

| TITLE | PA STANDARDS ADDRESSED | GR LEVEL | LEXILE LEVEL | BOOK SUMMARY | VOCABULARY |
|---|--|----------|--------------|--|---|
| A Trip Through the Solar System * ISBN 0022846662 6 PK ISBN 0022864539 | 3.1.4.A.a., 3.1.4.A.c. 3.2.4.A.c., 3.4.4.D.a. 3.4.4.C.c., 3.8.4.A.c. | N | 730 | <i>A Trip Through the Solar System</i> describes the characteristics of each planet in the solar system, describes the conditions that allow life to flourish on Earth, and mentions that humans have observed the planets for thousands of years. | orbit planet solar system |
| Amazing Earth ISBN 0022846654 6 PK ISBN 0022864520 | 3.4.4.D.a., 3.5.4.A.a., 3.5.4.D.a., 3.5.4.D.c. | L | 620 | <i>Amazing Earth</i> describes Earth's lithosphere, explains that the lithosphere is divided into plates that move, and compares Earth's lithosphere to that of other planets. The hydrosphere and atmosphere are also discussed in this book. | atmosphere hydrosphere lithosphere |
| Amazing Invertebrates * ISBN 0022858784 6 PK ISBN 0022865837 | 3.3.4.A.a., 3.3.4.A.b., 3.3.4.B.a., 3.3.4.B.b. | N | 520 | <i>Amazing Invertebrates</i> distinguishes vertebrates and invertebrates and describes in detail many kinds of invertebrates. Invertebrate adaptations for movement, finding food, and staying safe are discussed. | invertebrate mollusk vertebrate |
| Animal Life Cycles * ISBN 0022858792 6 PK ISBN 0022865861 | 3.3.4.A.a., 3.3.4.A.c., 3.3.4.C.b. | N | 450 | <i>Animal Life Cycles</i> defines the terms life span and metamorphosis. It describes the life cycle of various animals, including mammals, birds, butterflies, and amphibians. | chrysalis larva life cycle |
| Bad Weather ISBN 0022858768 6 PK ISBN 0022865942 | 3.5.4.D.c., 3.5.4.D.d. | J | 430 | <i>Bad Weather</i> defines weather and uses a diagram to illustrate the water cycle. It also describes in detail many forms of severe weather including thunderstorms, lightning, tornadoes, and hurricanes. | hurricane tornado weather |

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|---|--|----------|--------------|--|---|
| California Condor ISBN 0022846581 6 PK ISBN 0022864458 | 3.8.4.C.a., 3.8.4.C.b. | L | 640 | <i>California Condor</i> identifies the factors that led to the decline of the California condor population. It also describes measures that are being taken to save the condor from extinction. | extinct habitat wilderness |
| Chocolate ISBN 0022846719 6 PK ISBN 0022864571 | 3.5.4.B.a., 3.6.4.A.a. 3.6.4.B.b., 3.6.4.C.e. 3.6.4.C.f., 3.6.4.C.g | O | 700 | <i>Chocolate</i> explores the history of chocolate, resources required to make chocolate commercially, and the manufacturing process used to make chocolate. | liquid mixture solid |
| Claws and Wings and Other Neat Things ISBN 0022859438 6 PK ISBN 0022865845 | 3.3.4.A.a., 3.3.4.A.b., 3.3.4.B.b., 3.3.4.C.a. | Q | 620 | <i>Claws and Wings and Other Neat Things</i> describes adaptations that help living things survive. Examples include a falcon's wings, a wolf's fur, and a badger's claws. | environment peregrine falcon survive |
| Cool Cats ISBN 0022846522 6 PK ISBN 0022864393 | 3.3.4.A.b., 3.3.4.C.b. | L | 510 | <i>Cool Cats</i> describes the characteristics of different members of the cat family. Similarities and difference between different types of cats are discussed. | domestic: predator savanna |
| Coral Reefs * ISBN 0022846565 6 PK ISBN 0022864431 | 3.3.4.A.b., 3.3.4.B.a., 3.3.4.C.b. | N | 750 | <i>Coral Reefs</i> identifies locations where coral reefs are found, explains how coral reefs are formed, and describes the great variety of living things found in a coral reef environment. It also describes ways that human activity threatens coral reefs and ways that coral reefs can be protected. | coral polyp coral reef limestone |
| Electrical Inventions ISBN 002285939X 6 PK ISBN 0022866019 | 3.1.4.A.a., 3.4.4.B.d. 3.4.4.B.e., 3.6.4.B.a. 3.6.4.B.c., 3.8.4.A.a. 3.8.4.A.b., 3.8.4.A.d. 3.8.4.B.c., 3.8.4.C.b. | P | 700 | <i>Electrical Inventions</i> describes inventions, such as the electric light and the electric motor. Information about inventors and current electrical innovations are also included. | circuit conductor invention |

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|--|--|----------|--------------|---|---|
| Energy for Your Body * ISBN 0022846735 6 PK ISBN 0022864598 | 3.8.4.A.a., 3.3.4.A.c., 3.3.4.B.b., 3.4.4.B.a., 3.4.4.B.b. | N | 780 | Energy for Your Body explains why the human body needs energy, identifies that food is the energy source used by humans, and describes how the digestive system changes food to a form the body can use. | carbohydrate mineral protein |
| Exploring Mars ISBN 0022846670 6 PK ISBN 0022864547 | 3.4.4.D.c., 3.8.4.A.c. | P | 730 | Exploring Mars explains how humans have learned about Mars throughout history. Technology, such as orbiters and landers, which advance science are also described. | astronomer lander orbiter |
| Fossil Hunters ISBN 0022861696 6 PK ISBN 0022865926 | 3.3.4.D.a., 3.5.4.A.d., 3.7.4.A.b. | I | 610 | Fossil Hunters describes how fossils are formed, what paleontologists can learn by studying fossils, and tools that fossil hunters use. | dinosaur fossil paleontologist |
| Gems * ISBN 0022858814 6 PK ISBN 0022865934 | 3.2.4.A.a., 3.2.4.B.b., 3.5.4.B.a., | N | 540 | Gems describes gems and minerals, describes how to grow crystals, and identifies the many uses of diamonds. | crystal mineral precious |
| Glassmaking ISBN 0022846689 6 PK ISBN 0022864555 | 3.1.4.E.d., 3.4.4.A.c. 3.5.4.B.a., 3.6.4.C.f. 3.6.4.C.g., 3.8.4.A.b. | M | 670 | Glassmaking identifies the resources used to produce glass, describes the process of manufacturing glass, and includes a timeline of the history of glass. | heat hollow solid |
| Growing a Garden ISBN 0022858741 6 PK ISBN 0022865853 | 3.1.4.A.b., 3.2.4.C.a. 3.2.4.C.b., 3.2.4.C.c. 3.2.4.C.d., 3.3.4.A.c. 3.3.4.B.b., 3.5.4.B.a. 3.6.4.A.a. | I | 400 | Growing a Garden explains that humans use gardens to produce food and describes the function of a plant's parts. The basic needs of plants are identified and photosynthesis is defined. | bulb fertilizer photosynthesis |

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|---|--|----------|--------------|--|---|
| How Earthquakes & Volcanoes Shape the Earth * ISBN 0022858806 6 PK ISBN 002286590X | 3.1.4.E.a., 3.5.4.A.a., 3.5.4.A.b. | N | 580 | <i>How Earthquakes and Volcanoes Shape Earth</i> describes tectonic plates, illustrates how volcanoes and earthquakes change Earth's surface, and explains how scientists help people stay safe in the event of a volcanic eruption or earthquake. | earthquake fault volcano |
| Living Communities ISBN 002285875X 6 PK ISBN 0022865888 | 3.2.4.B.b., 3.3.4.C.a. | J | 460 | <i>Living Communities</i> identifies the components of an ecosystem, explains the interactions that occur in ecosystems, and describes in detail ecosystems found in hot deserts, cold deserts, grasslands, tundra, and rain forests. | community ecosystem food web |
| Machines That Build ISBN 0022859454 6 PK ISBN 0022866000 | 3.1.4.A.d., 3.2.4.B.a. 3.2.4.B.b., 3.6.4.C.a. 3.6.4.C.b., 3.6.4.C.c. 3.6.4.C.d., 3.6.4.C.k. 3.7.4.A.a., 3.7.4.A.b. 3.8.4.A.a., 3.8.4.A.b. | P | 690 | <i>Machines That Build</i> defines the scientific meaning of the word work, illustrates examples of simple machines, and shows how simple machines are combined in machines used in construction. | compound machine simple machine work |
| Mighty Metals ISBN 0022858776 6 PK ISBN 0022865969 | 3.4.4.A.a., 3.4.4.A.b., 3.5.4.B.a., 3.8.4.B.b. | J | 430 | <i>Mighty Metals</i> describes how metals are used and how metals are mined. The properties of particular metals that makes them well-suited for certain applications are described. | alloy metal ore |
| Moving Fast ISBN 0022861718 6 PK ISBN 0022865993 | 3.1.4.E.b., 3.1.4.E.c., 3.4.4.C.c., 3.4.4.C.d. | J | 700 | <i>Moving Fast</i> describes and compares the speeds of the fastest-moving animals, cars, trains, planes and people. | distance measure speed |
| Natural Defenses * ISBN 0022846530 6 PK ISBN 0022864407 | 3.3.4.A.b., 3.3.4.B.b. | N | 740 | <i>Natural Defenses</i> describes adaptations that plants and animals use to stay safe. Examples of adaptations described include thorns, quills, poisons, and bad smells. | defense poison spines |

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| TITLE | PA STANDARDS ADDRESSED | GR LEVEL | LEXILE LEVEL | BOOK SUMMARY | VOCABULARY |
|--|--|----------|--------------|---|--|
| Predator and Prey ISBN 002286167X 6 PK ISBN 0022865896 | 3.3.4.B.b. | O | 680 | Predators and Prey describes the predator/prey relationship, and identifies adaptations that enhance predators' ability to hunt and preys' ability to stay safe. | camouflage defense predator |
| Sun Stories ISBN 002284662x 6 PK ISBN 0022864482 | 3.2.4.A.a., 3.4.4.D.d. | L | 540 | Sun Stories describes the importance of the Sun. It also explores ways that ancient cultures, such as the Egyptians, Greeks, Maya, and Aztecs, explained the Sun. | solar eclipse solar system star |
| The Sounds of Music ISBN 0022846727 6 PK ISBN 002286458X | 3.4.4.C.a. | L | 780 | The Sounds of Music explains that sound is generated by vibrating objects and describes how the ear hears sounds. It gives a detailed description of each family of musical instruments. | percussion sound waves vibration |
| The Way Eyes See It * ISBN 002284676X 6 PK ISBN 0022864636 | 3.2.4.B.a., 3.3.4.B.b. | N | 690 | The Way Eyes See It describes the human eye and compares it to several kinds of animal eyes. | cornea iris lens |
| Volcano! ISBN 0022861688 6 PK ISBN 0022865918 | 3.2.4.B.a., 3.2.4.B.b., 3.5.4.A.b., 3.8.4.A.d. | O | 650 | Volcano! describes volcanic eruptions in detail. It explains the cause of eruptions, the effects of eruption, and methods scientists use to predict eruptions. | ash erupt magma |
| Watching the Weather * ISBN 0022858822 6 PK ISBN 0022865950 | 3.5.4.C.b., 3.7.4.A.a. 3.7.4.A.b., 3.7.4.A.c. 3.7.4.B.a., 3.7.4.B.b. | M | 510 | Watching the Weather defines weather, describes tools used to track weather, and includes instructions for setting up a weather station. | air pressure meteorologist rain gauge |

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|---|--|----------|--------------|---|---|
| Water, Water Everywhere * ISBN 0022846697 6 PK ISBN 0022864563 | 3.1.4.B.d., 3.2.4.B.a. 3.4.4.A.c., 3.5.4.D.a. 3.5.4.D.c., 3.5.4.D.d. 3.5.4.D.e. | N | 730 | Water, Water, Everywhere describes the three states in which water exists on Earth, explains the properties of water molecules, and describes the water cycle. | gas matter water cycle |
| Wetlands ISBN 0022846611 6 PK ISBN 0022864474 | 3.2.4.A.c., 3.5.4.D.b. 3.5.4.D.d., 3.5.4.D.e., 3.6.4.A.a. | O | 670 | Wetlands describes different types of wetlands, identifies some living things found in wetlands, explains the ecological and economic importance of wetlands, and describes measures that can be taken to save wetlands. | ecosystem marsh swamp |
| What Makes You Special? ISBN 0022858849 6 PK ISBN 002286587X | 3.3.4.C.b. | P | 510 | What Makes You Special? describes genetic traits, explains how traits are passed from parent to offspring, and illustrates the structure of DNA. | DNA heredity trait |
| What Sinks and Floats ISBN 0022858857 6 PK ISBN 0022865985 | 3.2.4.A.b., 3.2.4.C.a., 3.2.4.C.c., 3.2.4.C.d. 3.4.4.A.a., 3.4.4.A.c. | P | 490 | What Sinks and Floats defines matter and density. It also describes experiments about sinking and floating that students can carry out. | density mass volume |
| What Your Body is Made Of * ISBN 0022858830 6 PK ISBN 0022865977 | 3.3.4.A.a., 3.3.4.A.c., 3.3.4.B.b. | N | 540 | What Your Body Is Made Of identifies the most common elements in the human body, describes the role of water in the body, and explains how food is used to supply nutrients to the body. | cell element nutrient |
| Why We Need the Sun ISBN 0022846646 6 PK ISBN 0022864512 | 3.4.4.B.a., 3.4.4.D.a., 3.5.4.B.a., 3.8.4.A.b., 3.8.4.A.d. | O | 630 | Why We Need the Sun describes how the Sun impacts Earth's weather and how fossil fuels form. It also describes Sun safety tips. | fossil fuel solar energy water cycle |
| Wind Energy ISBN 0022846743 6 PK ISBN 002286461X | 3.4.4.B.a., 3.8.4.A.a. 3.8.4.A.b., 3.8.4.A.d. 3.8.4.C.a., 3.8.4.C.b. | P | 730 | Wind Energy explains how wind energy has been used in the past and present. It also offers predictions about ways that wind energy may be used in the future. | generator wind wind farm |

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Pennsylvania Academic Standards for Science and Technology

3.1.4 Unifying Themes

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:

3.1.4.A. Know that natural and human-made objects are made up of parts.

3.1.4.A.a. • Identify and describe what parts make up a system.

3.1.4.A.b. • Identify system parts that are natural and human-made (e.g., ball point pen, simple electrical circuits, plant anatomy).

3.1.4.A.c. • Describe the purpose of analyzing systems.

3.1.4.A.d. • Know that technologies include physical technology systems (e.g., construction, manufacturing, transportation), informational systems and biochemical-

3.1.4.B. Know models as useful simplifications of objects or processes.

3.1.4.B.a. • Identify different types of models.

3.1.4.B.b. • Identify and apply models as tools for prediction and insight.

3.1.4.B.c. • Apply appropriate simple modeling tools and techniques.

3.1.4.B.d. • Identify theories that serve as models (e.g., molecules).

3.1.4.C. Illustrate patterns that regularly occur and reoccur in nature.

3.1.4.C.a. • Identify observable patterns (e.g., growth patterns in plants, crystal shapes in minerals, climate, structural patterns in bird feathers).

3.1.4.C.b. • Use knowledge of natural patterns to predict next occurrences (e.g., seasons, leaf patterns, lunar phases).

3.1.4.D. Know that scale is an important attribute of natural and human made objects, events and phenomena.

3.1.4.D.a. • Identify the use of scale as it relates to the measurement of distance, volume and mass.

3.1.4.D.b. • Describe scale as a ratio (e.g., map scales).

3.1.4.D.c. • Explain the importance of scale in producing models and apply it to a model.

3.1.4.E. Recognize change in natural and physical systems.

3.1.4.E.a. • Recognize change as fundamental to science and technology concepts.

3.1.4.E.b. • Examine and explain change by using time and measurement.

3.1.4.E.c. • Describe relative motion.

3.1.4.E.d. • Describe the change to objects caused by heat, cold, light or chemicals.

3.2.4 Inquiry and Design

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:

3.2.4.A. Identify and use the nature of scientific and technological knowledge.

3.2.4.A.a. • Distinguish between a scientific fact and a belief.

3.2.4.A.b. • Provide clear explanations that account for observations and results.

- 3.2.4.A.c. • Relate how new information can change existing perceptions.
- 3.2.4.B. Describe objects in the world using the five senses.
- 3.2.4.B.a. • Recognize observational descriptors from each of the five senses (e.g., see-blue, feel-rough).
- 3.2.4.B.b. • Use observations to develop a descriptive vocabulary.
- 3.2.4.C. Recognize and use the elements of scientific inquiry to solve problems.
- 3.2.4.C.a. • Generate questions about objects, organisms and/or events that can be answered through scientific investigations.
- 3.2.4.C.b. • Design an investigation.
- 3.2.4.C.c. • Conduct an experiment.
- 3.2.4.C.d. • State a conclusion that is consistent with the information.
- 3.2.4.D. Recognize and use the technological design process to solve problems.
- 3.2.4.D.a. • Recognize and explain basic problems.
- 3.2.4.D.b. • Identify possible solutions and their course of action.
- 3.2.4.D.c. • Try a solution.
- 3.2.4.D.d. • Describe the solution, identify its impacts and modify if necessary.
- 3.2.4.D.e. • Show the steps taken and the results.

3.3.4 Biological Sciences

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:

- 3.3.4.A. Know the similarities and differences of living things.
- 3.3.4.A.a. • Identify life processes of living things (e.g., growth, digestion, react to environment).
- 3.3.4.A.b. • 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.
- 3.3.4.A.c. • Describe basic needs of plants and animals.
- 3.3.4.B. Know that living things are made up of parts that have specific functions.
- 3.3.4.B.a. • Identify examples of unicellular and multicellular organisms.
- 3.3.4.B.b. • Determine how different parts of a living thing work together to make the organism function.
- 3.3.4.C. Know that characteristics are inherited and, thus, offspring closely resemble their parents.
- 3.3.4.C.a. • Identify characteristics for animal and plant survival in different climates.
- 3.3.4.C.b. • identify physical characteristics that appear in both parents and offspring and differ between families, strains or species.
- 3.3.4.D. Identify changes in living things over time.
- 3.3.4.D.a. • Compare extinct life forms with living organisms.

Ecosystem Standards are in the Environment and Ecology Standard Category (4.6).

3.4.4 Physical Science, Chemistry and Physics

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:

- 3.4.4.A. Recognize basic concepts about the structure and properties of matter.
- 3.4.4.A.a. • Describe properties of matter (e.g., hardness, reactions to simple chemical tests).
- 3.4.4.A.b. • Know that combining two or more substances can make new materials with different properties.
- 3.4.4.A.c. • Know different material characteristics (e.g., texture, state of matter, solubility).
- 3.4.4.B. Know basic energy types, sources and conversions.
- 3.4.4.B.a. • Identify energy forms and examples (e.g., sunlight, heat, stored, motion).
- 3.4.4.B.b. • Know the concept of the flow of energy by measuring flow through an object or system.
- 3.4.4.B.c. • Describe static electricity in terms of attraction, repulsion and sparks.
- 3.4.4.B.d. • Apply knowledge of the basic electrical circuits to design and construction simple direct current circuits.
- 3.4.4.B.e. • Classify materials as conductors and nonconductors.
- 3.4.4.B.f. • Know and demonstrate the basic properties of heat by producing it in a variety of ways.
- 3.4.4.B.g. • Know the characteristics of light (e.g., reflection, refraction, absorption) and use them to produce heat, color or a virtual image.
- 3.4.4.C. Observe and describe different types of force and motion.
- 3.4.4.C.a. • Identify characteristics of sound (pitch, loudness and echoes)
- 3.4.4.C.b. • Recognize forces that attract or repel other objects and demonstrate them.
- 3.4.4.C.c. • Describe various types of motions.
- 3.4.4.C.d. • Compare the relative movement of objects and describe types of motion that are evident.
- 3.4.4.C.e. • Describe the position of an object by locating it relative to another object or the background (e.g., geographic direction, left, up).
- 3.4.4.D. Describe the composition and structure of the universe and the earth's place in it.
- 3.4.4.D.a. • Recognize earth's place in the solar system.
- 3.4.4.D.b. • Explain and illustrate the causes of seasonal changes.
- 3.4.4.D.c. • Identify planets in our solar system and their general characteristics.
- 3.4.4.D.d. • Describe the solar system motions and use them to explain time (e.g., days, seasons), major lunar phases and eclipses.
- Refer to Technology Standard Category 3.6 for applied uses of these concepts and principles.

3.5.4 Earth Sciences

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:

- 3.5.4.A. Know basic landforms and earth history.
- 3.5.4.A.a. • Describe earth processes (e.g., rusting, weathering, erosion) that have affected selected physical features in students' neighborhoods.
- 3.5.4.A.b. • Identify various earth structures (e.g., mountains, faults, drainage basins) through the use of models.
- 3.5.4.A.c. • Identify the composition of soil as weathered rock and decomposed organic remains.
- 3.5.4.A.d. • Describe fossils and the type of environment they lived in (e.g., tropical, aquatic, desert).

- 3.5.4.B. Know types and uses of earth materials.
- 3.5.4.B.a. • Identify uses of various earth materials (e.g., buildings, highways, fuels, growing plants).
- 3.5.4.B.b. • Identify and sort earth materials according to a classification key (e.g., soil/rock type).
- 3.5.4.C. Know basic weather elements.
- 3.5.4.C.a. • identify cloud types.
- 3.5.4.C.b. • Identify weather patterns from data charts (including temperature, wind direction and speed, precipitation) and graphs of the data.
- 3.5.4.C.c. • Explain how the different seasons effect plants, animals, food availability and daily human life.
- 3.5.4.D. Recognize the earth’s different water resources.
- 3.5.4.D.a. • Know that approximately three-fourths of the earth is covered by water.
- 3.5.4.D.b. • identify and describe types of fresh and salt-water bodies.
- 3.5.4.D.c. • Identify examples of water in the form of solid, liquid and gas on or near the surface of the earth.
- 3.5.4.D.d. • Explain and illustrate evaporation and condensation.
- 3.5.4.D.e. • Recognize other resources available from water (e.g., energy, transportation, minerals, food).
- Refer to Environment and Ecology Standards Categories 4.1, 4.3, 4.8 for standards that deal with environmental impact of Earth structures and forces.

3.6.4 Technology Education

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:

- 3.6.4.A. Know that biotechnologies relate to propagating, growing, maintaining, adapting, treating and converting.
- 3.6.4.A.a. • Identify agricultural and industrial production processes that involve plants and animals.
- 3.6.4.A.b. • Identify waste management treatment processes.
- 3.6.4.A.c. • Describe how knowledge of the human body influences or impacts ergonomic design.
- 3.6.4.A.d. • Describe how biotechnology has impacted various aspects of daily life (e.g., health care, agriculture, waste treatment).
- 3.6.4.B. Know that information technologies involve encoding, transmitting, receiving, storing, retrieving and decoding.
- 3.6.4.B.a. • Identify electronic communication methods that exist in the community (e.g., digital cameras, telephone, internet, television, fiber optics).
- 3.6.4.B.b. • Identify graphic reproduction methods.
- 3.6.4.B.c. • Describe appropriate image generating techniques (e.g., photography, video).
- 3.6.4.B.d. • Demonstrate the ability to communicate an idea by applying basic sketching and drawing techniques.
- 3.6.4.C. Know physical technologies of structural design, analysis and engineering, finance, production, marketing, research and design.
- 3.6.4.C.a. • Identify and group a variety of construction tasks.
- 3.6.4.C.b. • Identify the major construction systems present in a specific local building.
- 3.6.4.C.c. • Identify specific construction systems that depend on each other in order to complete a project.
- 3.6.4.C.d. • Know skills used in construction.
- 3.6.4.C.e. • Identify examples of manufactured goods present in the home and school.
- 3.6.4.C.f. • Identify basic resources needed to produce a manufactured item.

- 3.6.4.C.g. • Identify basic component operations in a specific manufacturing enterprise (e.g., cutting, shaping, attaching).
- 3.6.4.C.h. • Identify waste and pollution resulting from a manufacturing enterprise.
- 3.6.4.C.i. • Explain and demonstrate the concept of manufacturing (e.g., assemble a set of papers or ball point pens sequentially, mass produce an object).
- 3.6.4.C.j. • Identify transportation technologies of propelling, structuring, suspending, guiding, controlling and supporting.
- 3.6.4.C.k. • Identify and experiment with simple machines used in transportation systems.
- 3.6.4.C.l. • Explain how improved transportation systems have changed society.

3.7.4 Technological Devices

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:

- 3.7.4.A. Explore the use of basic tools, simple materials and techniques to safely solve problems.
 - 3.7.4.A.a. • Describe the scientific principles on which various tools are based.
 - 3.7.4.A.b. • Group tools and machines by their function.
 - 3.7.4.A.c. • Select and safely apply appropriate tools and materials to solve simple problems.
- 3.7.4.B. Select appropriate instruments to study materials.
 - 3.7.4.Ba. • Develop simple skills to measure, record, cut and fasten.
 - 3.7.4.Bb. • Explain appropriate instrument selection for specific tasks.

Computer literacy, including the use of hardware and software in standard statements C, D, and E, should be integrated across all content areas

- 3.7.4.C. Identify basic computer operations and concepts.
 - 3.7.4.C.a. • Identify the major parts necessary for a computer to input and output data.
 - 3.7.4.C.b. • Explain and demonstrate the basic use of input and output devices (e.g., keyboard, monitor, printer, mouse).
 - 3.7.4.C.c. • Explain and demonstrate the use of external and internal storage devices (e.g., disk drive, CD drive).
- 3.7.4.D. Use basic computer software.
 - 3.7.4.D.a. • Apply operating system skills to perform basic computer tasks.
 - 3.7.4.D.b. • Apply basic word processing skills.
 - 3.7.4.D.c. • Identify and use simple graphic and presentation graphic materials generated by the computer.
 - 3.7.4.D.d. • Apply specific instructional software.
- 3.7.4.E. Identify basic computer communications systems.
 - 3.7.4.E.a. • Apply a web browser.
 - 3.7.4.E.b. • Apply basic electronic mail functions.
 - 3.7.4.E.c. • Use on-line searches to answer age appropriate questions.

3.8.4 Science, Technology and Human Endeavors

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:

- 3.8.4.A. Know that people select, create and use science and technology and that they are limited by social and physical restraints.
- 3.8.4.A.a. • Identify and describe positive and negative impacts that influence or result from new tools and techniques.
- 3.8.4.A.b. • Identify how physical technology (e.g., construction, manufacturing, transportation), informational technology and biotechnology are used to meet human needs.
- 3.8.4.A.c. • Describe how scientific discoveries and technological advancements are related.
- 3.8.4.A.d. • Identify interrelationships among technology, people and their world.
- 3.8.4.A.e. • Apply the technological design process to solve a simple problem.
- 3.8.4.B. Know how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.
- 3.8.4.B.a. • Identify and distinguish between human needs and improving the quality of life.
- 3.8.4.B.b. • Identify and distinguish between natural and human-made resources.
- 3.8.4.B.c. • Describe a technological invention and the resources that were used to develop it.
- 3.8.4.C. Know the pros and cons of possible solutions to scientific and technological problems in society.
- 3.8.4.C.a. • Compare the positive and negative expected and unexpected impacts of technological change.
- 3.8.4.C.b. • Identify and discuss examples of technological change in the community that have both positive and negative impacts.