



Pennsylvania Integrated Standards for Science, Environment, Ecology, Technology and Engineering

K-5:

Kindergarten

Earth and Human Activity

3. Communicate solutions that will reduce the impact of humans on the land, water, air and/or other living things in the local environment.

Energy

1. Make observations to determine the effect of sunlight on Earth's surface.

Grade 1

Grade 2

Earth's Systems

3. Obtain information to identify where water is found on Earth and that it can be solid or liquid.

Grade 3

Motion and Stability: Forces and Interactions

3. Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
4. Define a simple design problem that can be solved by applying scientific ideas about magnets.



K-5 (cont.):

Grade 4

Earth and Human Activity

1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.
2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

Energy

1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.
2. Make and communicate observations to provide evidence that energy can be transferred from place to place by sound, light, heat and electric currents.
3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.
4. Apply scientific ideas to design, test and refine a device that converts energy from one form to another.

Grade 5

Earth's Systems

1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere and/or atmosphere interact.

Earth and Human Activity

1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
2. Generate and design possible solutions to a current environmental issue, threat or concern.

Standards by Grade Band

Grades K-2: Environmental Literacy and Sustainability

Agricultural and Environmental Systems and Resources

1. Examine how people from different cultures and communities, including one's own, interact and express their beliefs about nature.

K-5 (cont.):

2. Categorize ways people harvest, re-distribute and use natural resources.

Environmental Literacy Skills

1. Explain ways that places differ in their physical characteristics, their meaning, and their value and/or importance.
2. Plan and carry out an investigation to address an issue in their local environment and community.

Impacts of Technology

1. Explain ways that technology helps with everyday tasks.
2. Illustrate helpful and harmful effects of technology.
3. Compare simple technologies to evaluate their impacts.
4. Select ways to reduce, reuse and recycle resources in daily life.

Influence of Society on Technological Development

1. Explain the needs and wants of individuals and societies.
2. Explore how technologies are developed to meet individual and societal needs and wants.
3. Investigate the use of technologies in the home and community.

Integration of Knowledge, Technologies and Practices

2. Draw connections between technology and human experiences.

Nature and Characteristics of Technology and Engineering

1. Compare the natural world and human-made world.
2. Explain the tools and techniques that people use to help them do things.
4. Discuss the roles of scientists, engineers, technologists and others who work with technology.

Standards by Grade Band

Grades 3–5: Environmental Literacy and Sustainability

Agricultural and Environmental Systems and Resources

K-5 (cont.):

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

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.
2. Develop a model to demonstrate how local environmental issues are connected to larger local environment and human systems.

Sustainability and Stewardship

1. Critique ways that people depend on and change the environment.
3. Construct an argument to support whether action is needed on a selected environmental issue and propose possible solutions.

Impacts of Technology

1. Describe the helpful and harmful effects of technology.
3. Classify resources used to create technologies as either renewable or nonrenewable.
4. Explain why responsible use of technology requires sustainable management of resources.
5. Predict how certain aspects of their daily lives would be different without given technologies.

Pennsylvania ELA Standards

K-2:

- K.R.1.1: Describe the main character(s), setting and important events in a story.
- K.R.2.2: Identify the topic of and multiple details in a text.

K-2 (cont.):

- K.R.3.2: Retell a text orally to enhance comprehension:
- K.R.3.3: Compare and contrast characters' experiences in stories.
- K.C.4.1: Recall information to answer a question about a single topic.
- 1.R.1.1: Identify and describe the main story elements in a story.
- 1.R.1.2: Identify and explain the moral of a story.
- 1.R.2.2: Identify the topic of and relevant details in a text.
- 1.R.2.3: Explain similarities and differences between information provided in visuals and words in an informational text.
- 1.R.3.2: Retell a text in oral or written form to enhance comprehension.
- 2.R.1.1: Identify plot structure and describe main story elements in a literary text.
- 2.R.1.2: Identify and explain a theme of a literary text.
- 2.R.1.3: Identify different characters' perspectives in a literary text.
- 2.R.2.2: Identify the central idea and relevant details in a text.
- 2.R.2.3: Explain an author's purpose in an informational text.
- 2.R.3.1: Identify and explain similes, idioms and alliteration in text(s).
- 2.R.3.2: Retell a text to enhance comprehension.

3-5:

- 3.R.1.1: Explain how one or more characters develop throughout the plot in a literary text.
- 3.R.1.2: Explain a theme and how it develops, using details, in a literary text.
- 3.R.1.3: Explain different characters' perspectives in a literary text.
- 3.R.2.2: Identify the central idea and explain how relevant details support that idea in a text.

3-5 (cont.):

- 3.R.2.3: Explain the development of an author's purpose in an informational text.
- 3.R.3.1: Identify and explain metaphors, personification and hyperbole in text(s).
- 3.R.3.2: Summarize a text to enhance comprehension.
- 4.R.1.1: Explain how setting, events, conflict and character development contribute to the plot in a literary text.
- 4.R.2.2: Explain how relevant details support the central idea, implied or explicit.
- 4.R.2.3: Explain an author's perspective toward a topic in an informational text.
- 4.R.3.2: Summarize a text to enhance comprehension.
- 5.R.1.1: Analyze how setting, events, conflict and characterization contribute to the plot in a literary text.
- 5.R.2.2: Explain how relevant details support the central idea(s), implied or explicit.
- 5.R.2.3: Analyze an author's purpose and/or perspective in an informational text.
- 5.R.2.4: Track the development of an argument, identifying the specific claim(s), evidence and reasoning.
- 5.R.3.2: Summarize a text to enhance comprehension.

