TITLE	PA STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
Alexander Graham Bell * ISBN 0022858679 6 PK ISBN 0022865810	3.1.4.A.a., 3.1.4.A.d., 3.6.4.B.a., 3.8.4.A.b., 3.8.4.A.c., 3.8.4.A.d., 3.8.4.B.c.	K	490	***Alexander Graham Bell*** describes the life and inventions of Alexander Graham Bell. It explains how Bell applied scientific ideas to invent the telephone. Basic information about sound and how it travels are also included.	**experiment** **transmitter** **vibrate**
All About Magnets ISBN 0022846514 6 PK ISBN 0022864385	3.1.4.A.d., 3.4.4.A.a., 3.4.4.C.b., 3.7.4.C.c., 3.8.4.A.b., 3.8.4.A.c., 3.8.4.A.d.	M	580	***All About Magnets*** describes properties of magnets and Earth's magnetic field. It also explains that magnets are used for navigation, in computer disks, in maglev trains, and in the space shuttle.	**magnetic** **magnetic field** **poles**
Animal Parents ISBN 0022846328 6 PK ISBN 0022864210	3.3.4.A.a., 3.3.4.A.c.	H	610	***Animal Parents*** describes how various animals care for their young. A variety of fish, birds, reptiles and mammals are discussed in this book.	**hatch** **instinct** **survive**
Animals in Danger ISBN 0022859357 6 PK ISBN 0022865586	3.3.4.A.c., 3.8.4.A.a., 3.8.4.C.a., 3.8.4.C.b.	G	440	***Animals in Danger*** identifies factors that endanger animals, such as pollution and destruction of habitat. Measures that can be taken to help endangered animals are also described.	**DDT** **habitat** **hatch**
Apple Trees ISBN 002284631X 6 PK ISBN 0022864202	3.1.4.A.b., 3.3.4.A.a., 3.3.4.A.c., 3.3.4.B.b., 3.5.4.C.c.	L	640	***Apple Trees*** describes how apple trees change with the seasons, identifies the functions of roots, stems, and leaves, describes the process of photosynthesis, and discusses the life cycle of an apple tree.	**chlorophyll** **photosynthesis** **pollinate**
Beyond the Sky * ISBN 0022858644 6 PK ISBN 0022865721	3.1.4.A.a., 3.1.4.A.b., 3.1.4.C.a., 3.2.4.B.b., 3.4.4.D.a., 3.4.4.D.c., 3.4.4.D.d.	J	460	***Beyond the Sky*** describes stars, including the Sun, and the solar system. Apparent movement of the Sun is related to the motion of Earth. Stars, tools used to observe stars, and phases of the moon are also explained.	**solar system** **star** **telescope**

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TITLE	PA STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
Bicycle Metals ISBN 0022858733 6 PK ISBN 0022865799	3.1.4.A.d., 3.4.4.A.a., 3.4.4.A.b., 3.4.4.A.c., 3.5.4.B.a., 3.6.4.A.c., 3.6.4.B.d., 3.6.4.C.e., 3.6.4.C.f., 3.6.4.C.g., 3.6.4.C.i., 3.6.4.C.j., 3.6.4.C.k., 3.8.4.A.b., 3.8.4.A.d., 3.8.4.B.b., 3.8.4.B.c.	K	460	***Bicycle Metals*** describes the properties of metals, explains how mixtures of metals are used, and discusses how the qualities of different metals make them well-suited for different purposes.	**aluminum** **metal** **mixture**
Big Orange Pumpkins ISBN 002284628x 6 PK ISBN 0022864180	3.1.4.A.a., 3.1.4.A.b., 3.1.4.C.a., 3.1.4.C.b., 3.1.4.E.a., 3.3.4.A.a., 3.3.4.A.c., 3.3.4.B.b., 3.6.4.A.a.	H	400	***Big Orange Pumpkins*** describes the functions of different plant parts, identifies the steps in a pumpkin plant's life cycle, and explains ways that humans use pumpkins.	**fruit** **root** **seed**
Day and Night ISBN 0022858563 6 PK ISBN 0022865713	3.1.4.B.a., 3.1.4.B.b., 3.1.4.B.c., 3.1.4.C.a., 3.1.4.E.a., 3.2.4.B.b., 3.4.4.D.d.	E	110	***Day and Night*** explains how a globe is used to model Earth, and how Earth's motion relative to the Sun causes day and night.	**Earth** **Sun** **tilt**
Desert Life ISBN 0022858539 6 PK ISBN 0022865616	3.2.4.B.b., 3.3.4.A.b., 3.3.4.C.a.	E	390	***Desert Life*** describes the climate in desert areas, identifies forms of life found in deserts, and mentions adaptations of desert plants and desert animals.	**desert** **saguaro cactus** **scaly**
Different Kinds of Land ISBN 0022858547 6 PK ISBN 0022865640	3.5.4.A.b., 3.5.4.B.a.	G	320	***Different Kinds of Land*** identifies different landforms, such as mountains, valleys, plains, forests and deserts.	**landform** **mountain** **plain**
Electricity ISBN 0022858598 6 PK ISBN 0022865802	3.1.4.A.a., 3.1.4.A.d., 3.4.4.B.a., 3.8.4.A.b., 3.8.4.A.d.	E	270	***Electricity*** classifies electricity as a form of energy, explains how electricity is used in the home, and describes how batteries are used.	**battery** **electricity** **energy**

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TITLE	PA STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
Fast Changes on Earth ISBN 0022858695 6 PK ISBN 0022865667	3.1.4.E.a., 3.5.4.A.a.	L	480	***Fast Changes on Earth*** describes events that rapidly change Earth, such as floods, tornadoes, earthquakes, land slides, and volcanoes. Photos illustrate each of these events.	**earthquake** **flood** **landslide**
Finding Fossils * ISBN 0022846395 6 PK ISBN 0022864288	3.3.4.D.a., 3.5.4.A.d., 3.8.4.A.c.	J	750	***Finding Fossils*** explains what scientists can learn by studying fossils, how fossils are found, and how scientists apply knowledge about fossils to the study of today's world.	**fossil** **microscope** **paleontologist**
From Seed to Tree * ISBN 0022846298 6 PK ISBN 0022864199	3.1.4.C.a., 3.1.4.C.b., 3.1.4.E.a., 3.3.4.A.a., 3.3.4.B.b., 3.3.4.C.b., 3.5.4.C.c., 3.6.4.A.a.	J	480	***From Seed to Tree*** describes the life cycle of an apple tree, identifies seasonal changes apple trees undergo, and describes ways that people use apples.	**life cycle** **pollen** **sapling**
From Tadpole to Frog ISBN 0022846344 6 PK ISBN 0022864237	3.1.4.C.a., 3.1.4.C.b., 3.3.4.A.a., 3.5.4.C.c.	L	560	***From Tadpole to Frog*** describes the life cycle of a frog, including the changes that occur when a tadpole changes to become a frog. Chapter 7 includes some fun facts about frogs.	**hatch** **life cycle** **tadpole**
Gases Matter * ISBN 0022858652 6 PK ISBN 0022865756	3.3.4.A.c., 3.4.4.A.c.	H	500	***Gases Matter*** begins by describing solids, liquids, and gases. The properties of gases are described in detail. The carbon and nitrogen cycle are also discussed.	**gas** **matter** **nitrogen**
Get Moving! ISBN 002284645X 6 PK ISBN 0022864334	3.4.4.C.a., 3.4.4.C.b., 3.4.4.C.c., 3.7.4.A.a., 3.7.4.A.b.	H	460	***Get Moving*** describes forces, such as gravity and friction, that affect the motion of objects. Tools and machines used to change motion and apply forces are also described.	**force** **gravity** **tool**

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TITLE	PA STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
Hot Air Balloons ISBN 0022858725 6 PK ISBN 0022865764	3.1.4.E.d., 3.4.4.A.a., 3.4.4.A.c., 3.4.4.B.a., 3.8.4.A.b., 3.8.4.B.c.	L	430	***Hot Air Balloons*** describes the history of hot air balloons, how a hot air balloon works, and the role of heat energy in the function of a hot air balloon.	**energy** **gas** **heat**
Journey into Space ISBN 0022858717 6 PK ISBN 002286573X	3.8.4.A.c., 3.8.4.A.d.	K	480	***Journey into Space*** explores the history of space flight beginning with the Wright brothers, and describes modern space exploration, including satellites, Moon walks, space shuttles, space probes, and the International Space Station.	**astronaut** **probe** **space shuttle**
Let's Recycle! * ISBN 0022846433 6 PK ISBN 0022864318	3.6.4.A.b., 3.6.4.A.d.	K	650	***Let's Recycle*** describes dumps and landfills, defines reducing and reusing, and explains the process of recycling. Actions that individuals can take to promote recycling are also described.	**recycle** **reduce** **reuse**
Make a Pizza * ISBN 0022858660 6 PK ISBN 0022865780	3.1.4.E.a., 3.1.4.E.d., 3.4.4.A.b., 3.4.4.A.c.	J	500	***Make a Pizza*** describes the changes that pizza ingredients undergo as they are mixed and cooked. Ingredients are classified as solids or liquids, and the process of boiling is described.	**boil** **liquid** **solid**
Matter and Change ISBN 0022858571 6 PK ISBN 0022865748	3.1.4.E.a., 3.1.4.E.d., 3.4.4.A.c., 3.5.4.D.c.	G	390	***Matter and Change*** defines matter and describes everyday examples of solids, liquids, and gases. Changes in matter caused by heating and cooling are also described.	**heat** **matter** **solid**
Minerals ISBN 0022846379 6 PK ISBN 0022864261	3.4.4.A.a., 3.5.4.B.a., 3.5.4.B.b.	M	400	***Minerals*** describes the properties of minerals and the rock cycle. Common minerals are pictured and described. Properties of minerals, such as hardness, are described.	**crystal** **gemstone** **mineral**
Mix It Up ISBN 002285858X 6 PK ISBN 0022865772	3.2.4.C.c., 3.2.4.C.d., 3.4.4.A.a., 3.4.4.A.b., 3.4.4.A.c.	F	210	*Mix It Up* describes mixtures and solutions. Everyday examples of mixtures, such as trail mix, and solutions, such as salt water, are shown.	**dissolve** **mixture** **solution**

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TITLE	PA STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
Push or Pull? * ISBN 0022846468 6 PK ISBN 0022864342	3.4.4.C.c., 3.4.4.C.d., 3.6.4.C.k., 3.6.4.C.l., 3.7.4.A.b.	J	350	***Push or Pull?*** defines force as a push or pull, explains the role of forces in changing motion, and depicts everyday examples of forces changing motion.	**direction** **force** **machine**
Saving Animals ISBN 0022859365 6 PK ISBN 0022865594	3.3.4.A.a., 3.8.4.A.a., 3.8.4.A.d., 3.8.4.C.a., 3.8.4.C.b.	M	660	***Saving Animals*** defines the term endangered and identifies some endangered animals, such as California sea otters, manatees, green sea turtles, bighorn sheep, and California condors. It also identifies steps that are being taken to save each of these animals.	**endangered** **habitat** **reptile**
Soil ISBN 0022846352 6 PK ISBN 0022864245	3.2.4.B.a., 3.2.4.B.b., 3.5.4.A.c., 3.5.4.B.a., 3.5.4.B.b.	I	470	***Soil*** differentiates soil and dirt and describes the layers of soil. It also identifies soil as a resource and describes ways that soil can be conserved.	**humus** **mineral** **nutrient**
The Big Splash! * ISBN 0022858628 6 PK ISBN 0022865659	3.3.4.A.b., 3.5.4.D.a., 3.5.4.D.b., 3.5.4.D.c.	J	500	***The Big Splash*** explains why Earth is called the water planet, describes the zones of the ocean and pictures and describes forms of life found in each part of the ocean.	**coral reef** **ocean** **volcano**
The Camera's Eye ISBN 0022861661 6 PK ISBN 0022865829	3.1.4.A.a., 3.1.4.A.b., 3.1.4.A.d., 3.6.4.B.a., 3.6.4.B.b., 3.6.4.B.c., 3.6.4.B.d., 3.7.4.C.a., 3.7.4.C.b., 3.7.4.C.c., 3.8.4.B.c.	L	620	*The Camera's Eye* compares the structure of the human eye and a camera, explains how a camera works, describes the history of the camera, and discusses how modern digital cameras work.	**lens** **pupil** **shutter**

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TITLE	PA STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
Tracking Weather ISBN 0022858709 6 PK ISBN 0022865691	3.1.4.B.a., 3.1.4.B.b., 3.5.4.C.b., 3.8.4.A.c., 3.8.4.A.d.	L	540	***Tracking Weather*** explains how weather was forecast long ago, tools that are used to forecast weather, and technology used to learn about weather. Chapter 6 describes how scientific models are used in weather forecasting.	**barometer** **radar** **satellite**
Two Kinds of Forests * ISBN 002285861X 6 PK ISBN 0022865624	3.3.4.A.b., 3.3.4.C.a., 3.5.4.C.c.	J	500	***Two Kinds of Forests*** compares a woodland forest to a rainforest. The climates in which each type of forest is found are described, seasonal changes in forests are pictured, and adaptations such as migration and hibernation are defined.	**climate** **hibernate** **migrate**
Wait and See * ISBN 0022846336 6 PK ISBN 0022864229	3.1.4.E.a., 3.3.4.A.a.	J	430	***Wait and See*** describes the life cycle of a bird, a butterfly, a frog, and a sea turtle.	**hatching** **pupa** **tadpole**
Water for Life ISBN 0022858555 6 PK ISBN 0022865675	3.5.4.D.b., 3.5.4.D.c., 3.5.4.D.d.	G	290	***Water for Life*** identifies the importance of water and describes the water cycle. Different forms of precipitation, such as hail and sleet are described.	**hail** **sleet** **water cycle**
Water Habitats ISBN 0022858687 6 PK ISBN 0022865632	3.3.4.A.b., 3.5.4.D.b.	L	470	***Water Habitats*** describes the physical characteristics of oceans, lakes, ponds, river, streams, and wetlands and the living things found in each.	**habitat**
What Do Clouds Tell Us? * ISBN 0022858636 6 PK ISBN 0022865683	3.5.4.C.a., 3.5.4.D.c.	J	450	***What Do Clouds Tell Us?*** describes how clouds form, identifies different types of clouds, and identifies the weather associated with each type of cloud.	**cirrus** **cumulus** **stratus**

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Pennsylvania Academic Standards for Science and Technology

Standard

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-relatec

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.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.B.a. • Develop simple skills to measure, record, cut and fasten.
3.7.4.B.b. • 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.