Pennsylvania Science, Environment, Ecology, Technology and Engineering (K-5)

Grade 3

Adopted 2022

Earth and Space Sciences

Earth and Human Activity

1. Make a claim supported by evidence about the merit of a design solution that reduces the impacts of a weather-related hazard. ESH.3.1

Earth's Systems

1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. ESS.3.1
2. Obtain and combine information to describe climates in different regions of the world. ESS.3.2

Life Science

From Molecules to Organisms: Structures and Processes

1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. LSM.3.1

Heredity: Inheritance and Variation of Traits

1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. LSH.3.1
2. Use evidence to support the explanation that traits can be influenced by the environment. LSH.3.2

Ecosystems: Interactions, Energy, and Dynamics

1. Construct an argument that some animals form groups that help members survive. LSE.3.1

Biological Evolution: Unity and Diversity

1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. LSB.3.1
2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. LSB.3.2
3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. LSB.3.3
4. Make a claim supported by evidence about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. LSB.3.4

Physical Science

Motion and Stability: Forces and Interactions

1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. PSM.3.1
2. Make and communicate observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. PSM.3.2
3. Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. PSM.3.3
4. Define a simple design problem that can be solved by applying scientific ideas about magnets. PSM.3.4

Environmental Literacy and Sustainability

Agricultural and Environmental Systems and Resources

1. Analyze how living organisms, including humans, affect the environment in which they live, and how their environment affects them. ELA.35.1
2. Make a claim about the environmental and social impacts of design solutions and civic actions, including their own actions. ELA.35.2

Environmental Literacy Skills

1. Investigate how perspectives over the use of resources and the development of technology have changed over time and resulted in conflict over the development of societies and nations. ELE.35.1
2. Develop a model to demonstrate how local environmental issues are connected to larger local environment and human systems. ELE.35.2

Sustainability and Stewardship

1. Critique ways that people depend on and change the environment. ELS.35.1
2. Examine ways you influence your local environment and community by collecting and displaying data. ELS.35.2
3. Construct an argument to support whether action is needed on a selected environmental issue and propose possible solutions. ELS.35.3

Technology and Engineering

Applying, Maintaining, and Assessing Technological Products and Systems

1. Follow directions to complete a technological task. TEA.35.1
2. Use appropriate symbols, numbers and words to communicate key ideas about technological products and systems. TEA.35.2
3. Identify why a product or system is not working properly. TEA.35.3
4. Examine information to assess the trade-offs of using a product or system. TEA.35.4

Core Concepts of Technology and Engineering

1. Describe how a subsystem is a system that operates as a part of another larger system. TEC.35.1
2. Illustrate how, when parts of a system are missing, it may not work as planned. TEC.35.2
3. Identify the resources needed to get a technical job done, such as people, materials, capital, tools, machines, knowledge, energy, and time. TEC.35.3
4. Describe the properties of different materials. TEC.35.4
5. Demonstrate how tools and machines extend human capabilities, such as holding, lifting, carrying, fastening, separating, and computing. TEC.35.5
6. Describe requirements of designing or making a product or system. TEC.35.6
7. Create a new product that improves someone's life. TEC.35.7

Design in Technology and Engineering Education

1. Illustrate that there are multiple approaches to design. TED.35.1
2. Demonstrate essential skills of the engineering design process. TED.35.2
3. Evaluate designs based on criteria, constraints, and standards. TED.35.3
4. Interpret how good design improves the human condition. TED.35.4
5. Apply universal principles and elements of design. TED.35.5
6. Evaluate the strengths and weaknesses of existing design solutions, including their own solutions. TED.35.6
7. Practice successful design skills. TED.35.7
8. Apply tools, techniques, and materials in a safe manner as part of the design process. TED.35.8

History of Technology

1. Create representations of the tools people made, how they cultivated to provide food, made clothing, and built shelters to protect themselves. TEH.35.1

Impacts of Technology

1. Describe the helpful and harmful effects of technology. TEI.35.1
2. Judge technologies to determine the best one to use to complete a given task or meet a need. TEI.35.2
3. Classify resources used to create technologies as either renewable or nonrenewable. TEI.35.3
4. Explain why responsible use of technology requires sustainable management of resources. TEI.35.4
5. Predict how certain aspects of their daily lives would be different without given technologies. TEI.35.5

Influence of Society on Technological Development

1. Determine factors that influence changes in a society's technological systems or infrastructure. TES.35.1
2. Explain how technologies are developed or adapted when individual or societal needs and wants change. TES.35.2

Integration of Knowledge, Technologies, and Practices

1. Demonstrate how simple technologies are often combined to form more complex systems. TEK.35.1
2. Explain how various relationships can exist between technology and engineering and other content areas. TEK.35.2

Nature and Characteristics of Technology and Engineering

1. Compare how things found in nature differ from things that are human-made, noting differences and similarities in how they are produced and used. TEN.35.1
2. Describe the unique relationship between science and technology, and how the natural world can contribute to the human-made world to foster innovation. TEN.35.2
3. Differentiate between the role of scientists, engineers, technologists, and others in creating and maintaining technological systems. TEN.35.3
4. Design solutions by safely using tools, materials, and skills. TEN.35.4
5. Explain how solutions to problems are shaped by economic, political, and cultural forces. TEN.35.5