put into a machine and the force that comes out of the same machine.

Manipulative movements:
Control of objects with body parts and implements. Action causes an object to move from one place to another.

Moderate physical activity:
Sustained, repetitive, large muscle movements.

Moderate physical activity:
Sustained, repetitive, large muscle movements.

Motor skills:
Non-fitness abilities that improve with practice and relate to one's ability to perform specific tasks (e.g., tennis, basketball, etc.).

Immediate exercise program:
An anaerobic exercise program that consists of runs of short distance followed by rest.

Immediate exercise program:
An anaerobic exercise program that consists of runs of short distance followed by rest.

Intensity:
How hard a person should exercise to improve fitness.

Immediate exercise program:
An anaerobic exercise program that consists of runs of short distance followed by rest.

Intensity:
How hard a person should exercise to improve fitness.

Body system composed of the skin, hair, nails, and glands.
Motor stage of learning:
Individual working to perfect the motor skill and makes conscious adjustments to the environment.

Movement skills:
Proficiency in performing nonlocomotor, locomotor and manipulative movements that are the foundation for participation in physical activities.

Muscular endurance:
A health-related component of physical fitness that relates to the ability of a muscle to continue to perform without fatigue.

Muscular strength:
A health-related component of physical fitness that relates to the ability of the muscle to exert force.

Newton's Laws of Motion:
Three laws by Sir Isaac Newton that explain the relations between force and the motions produced by them: The Law of Inertia, Force and Acceleration, and Reacting Forces.

Noncommunicable:
Illness that is not caused by a pathogen that is not transmitted from one host to another.

Nonlocomotor movement:
Movements that do not produce physical displacement of the body.

Nutrient:
A basic component of food that nourishes the body.

Open:
Skill performed in an environment that varies or is unpredictable such as the tennis backhand or the soccer pass.

Overload:
A principle of exercise that states that the only way to improve fitness is to exceed more than a principle of exercise that allows the body to recover.

Pathways:
Patterns of travel while performing locomotor movements (e.g., straight, curved, zigzag).

Physical activity:
Bodily movement that is produced by the contraction of skeletal muscle and which substantially increases energy expenditure.

Physical education:
Noncommunicable:
Nonlocomotor movement:
Newton's Laws of Motion:
Muscular strength:
Muscular endurance:
Muscular skills:
Motor stage of learning:

Individual working to perfect the motor skill and makes conscious adjustments to the environment.
Physical education:
Planned, sequential, movement-based program of curricula and instruction that helps students develop knowledge, attitudes, motor skills, self-management skills and confidence needed to adapt and maintain a physically active life.

Physical fitness:
A set of attributes that people have or achieve and that relate to their ability to perform physical activity. Generally accepted to consist of health-related fitness and skill-related fitness.

Potential:
Energy stored in a body because of its position such as the crouch position prior to a jump.

Power:
A skill-related component of physical fitness that relates to the rate at which one can perform work.

Principles of exercise:
Guidelines to follow to obtain the maximum benefits from physical activity and exercise.

Principles of training:
Guidelines to follow to obtain the maximum benefits from an exercise plan.

Progression:
A principle of exercise that states that a person should start slowly and increase exercise gradually.

Principle of Repetition:
Number of times an exercise is repeated.

Principle of Time:
Time an exercise plan is followed to obtain the maximum benefit.

Protection:
A skill-related component of physical fitness that relates to the time it takes an individual to perform physical activity and exercise.

Reaction time:
A skill-related component of physical fitness that relates to the time elapsed between stimulation and the beginning of the response to it.

Refrain skills:
Systematic ways to handle situations in which a person wants to say no to an action and/or leave an environment that threatens health or safety, breaks laws, results in fear or neglect, is not in the best interests of health, or results in harm to self or others.

Refrain Listening:
An active listening skill in which the individual lets others know he/she has heard and understands what has been said.

Rescue breathing:
Technique used to supply air to an individual who is not breathing.

Preliminary:
An exercise to warm up muscles before exercise.

Preliminary of exercise:
A set of exercises that people have or achieve and that relate to their ability to perform physical activity and exercise.

Physical education:
Preliminary, sequential, movement-based program of planned, goal-oriented, health-related physical activity.
Rotary motion: Force that produces movement that occurs around an axis or center point such as a somersault.

Safety education: Planned, sequential program of curricula and instruction that helps students develop the knowledge, attitudes and confidence needed to protect themselves from injury.

Self-space: All the space that the body or its parts can reach without having to move from a starting location.

Serial: Two or more different skills performed together such as fielding a ball and throwing it or dribbling a basketball and shooting it.

Set: A group of several repetitions.

Short-term memory: Ability to recall recently learned information, such as within the past few seconds or minutes.

Speed: A skill-related component of physical fitness that relates to the ability to perform a movement or cover a distance in a short period of time.

Specificity: A principle of exercise that states that specific kinds of exercises must be done to develop specific aspects of the body and specific aspects of fitness.

Static balance: Maintaining equilibrium while holding a pose or position in a short period of time.

STD: Sexually transmitted disease.

Universal precautions: An approach to infection control. All human blood is considered to be infected.

Warm-up: Brief, mild exercise that is done to get ready for more vigorous exercise.

Self-efficacy: The confidence in one's ability to perform a specific task.

Skill-related fitness: Consists of components of physical fitness that have a relationship with enhanced performance in sports and motor skills. The components are agility, balance, coordination, power, reaction time and speed.

Specificity: A principle of exercise that states that specific kinds of exercises must be done to develop specific aspects of the body and specific aspects of fitness.

Speed: A skill-related component of physical fitness that relates to the ability to perform a movement or cover a distance in a short period of time.

Static balance: Maintaining equilibrium while holding a pose or position in a short period of time.

STD: Sexually transmitted disease.

Universal precautions: An approach to infection control. All human blood is considered to be infected.
Verbal cognitive stage of learning: The individual is attempting to move from verbal instruction to trying to figure out how to actually do the skill. The first steps at the skill are the skill and success is misconstrued. The individual is attempting to move from verbal instruction to trying to figure out how to actually do the skill.

Vigorous physical activity: Sustained, repetitive, large muscle movements (e.g., running, swimming, soccer) done at 60% or more of maximum heart rate. Maximum heart rate is 220 beats per minute minus the person's age. Activity makes person sweat and breathe hard.

Financial and Resource Management

II.3

Introduction

STATE BOARD OF EDUCATION
This document includes Academic Standards for Family and Consumer Sciences at four grade levels (third, sixth, ninth and twelfth) with the emphasis on what students will know and be able to do in the following areas:

11.1. Financial and Resource Management
11.2. Balancing Family, Work, and Community Responsibility
11.3. Food Science and Nutrition
11.4. Child Development.

The focus of the Academic Standards for Family and Consumer Sciences education is the individual, the family and the community. The economic, social and political well-being of our state depends on the well-being of Pennsylvania's families. The family is responsible for nurturing its members. Family experiences, to a great extent, determine who a person is and what a person becomes. Family and Consumer Sciences, working with Pennsylvania's families, supports Family and Consumer Sciences, working with Pennsylvania's families.

The goals of the Academic Standards for Family and Consumer Sciences education are:

11.1. Core Development
11.2. Food Science and Nutrition
11.3. Balancing Family, Work, and Community Responsibility
11.4. Child Development
11.5. Economic and Resource Management

This document includes Academic Standards for Family and Consumer Sciences.
Learners in Family and Consumer Sciences nurture themselves and others, taking increased responsibility for improving their quality of living.

The Academic Standards for Family and Consumer Sciences are written to empower individuals and families to manage the challenges of living and working in a diverse, global society. These standards address the function, evaluation, and alternative solutions to significant problems of everyday life. The focus is on the recurring, practical problems of individuals and families. An integrative approach is used to help individuals and families identify, create, and evaluate goals and alternative solutions to significant problems of everyday life.

Students are taught to take responsibility for their personal, family, and work-related decisions to meet their personal, family, and work responsibilities.

A glossary is included to assist the reader in understanding terminology contained in the standards.
### 11.1. Financial and Resource Management

<table>
<thead>
<tr>
<th>11.1.3. GRADE 3</th>
<th>11.1.6. GRADE 6</th>
<th>11.1.9. GRADE 9</th>
<th>11.1.12. GRADE 12</th>
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<td><strong>Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...</strong></td>
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</table>
| **A.** Identify money denominations, services and material resources available as trade-offs within the home, school and community. | **A.** Justify the decision to use or not use resources based on scarcity. | **A.** Analyze current conservation practices and their effect on future renewable and non-renewable resources.  
- Refuse  
- Reduce  
- Reuse  
- Recycle | **A.** Evaluate the impact of family resource management on the global community. |
<p>| <strong>B.</strong> Define the components of a spending plan (e.g., income, expenses, savings). | <strong>B.</strong> Know the relationship of the components of a simple spending plan and how that relationship allows for managing income, expenses and savings. | <strong>B.</strong> Explain the responsibilities associated with managing personal finances (e.g., savings, checking, credit, noncash systems, investments, insurance). | <strong>B.</strong> Analyze the management of financial resources across the lifespan. |
| <strong>C.</strong> Explain the need for shelter for the purpose of safety, warmth and comfort. | <strong>C.</strong> Describe the adaptability to meet basic human needs of the different types of housing available (e.g., single home, apartment, mobile home, shelter, recreational vehicle, public housing). | <strong>C.</strong> Delineate and assess the factors affecting the availability of housing (e.g., supply and demand, market factors, geographical location, community regulations). | <strong>C.</strong> Analyze the relationship among factors affecting consumer housing decisions (e.g., human needs, financial resources, location, legal agreements, maintenance responsibilities). |</p>
<table>
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</table>
| D. Explain consumer rights and responsibilities.  
• To be safe  
• To be informed  
• To be heard  
• To choose  
• To redress |
| D. Analyze information in care instructions, safety precautions and the use of consumable goods as a demonstration of understanding of consumer rights and responsibilities. |
| D. Explain how consumer rights and responsibilities are protected (e.g., government agencies, consumer protection agencies, consumer action groups). |
| D. Evaluate the role of consumer rights and responsibilities in the resolution of a consumer problem through the practical reasoning process. |
| E. Explain the relationship between work and income. |
| E. Explain the principles of child labor laws and the opportunity cost of working by evaluating the advantages and disadvantages of holding a job while a teenager. |
| E. Compare the influences of income and fringe benefits to make decisions about work. |
| E. Compare and contrast factors affecting annual gross and taxable income and reporting requirements (e.g., W-2 form, Income tax form). |
| F. Describe criteria needed to identify quality in consumer goods and services (e.g., food, clothing, furniture, home technology, health care, transportation, services). |
| F. Explain practices to maintain and/or repair consumer goods and services. |
| F. Evaluate different strategies to obtain consumer goods and services. |
| F. Compare and contrast the selection of goods and services by applying effective consumer strategies. |
| G. Identify the services that communities provide for individuals and families. |
| G. Identify the public and nonpublic services that are available to serve families within the community. |
| G. Analyze how public, nonpublic and for-profit service providers serve the family. |
| G. Compare the availability, costs and benefits of accessing public, nonpublic and for-profit services to assist the family. |
### 11.2. Balancing Family, Work and Community Responsibility

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<thead>
<tr>
<th>11.2.3. GRADE 3</th>
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<tr>
<td><strong>A.</strong> Examine consequences of family, work or career decisions.</td>
<td><strong>A.</strong> Contrast the solutions reached through the use of a simple decision making process that includes analyzing consequences of alternative solutions against snap decision making methods.</td>
<td><strong>A.</strong> Solve dilemmas using a practical reasoning approach • Identify situation • Identify reliable information • List choices and examine the consequences of each • Develop a plan of action • Draw conclusions • Reflect on decisions</td>
<td><strong>A.</strong> Justify solutions developed by using practical reasoning skills.</td>
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<tr>
<td><strong>B.</strong> Identify the importance of routines and schedules while differentiating between short and long term goals.</td>
<td><strong>B.</strong> Deduce the importance of time management skills (e.g. home, school, recreational activities).</td>
<td><strong>B.</strong> Know FCCLA action planning procedure and how to apply it to family, work and community decisions.</td>
<td><strong>B.</strong> Evaluate the effectiveness of action plans that integrate personal, work, family and community responsibilities.</td>
</tr>
<tr>
<td><strong>C.</strong> Indicate the benefits and costs of working as an individual or as a team member and of being a leader or follower.</td>
<td><strong>C.</strong> Classify the components of effective teamwork and leadership.</td>
<td><strong>C.</strong> Assess the effectiveness of the use of teamwork and leadership skills in accomplishing the work of the family.</td>
<td><strong>C.</strong> Analyze teamwork and leadership skills and their application in various family and work situations.</td>
</tr>
<tr>
<td><strong>D.</strong> Explain the importance of organizing space for efficiency and a sense of comfort (e.g., desk space, classroom space).</td>
<td><strong>D.</strong> Identify the concepts and principles used in planning space for activities.</td>
<td><strong>D.</strong> Analyze the space requirements for a specified activity to meet a given need (e.g., family room, home office, kitchen).</td>
<td><strong>D.</strong> Based on efficiency, aesthetics and psychology, evaluate space plans (e.g., home, office, work areas) for their ability to meet a variety of needs including those of individuals with special needs.</td>
</tr>
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</tr>
<tr>
<td><strong>E. Analyze the effectiveness of technology used for school and home in accomplishing the work of the family (e.g., security, entertainment, communication, education).</strong></td>
<td><strong>E. Describe the role of technology within a community in maintaining a safe and healthy living environment (e.g., safety, hospitals, waste treatment, water quality, schools).</strong></td>
<td><strong>E. Evaluate the impact of technology and justify the use or nonuse of it (e.g., safety, cost/budget, appearance, efficiency).</strong></td>
<td><strong>E. Assess the availability of emerging technology that is designed to do the work of the family and evaluate the impact of its use on individuals, families and communities.</strong></td>
</tr>
<tr>
<td><strong>F. Explain daily activities that fulfill family functions in meeting responsibilities (e.g., economic, emotional support, childcare and guidance, housekeeping, maintaining kinship, providing recreation).</strong></td>
<td><strong>F. Compare and contrast how different cultures meet family responsibilities within differing configurations (e.g., new parent, just married, single adult living alone, “empty nest,” retired, senior citizen).</strong></td>
<td><strong>F. Contrast past and present family functions and predict their probable impact on the future of the family.</strong></td>
<td><strong>F. Assess the relationship of family functions to human developmental stages.</strong></td>
</tr>
<tr>
<td><strong>G. Identify the life stages by identifying their developmental task (e.g., infant, pre-schooler, school age, teen-age, adult, senior citizen).</strong></td>
<td><strong>G. Identify the characteristics of the stages of the family life cycle (e.g., beginning, expanding, developing, launching, middle years, retirement, variations).</strong></td>
<td><strong>G. Explain the influences of family life cycle stages on the needs of families and communities (e.g., a large number of young families needing day care, fixed income senior citizens, school age children).</strong></td>
<td><strong>G. Hypothesize the impact of present family life-cycle trends on the global community (e.g., over population, increase in an aging population, economic base).</strong></td>
</tr>
</tbody>
</table>
**11.2. Balancing Family, Work and Community Responsibility**

<table>
<thead>
<tr>
<th></th>
<th>11.2.3. GRADE 3</th>
<th>11.2.6. GRADE 6</th>
<th>11.2.9. GRADE 9</th>
<th>11.2.12. GRADE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>H. Identify how to resolve conflict using interpersonal communications skills.</strong></td>
<td><strong>H. Describe positive and negative interactions within patterns of interpersonal communications.</strong></td>
<td><strong>H. Justify the significance of interpersonal communication skills in the practical reasoning method of decision making.</strong></td>
<td><strong>H. Evaluate the effectiveness of using interpersonal communication skills to resolve conflict.</strong></td>
<td></td>
</tr>
<tr>
<td>• Speaking and listening</td>
<td>• Placating</td>
<td>• Justifying the significance of interpersonal communication skills in the practical reasoning method of decision making.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• I messages</td>
<td>• Blaming</td>
<td>• Evaluating the effectiveness of using interpersonal communication skills to resolve conflict.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Active listening</td>
<td>• Distracting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Checking for understanding</td>
<td>• Intellectualizing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Following directions</td>
<td>• Asserting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Empathy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Feedback</td>
<td></td>
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</tr>
</tbody>
</table>
## 11.3. Food Science and Nutrition

<table>
<thead>
<tr>
<th>Grade</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>A. Know the production steps that a food travels from the farm to the consumer.</td>
</tr>
<tr>
<td>6</td>
<td>A. Demonstrate knowledge of techniques used to evaluate food in various forms (e.g., canned, frozen, dried, irradiated).</td>
</tr>
<tr>
<td>9</td>
<td>A. Explain how scientific and technological developments enhance our food supply (e.g., food preservation techniques, packaging, nutrient fortification).</td>
</tr>
<tr>
<td>12</td>
<td>A. Analyze how food engineering and technology trends will influence the food supply.</td>
</tr>
<tr>
<td>3</td>
<td>B. Describe personal hygiene techniques in food handling (e.g., handwashing, sneeze control, signs of food spoilage).</td>
</tr>
<tr>
<td>6</td>
<td>B. Describe safe food handling techniques (e.g., storage, temperature control, food preparation, conditions that create a safe working environment for food production).</td>
</tr>
<tr>
<td>9</td>
<td>B. Identify the cause, effect and prevention of microbial contamination, parasites and toxic chemicals in food.</td>
</tr>
<tr>
<td>12</td>
<td>B. Evaluate the role of Government agencies in safeguarding our food supply (e.g., USDA, FDA, EPA and CDC).</td>
</tr>
<tr>
<td>3</td>
<td>C. Explain the importance of eating a varied diet in maintaining health.</td>
</tr>
<tr>
<td>6</td>
<td>C. Analyze factors that effect food choices.</td>
</tr>
<tr>
<td>9</td>
<td>C. Analyze the impact of food addictions and eating disorders on health.</td>
</tr>
<tr>
<td>12</td>
<td>C. Evaluate sources of food and nutrition information.</td>
</tr>
<tr>
<td>3</td>
<td>D. Classify foods by food group within the food guide pyramid including the serving size and nutrient function within the body.</td>
</tr>
<tr>
<td>6</td>
<td>D. Describe a well-balanced daily menu using the dietary guidelines and the food guide pyramid.</td>
</tr>
<tr>
<td>9</td>
<td>D. Analyze relationship between diet and disease and risk factors (e.g., calcium and osteoporosis; fat, cholesterol and heart disease; folate and birth defects; sodium and hypertension).</td>
</tr>
<tr>
<td>12</td>
<td>D. Critique diet modifications for their ability to improve nutritionally-related health conditions (e.g., diabetes, lactose-intolerance, iron deficiency).</td>
</tr>
</tbody>
</table>
## 11.3. Food Science and Nutrition

<table>
<thead>
<tr>
<th>11.3.3. GRADE 3</th>
<th>11.3.6. GRADE 6</th>
<th>11.3.9. GRADE 9</th>
<th>11.3.12. GRADE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

E. Define energy-yielding nutrients and calories.

F. Identify components of a basic recipe (e.g., volume, weight, fractions, recipe ingredients, recipe directions, safety techniques).

G. Classify foods according to senses (e.g., taste, touch, smell, mouth feel, sight, sound).

E. Explain the relationship between calories, nutrient and food input versus energy output; describe digestion.

F. Analyze basic food preparation techniques and food-handling procedures.

G. Describe the physical, biological, and chemical changes that take place in food preparation.

E. Analyze the energy requirements, nutrient requirements and body composition for individuals at various stages of the life cycle.

F. Hypothesize the effectiveness of the use of meal management principles (e.g., time management, budgetary considerations, sensory appeal, balanced nutrition, safety, sanitation).

G. Analyze the application of physical and chemical changes that occur in food during preparation and preservation.

E. Analyze the breakdown of foods, absorption of nutrients and their conversion to energy by the body.

F. Evaluate the application of nutrition and meal planning principles in the selection, planning, preparation and serving of meals that meet the specific nutritional needs of individuals across their lifespan.

G. Analyze the relevance of scientific principles to food processing, preparation and packaging.
## 11.4. Child Development

<table>
<thead>
<tr>
<th>11.4.3. GRADE 3</th>
<th>11.4.6. GRADE 6</th>
<th>11.4.9. GRADE 9</th>
<th>11.4.12. GRADE 12</th>
</tr>
</thead>
</table>
| **A.** Identify characteristics in each stage of child development.  
  • Infancy/birth to 1 year  
  • Early childhood/1 to 6 years  
  • Middle childhood/6 to 9 years  
  • Late childhood/9—13 years  
  • Adolescence/13—18 years | **A.** Compare and contrast child development guided practices according to the stage of child development. | **A.** Analyze physical, intellectual and social/emotional development in relation to theories of child development. | **A.** Analyze current research on existing theories in child development and its impact on parenting (e.g., Piaget, Erikson and prior findings versus new brain development research). |
| **B.** Identify health and safety needs for children at each stage of child development. | **B.** Identify ways to keep children healthy and safe at each stage of child development. | **B.** Evaluate health and safety hazards relating to children at each stage of child development. | **B.** Analyze current issues in health and safety affecting children at each stage of child development. |
| **C.** Identify the characteristics of a learning environment. | **C.** Identify the role of the caregiver in providing a learning environment (e.g., babysitting, daycare, preschool). | **C.** Evaluate various environments to determine if they provide the characteristics of a proper learning environment. | **C.** Analyze practices that optimize child development (e.g., stimulation, safe environment, nurturing caregivers, reading to children). |
| **D.** Identify community resources provided for children. | **D.** Identify child-care provider considerations. | **D.** Analyze the roles, responsibilities and opportunity for family involvement in schools. | **D.** Analyze plans and methods to blend work and family responsibilities to meet the needs of children. |
| **E.** Explain how the home and community help a person learn to read, write and compute. | **E.** Identify characteristics of quality literature for children and other literacy enhancing activities. | **E.** Explain how storytelling, story reading and writing enhance literacy development in children. | **E.** Identify practices that develop the child’s imagination, creativity and reading and writing skills through literature. |

*Pennsylvania’s public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to...*
XXIII. GLOSSARY

Aesthetics: Appreciation of and responsive to beauty.

CDC: Center for Disease Control

Child-care provider considerations: Criteria to use in evaluating child care facilities. These include well-trained and highly motivated staff, pleasant sanitary surroundings, variety in toys and supplies, ratio of staff to children.

Child development stage: An age range with similar growth characteristics: infancy (birth to 1 year), middle childhood (2-11 years), late childhood (12-17 years).

Consumer responsibilities: The need to interpret information in care instructions, safety precautions, and proper use of consumable goods as a user of goods and services.

Consumer rights: The right to be safe, the right to be informed, the right to choose, the right to education, and the right to redress as a user of goods and services.

Dietary guidelines: A set of seven recommendations developed by the United States Department of Agriculture and Food and Human Resources to help healthy people over age 2 eat a variety of foods and maintain a healthy diet. These include: eat a variety of foods, eat a variety of fruits and vegetables, eat a variety of grains, drink plenty of water, and limit the amount of fat, sugar, and salt in the diet.

Empathy: The action of understanding another's thoughts, feelings and emotions.

Environmental Protection Agency: The action of understanding another's thoughts, feelings and emotions.

EPA: Environmental Protection Agency

FCCLA Action planning procedure: The decision-making process endorsed by the Family, Career and Community Leaders of America, involving five steps: 1. Identify concerns—brainstorm and evaluate, narrow choices to workable ideas. 2. Set your goals—write down what you want to accomplish in an achievable objective. 3. Form a plan—when, where, what, when, where and how. 4. Act—carry out the plan. 5. Follow up—determine if your goal was met and how.

Empathy: The action of understanding another's thoughts, feelings and emotions.
Redress:

- Rectify an omission.
- Rectify a decision.
- Rectify a conclusion.

Precedent response:

Opportunity cost:

Nutrient:

Hazardous contamination:

Leadership skills:

Nutrition:

Guided practices:

I message:

1. The situation
2. How it makes the speaker feel
3. What will happen if it continues.

Kinship:

- Relationships of relatives.
- Relationships of friends.

Food guide pyramid:

- A visual tool used to help people plan healthy diets.
- Sponsored by Family and Consumer Sciences classrooms.
- Sponsored by the Pennsylvania Department of Education.

Food and Drug Administration (FDA):

To set right or remedy.
Toxic chemical: Contaminants found in natural, environmental and pesticide residue forms that are poisonous to the body.

Scarcity: The lack of provisions for the support of life.

Team work skills: The ability to:
• Collaborate
• Cooperate
• Set community goals
• Reach consensus
• Collaborate
The ability to:
• Preserve resilience forms that are positions to the communities found in natural, environmental and academic standards and assessments.

Trade-offs: Exchange of goods, services or monies.

SDA: United States Department of Agriculture

Team work skills: The lack of provisions for the support of life.

INTRODUCTION

The Academic Standards for Career Education and Work reflect the increasing complexity and sophistication that students experience as they progress through school. Career Education and Work Standards describe what students should know and be able to do at four grade levels (3, 5, 8 and 11) in four areas:

• 13.1 Career Awareness and Preparation
• 13.2 Career Acquisition (Getting a Job)
• 13.3 Career Retention and Advancement
• 13.4 Entrepreneurship

Pennsylvania's economic future depends on having a well-educated and skilled workforce. No student should leave secondary education without a solid foundation in Career Education and Work. The need to establish academic standards in Career Education and Work is driven by the need to equip students with skills necessary to succeed in the workplace. The standards and standards in other academic disciplines complement each other and provide a comprehensive approach to Career Education and Work.

A glossary is included to assist the reader in understanding terminology contained in the standards.

Entrepreneurship

13.4

A. Risks and Rewards
B. Character Traits
C. Business Plan
D. Group Interaction
E. Time Management
F. Workplace Changes
G. Workplace Learning
H. Work Habits

Career Retention and Advancement

13.3

A. Work Habits
B. Cooperation and Teamwork
C. Group Interaction
D. Budgeting
E. Time Management
F. Workplace Changes
G. Workplace Learning
H. Work Habits
13.1 Career Awareness and Preparation

<table>
<thead>
<tr>
<th>Grade 3</th>
<th>Grade 5</th>
<th>Grade 8</th>
<th>Grade 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Recognize that individuals have unique interests.</td>
<td>A. Identify current personal interests.</td>
<td>A. Describe the impact of individual interests and abilities on career choices.</td>
<td>A. Relate careers to individual interests, abilities, and aptitudes.</td>
</tr>
<tr>
<td>A. Describe the impact of individual interests and abilities on career choices.</td>
<td>A. Relate careers to personal interests, abilities, and aptitudes.</td>
<td>A. Relate careers to personal interests, abilities, and aptitudes.</td>
<td>A. Relate careers to personal interests, abilities, and aptitudes.</td>
</tr>
<tr>
<td>A. Relate careers to personal interests, abilities, and aptitudes.</td>
<td>B. Analyze career options based on personal interests, abilities, achievements and goals.</td>
<td>C. Explain how both traditional and nontraditional careers offer or hinder career opportunities.</td>
<td>C. Analyze how the changing roles of individuals in the workplace relate to new opportunities within career choices.</td>
</tr>
<tr>
<td>A. Recognize that the roles of individuals at home, at work, and in the community are constantly changing.</td>
<td>B. Relate the impact of change to both traditional and nontraditional careers.</td>
<td>C. Recognize that the roles of individuals at home, at work, and in the community are constantly changing.</td>
<td>C. Explain how both traditional and nontraditional careers offer or hinder career opportunities.</td>
</tr>
<tr>
<td>A. Recognize that individuals have unique interests.</td>
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<td>A. Relate careers to individual interests, abilities, and aptitudes.</td>
<td>C. Analyze how the changing roles of individuals in the workplace relate to new opportunities within career choices.</td>
</tr>
<tr>
<td>A. Describe the impact of individual interests and abilities on career choices.</td>
<td>B. Relate careers to personal interests, abilities, and aptitudes.</td>
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Pennsylvania public schools shall teach, challenge and support every student to realize his maximum potential and to acquire the knowledge and skills needed to:
Pennsylvania's public schools shall teach, challenge and support every student to realize his maximum potential and to acquire the knowledge and skills needed to:

<table>
<thead>
<tr>
<th>13.1.3. GRADE 3</th>
<th>13.1.5. GRADE 5</th>
<th>13.1.8. GRADE 8</th>
<th>13.1.11. GRADE 11</th>
</tr>
</thead>
</table>
| D. Identify the range of jobs available in the community. | D. Describe the range of career training programs in the community such as, but not limited to:  
- Two-and-four year colleges  
- Career and technical education programs at centers (formerly AVTS) and high schools  
- CareerLinks  
- Community/recreation centers  
- Faith-based organizations  
- Local industry training centers  
- Military  
- Registered apprenticeship  
- Vocational rehabilitation centers  
- Web-based training | D. Explain the relationship of career training programs to employment opportunities. | D. Evaluate school-based opportunities for career awareness/preparation, such as, but not limited to:  
- Career days  
- Career portfolio  
- Community service  
- Cooperative education  
- Graduation/senior project  
- Internship  
- Job shadowing  
- Part-time employment  
- Registered apprenticeship  
- School-based enterprise |
Pennsylvania's public schools shall teach, challenge and support every student to realize his maximum potential and to acquire the knowledge and skills needed to:

<table>
<thead>
<tr>
<th>E. Describe the work done by school personnel and other individuals in the community.</th>
<th>E. Describe the factors that influence career choices, such as, but not limited to:</th>
<th>E. Analyze the economic factors that impact employment opportunities, such as, but not limited to:</th>
<th>E. Justify the selection of a career.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Geographic location</td>
<td>• Job description</td>
<td>• Competition</td>
<td></td>
</tr>
<tr>
<td>• Salaries/benefits</td>
<td>• Work schedule</td>
<td>• Geographic location</td>
<td></td>
</tr>
<tr>
<td>• Working conditions</td>
<td></td>
<td>• Global influences</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Job growth</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Job openings</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Labor supply</td>
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<td></td>
<td></td>
<td>• Potential advancement</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Potential earnings</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Salaries/benefits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Unemployment</td>
<td></td>
</tr>
</tbody>
</table>
Pennsylvania’s public schools shall teach, challenge and support every student to realize his maximum potential and to acquire the knowledge and skills needed to:

| 13.1. Career Awareness and Preparation |
|-----------------|-----------------|-----------------|-----------------|
| 13.1.3. GRADE 3 | 13.1.5. GRADE 5 | 13.1.8. GRADE 8 | 13.1.11. GRADE 11 |

F. Explore how people prepare for careers.
F. Investigate people’s rationale for making career choices.
F. Analyze the relationship of school subjects, extracurricular activities and community experiences to career preparation.

F. Analyze the relationship between career choices and career preparation opportunities, such as, but not limited to:
- Associate degree
- Baccalaureate degree
- Certificate/licensure
- Entrepreneurship
- Immediate part/full time employment
- Industry training
- Military training
- Professional degree
- Registered apprenticeship
- Tech Prep
- Vocational rehabilitation centers
### 13.1. Career Awareness and Preparation

<table>
<thead>
<tr>
<th>13.1.3. GRADE 3</th>
<th>13.1.5. GRADE 5</th>
<th>13.1.8. GRADE 8</th>
<th>13.1.11. GRADE 11</th>
</tr>
</thead>
</table>
| G. Explain why education and training plans are important to careers. | G. Identify the components of a career plan, such as, but not limited to:  
- Beginnings of career portfolio  
- Career goals  
- Individual interests and abilities  
- Training/education requirements and costs | G. Create an individualized career plan including, such as, but not limited to:  
- Assessment and continued development of career portfolio  
- Career goals  
- Cluster/pathway opportunities  
- Individual interests and abilities  
- Training/education requirements and financing | G. Assess the implementation of the individualized career plan through the ongoing development of the career portfolio. |
| H. Explain how workers in their careers use what is learned in the classroom. | H. Connect personal interests and abilities and academic strengths to personal career options. | H. Choose personal electives and extra curricular activities based upon personal career interests, abilities and academic strengths. | H. Review personal high school plan against current personal career goals and select postsecondary opportunities based upon personal career interests. |
### 13.2. Career Acquisition (Getting a Job)

<table>
<thead>
<tr>
<th>13.2.3. GRADE 3</th>
<th>13.2.5. GRADE 5</th>
<th>13.2.8. GRADE 8</th>
<th>13.2.11. GRADE 11</th>
</tr>
</thead>
<tbody>
<tr>
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<td><strong>Pennsylvania’s public schools shall teach, challenge and support every student to realize his maximum potential and to acquire the knowledge and skills needed to:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A. Identify appropriate speaking and listening techniques used in conversation.</strong></td>
<td><strong>A. Apply appropriate speaking and listening techniques used in conversation.</strong></td>
<td><strong>A. Identify effective speaking and listening skills used in a job interview.</strong></td>
<td><strong>A. Apply effective speaking and listening skills used in a job interview.</strong></td>
</tr>
<tr>
<td><strong>B. Discuss resources available in researching job opportunities, such as, but not limited to:</strong></td>
<td><strong>B. Identify and review resources available in researching job opportunities, such as, but not limited to:</strong></td>
<td><strong>B. Evaluate resources available in researching job opportunities, such as, but not limited to:</strong></td>
<td><strong>B. Apply research skills in searching for a job:</strong></td>
</tr>
<tr>
<td>• Internet</td>
<td>• Internet</td>
<td>• Internet (i.e. O*NET)</td>
<td>• CareerLinks</td>
</tr>
<tr>
<td>• Magazines</td>
<td>• Magazines</td>
<td>• Networking</td>
<td>• Internet</td>
</tr>
<tr>
<td>• Newspapers</td>
<td>• Newspapers</td>
<td>• Newspapers</td>
<td>• Professional associations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Professional associations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Resource books (that is Occupational Outlook Handbook, PA Career Guide)</td>
<td></td>
</tr>
</tbody>
</table>

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### 13.2. Career Acquisition (Getting a Job)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>C. Compose a personal letter.</td>
</tr>
<tr>
<td>5</td>
<td>C. Compose and compare a business and a personal letter.</td>
</tr>
</tbody>
</table>
| 8     | C. Prepare a draft of career acquisition documents, such as, but not limited to:  
  • Job application  
  • Letter of appreciation following an interview  
  • Letter of introduction  
  • Request for letter of recommendation  
  • Resume |
| 11    | C. Develop and assemble, for career portfolio placement, career acquisition documents, such as, but not limited to:  
  • Job application  
  • Letter of appreciation following an interview  
  • Letter of introduction  
  • Request for letter of recommendation  
  • Resume |

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<table>
<thead>
<tr>
<th>D. Identify the importance of developing a plan for the future.</th>
<th>D. Identify individualized career portfolio components, such as, but not limited to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Achievements</td>
<td></td>
</tr>
<tr>
<td>• Awards/recognition</td>
<td></td>
</tr>
<tr>
<td>• Career exploration results</td>
<td></td>
</tr>
<tr>
<td>• Career plans</td>
<td></td>
</tr>
<tr>
<td>• Community service involvement/projects</td>
<td></td>
</tr>
<tr>
<td>• Interests/hobbies</td>
<td></td>
</tr>
<tr>
<td>• Personal career goals</td>
<td></td>
</tr>
<tr>
<td>• Selected school work</td>
<td></td>
</tr>
<tr>
<td>• Self inventories</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. Develop an individualized career portfolio including components, such as, but not limited to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Achievements</td>
</tr>
<tr>
<td>• Awards/recognition</td>
</tr>
<tr>
<td>• Career exploration results</td>
</tr>
<tr>
<td>• Career plans</td>
</tr>
<tr>
<td>• Community service involvement/projects</td>
</tr>
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<tr>
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</tr>
<tr>
<td>• Self inventories</td>
</tr>
</tbody>
</table>

| D. Analyze, revise and apply an individualized career portfolio to chosen career path. |
### 13.2. Career Acquisition (Getting a Job)

<table>
<thead>
<tr>
<th>Grade 3</th>
<th>Grade 5</th>
<th>Grade 8</th>
<th>Grade 11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>13.2.3.</strong> Discuss the importance of the essential workplace skills, such as, but not limited to:</td>
<td><strong>13.2.5.</strong> Apply to daily activities, the essential workplace skills, such as, but not limited to:</td>
<td><strong>13.2.8.</strong> Explain, in the career acquisition process, the importance of the essential workplace skills/knowledge, such as, but not limited to:</td>
<td><strong>13.2.11.</strong> Demonstrate, in the career acquisition process, the application of essential workplace skills/knowledge, such as, but not limited to:</td>
</tr>
<tr>
<td>- Dependability</td>
<td>- Commitment</td>
<td>- Commitment</td>
<td>- Commitment</td>
</tr>
<tr>
<td>- Health/safety</td>
<td>- Communication</td>
<td>- Communication</td>
<td>- Communication</td>
</tr>
<tr>
<td>- Team building</td>
<td>- Dependability</td>
<td>- Dependability</td>
<td>- Dependability</td>
</tr>
<tr>
<td>- Technology</td>
<td>- Health/safety</td>
<td>- Health/safety</td>
<td>- Health/safety</td>
</tr>
<tr>
<td>- Personal initiative</td>
<td>- Personal initiative</td>
<td>- Laws and regulations (that is Americans With Disabilities Act, child labor laws, Fair Labor Standards Act, OSHA, Material Safety Data Sheets)</td>
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</tr>
<tr>
<td>- Scheduling/time management</td>
<td>- Self-advocacy</td>
<td>- Personal initiative</td>
<td>- Self-advocacy</td>
</tr>
<tr>
<td>- Team building</td>
<td>- Scheduling/time management</td>
<td>- Self-advocacy</td>
<td>- Scheduling/time management</td>
</tr>
<tr>
<td>- Technical literacy</td>
<td>- Team building</td>
<td>- Technical literacy</td>
<td>- Team building</td>
</tr>
<tr>
<td>- Technology</td>
<td>- Technology</td>
<td>- Technology</td>
<td>- Technology</td>
</tr>
</tbody>
</table>

Pennsylvania's public schools shall teach, challenge and support every student to realize his maximum potential and to acquire the knowledge and skills needed to:
13.3. Career Retention and Advancement

<table>
<thead>
<tr>
<th>13.3. GRADE 3</th>
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<th>13.8. GRADE 8</th>
<th>13.11. GRADE 11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pennsylvania’s public schools shall teach, challenge and support every student to realize his maximum potential and to acquire the knowledge and skills needed to:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Identify attitudes and work habits that contribute to success at home and school.</td>
<td>A. Explain how student attitudes and work habits transfer from the home and school to the workplace.</td>
<td>A. Determine attitudes and work habits that support career retention and advancement.</td>
<td>A. Evaluate personal attitudes and work habits that support career retention and advancement.</td>
</tr>
<tr>
<td>B. Identify how to cooperate at both home and school.</td>
<td>B. Explain the importance of working cooperatively with others at both home and school to complete a task.</td>
<td>B. Analyze the role of each participant’s contribution in a team setting.</td>
<td>B. Evaluate team member roles to describe and illustrate active listening techniques:</td>
</tr>
<tr>
<td>C. Explain effective group interaction terms, such as, but not limited to: Compliment Cooperate Encourage Participate</td>
<td>C. Identify effective group interaction strategies, such as, but not limited to: Building consensus Communicating effectively Establishing ground rules Listening to others</td>
<td>C. Explain and demonstrate conflict resolution skills: Constructive criticism Group dynamics Managing/leadership Mediation Negotiation Problem solving</td>
<td>C. Evaluate conflict resolution skills as they relate to the workplace: Constructive criticism Group dynamics Managing/leadership Mediation Negotiation Problem solving</td>
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Pennsylvania’s public schools shall teach, challenge and support every student to realize his maximum potential and to acquire the knowledge and skills needed to:

D. Explain how money is used.

E. Discuss how time is used at both home and school.

F. Identify the changes in family and friend’s roles at home, at school and in the community.

G. Define and describe the importance of lifelong learning.

D. Explain budgeting.

E. Develop a personal schedule based on activities and responsibilities at both home and school.

F. Describe the impact of role changes at home, school, and at work, and how the role changes impact career advancement and retention.

G. Describe how personal interests and abilities impact lifelong learning.

D. Analyze budgets and pay statements, such as, but not limited to:
- Charitable contributions
- Expenses
- Gross pay
- Net pay
- Other income
- Savings
- Taxes

E. Identify and apply time management strategies as they relate to both personal and work situations.

F. Identify characteristics of the changing workplace including Americans With Disabilities Act accommodations, and explain their impact on jobs and employment.

G. Identify formal and informal lifelong learning opportunities that support career retention and advancement.

D. Develop a personal budget based on career choice, such as, but not limited to:
- Charitable contributions
- Fixed/variable expenses
- Gross pay
- Net pay
- Other income
- Savings
- Taxes

E. Evaluate time management strategies and their application to both personal and work situations.

F. Evaluate strategies for career retention and advancement in response to the changing global workplace.

G. Evaluate the impact of lifelong learning on career retention and advancement.
13.4. Entrepreneurship

<table>
<thead>
<tr>
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</tr>
<tr>
<td>A. Define entrepreneurship.</td>
<td>A. Identify the risks and rewards of entrepreneurship.</td>
<td>A. Compare and contrast entrepreneurship to traditional employment, such as, but not limited to: • Benefits • Job security • Operating costs • Wages</td>
<td>A. Analyze entrepreneurship as it relates to personal career goals and corporate opportunities.</td>
</tr>
<tr>
<td>B. Describe the character traits of successful entrepreneurs, such as, but not limited to: • Adaptability • Creative thinking • Ethical behavior • Leadership • Positive attitude • Risk-taking</td>
<td>B. Discuss the entrepreneurial character traits of historical or contemporary entrepreneurs.</td>
<td>B. Evaluate how entrepreneurial character traits influence career opportunities.</td>
<td>B. Analyze entrepreneurship as it relates to personal character traits.</td>
</tr>
</tbody>
</table>
Pennsylvania’s public schools shall teach, challenge and support every student to realize his maximum potential and to acquire the knowledge and skills needed to:

| C. Describe age-appropriate entrepreneurial opportunities, such as, but not limited to: |
| Bake sale |
| Crafts |
| Lemonade stand |
| Pet care |

| C. Discuss the steps entrepreneurs take to bring their goods or services to market, such as, but not limited to: |
| Marketing |
| Production |
| Research and development |
| Selection of goods and services |

| C. Identify and describe the basic components of a business plan, such as, but not limited to: |
| Business idea |
| Competitive analysis |
| Daily operations |
| Finances/budget |
| Marketing |
| Productive resources (human, capital, natural) |
| Sales forecasting |

| C. Develop a business plan for an entrepreneurial concept of personal interest and identify available resources, such as, but not limited to: |
| Community based organizations (that is chambers of commerce, trade/technical associations, Industrial Resource Centers) |
| Financial institutions |
| School-based career centers |
| Small Business Administration services (that is SCORE, Small Business Development Centers, Entrepreneurial Development Centers) |
| Venture capital |
Americans With Disabilities Act (Pub. L. No. 101-336): The Americans With Disabilities Act is a Federal civil rights law that prohibits discrimination and ensures equal opportunity for persons with disabilities in employment, state and local government services, public accommodations, commercial facilities, transportation and requires the establishment of TDD/telephone relay services.

Aptitudes: Capacity to learn and understand.

Associate degree: A postsecondary degree typically earned within a 2-year time frame. A postsecondary degree is also known as a 2-year degree.

Baccalaureate degree: A postsecondary degree typically earned within a 4-year time frame. A postsecondary degree is also known as a bachelor’s degree.

Career cluster: A grouping of related occupations, which share common educational, training, or employment opportunities. The clusters also provide opportunities for students to gain employment, or work in specific occupations, through academic preparation, job preparation and acquisition of occupational skills leading to schools that educate secondary students and adults.

Career and technical centers: Schools that educate secondary students and adults, and prepare them for participation in the workforce, through academic instruction, job preparation, and acquisition of occupational skills leading to employment and further education.

Business plan: A prepared document describing the past, present and future of an organization.

Budget: A financial plan that summarizes anticipated income and expenditures over a period of time.

Continuation: Benefits: Something of value that an employee receives in addition to a wage or salary. Examples include health and life insurance, vacation leave, retirement plans, and the like.

Capable of learning and understanding:

The establishment of TDD/telephone relay services, commercial real estate, transportation, and related government services, public accommodations, and facilities in educational, state and local government services for ensuring equal opportunity for persons with disabilities in employment, and the Americans with Disabilities Act is a Federal law that prohibits discrimination and other restrictions or limitations on the basis of disability.

Academic Standards for Career Education and Work
### Career Planning Terms

- **Career days:** Special events that allow students to meet with employers, career development specialists, community-based organization representatives, and postsecondary educators. Events are designed to encourage students to gain information about careers and job opportunities.

- **Career plan:** A document developed by the student that identifies a series of educational studies and experiences to prepare them for postsecondary education or work, or both, in a selected career cluster or area.

- **Career portfolio:** An ongoing, individualized collection of materials (electronic or hard copy) that documents a student's educational performance, career exploration, and employment experiences over time. While there is no standard format that a career portfolio must take, it typically includes a range of work, containing assignments by the teacher/counselor and selections by the student. It serves as a guide for the student to transition to postsecondary education or the workplace, or both.

- **Career retention and advancement:** Career retention is the process of keeping a job. Career advancement is the process of performing the necessary requirements to progress in a career.

- **CareerLinks:** A cooperative system that provides one-stop delivery of career services to job seekers, employers, and other interested individuals.

- **Certificate/licensure:** A document, issued by associations, employers, educational institutions, government, and the like, confirming that one has fulfilled the requirements and is able to perform to a specified level of proficiency within a career field.

- **Child labor laws:** Legislation governing the employment of children under the age of 18.

- **Competitive analysis:** A tool that allows a business to identify its competitors and evaluate their respective strengths.

- **Ch. 4 ACADEMIC STANDARDS AND ASSESSMENTS**

### Educational Standards and Assessments

- **Certificate/licensure:**
  - A document confirming proficiency in a career field.

- **Competitive analysis:**
  - A tool for identifying and evaluating competitors.

- **Career plan:**
  - A document outlining educational and career goals.

- **Career portfolio:**
  - An individualized collection of materials documenting educational and career experiences.

- **Career retention and advancement:**
  - Career retention involves keeping a job, while career advancement involves progressing in a career.

- **Certificate/licensure:**
  - A document confirming competency in a specific area.

- **Competitive analysis:**
  - A strategy for identifying and assessing competitors.

### Additional Terms

- **Career retention:** The process of maintaining a job.

- **Career advancement:** The process of improving in a career.

- **CareerLinks:** A collaborative system for delivering career services.

- **Certificate/licensure:** A document certifying competency in a field.

- **Competitive analysis:** A method for assessing competitors.

### Examples

- **Career plan** for an accounting student might include specific courses in accounting, statistics, and economics, as well as internships and job opportunities.

- **Career portfolio** for a marketing student could include a collection of assignments, presentations, and projects that demonstrate skills in market research, product development, and sales.

- **Certificate/licensure** for a nurse requires passing exams and meeting certain health standards.

- **Competitive analysis** for a tech company might involve researching competitors in the software development industry and assessing their strengths and weaknesses.

- **Career retention** involves staying employed, while **career advancement** involves moving to a higher position or taking on greater responsibilities.
Cooperative Education: A structured method of instruction whereby students alternate or coordinate their high school studies with a job in a field related to their academic or career objectives.

Entrepreneurs: Individuals who engage in the process of organizing, managing, and assuming the risk of a business or enterprise.

Entrepreneurship: The process of organizing, managing, and assuming the risks of a business or enterprise.


Fixed/variable expenses: Fixed expenses are regular in their timing and amount, such as rent, mortgage, car payment, insurance, etc. Variable expenses are irregular in their timing and amount, such as food, clothing, home and car maintenance, entertainment, and gifts.

Global influences: Political and cultural changes, which impact the world and its economy.

Gross Pay: The amount earned before deductions, such as taxes, insurance and other contributions, which impact the amount and induce things such as rent, insurance, etc.

Industrial Resource Centers: Nonprofit organizations, which provide assistance to improve the competitive position of small-to-medium sized manufacturers.

Internship: A work experience with an employer for a specified period of time to learn about a particular occupation.

Payroll/variable expenses: A work experience with an employer for a specified period of time to learn about a particular occupation.
Job shadowing:
Typically as part of career exploration activities in late middle and early high school, a student follows an employee for 1 or more days to learn about a particular occupation or industry. Job shadowing is intended to help students explore a range of career objectives and to possibly select a career pathway.

Labor supply:
The number of persons either working or unemployed and actively seeking work.

Marketing:
The process or technique of promoting, selling and distributing a product or service.

Material Safety Data Sheets:
Federally-mandated listings of all hazardous materials that will impact the health and safety of workers, and that are required to be posted in the workplace.

Mediation:
Third-party intervention between conflicting parties to promote reconciliation, settlement or compromise.

Net pay:
The amount remaining after deductions, such as taxes, insurance and retirement/pension plans, are subtracted from gross pay.

Networking:
The act of exchanging information, contacts and services.

O*NET:
Occupational Information Network— is a free, comprehensive, nationally recognized resource to promote recognition, selection of Third-party intervention between conflicting parties in the workplace. The workplace is where the focus is on the health and safety of workers and the process of exchanging information, contacts and services, and the number of persons either working or unemployed and actively seeking work.

Operating costs:
The funds necessary to operate a business, not including the cost of goods sold. This is also referred to as overhead.

Nontraditional careers:
Fields of work for which individuals from one gender comprise less than 25% of the individuals employed in each occupation or field of work.

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Tech Prep:
The name given to programs that offer at least 4 years of sequential course work at the secondary and postsecondary levels to prepare students for technical careers. The curricula are designed to build student competency in academic subjects, as well as to provide broad technical preparation in a field of work.

Technical Literacy:
The ability of individuals to use existing and emerging technologies, equipment, language, materials and manuals to participate intelligently in performing tasks related to everyday life, school or work.

Special Needs:
Programs of services for individuals with disabilities and who are actively seeking work.

Unemployment:
The number of people who are not employed in each occupation or field of work.

Traditional Careers:
Fields of work for which individuals from one gender comprise more than 25% of the individuals employed in a particular field.

Venture Capital:
Public or private funds invested in a potentially profitable business in order to develop new products or services.

Web-based Training:
Instruction that is available online.

Work Habits:
Acquired behaviors that individuals regularly use or exhibit and that are expected of workers in their occupation.

Working Conditions:
The environment in which an individual is employed.

Time Management:
Scheduling techniques used to effectively and efficiently direct or control activities.

Vocational Rehabilitation Centers:
Educational facilities that provide life skills and occupational training services for individuals with special needs.

Wages:
Payments of money for labor or services according to contract and on an hourly, daily or piecework basis.

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