



Grade 1 Science Curriculum

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Unit #/Title	1/Solids and Liquids
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Stage 1 - Identify Desired Results

Standards

- 3.2.1.A1** Observe and describe the properties of liquids and solids. Investigate what happens when solids are mixed with water and other liquids are mixed with water.
- 3.2.1.A3** Identify how heating, melting, cooling, etc., may cause changes in properties of materials.
- 3.2.1.A4** Observe and describe what happens when substances are heated or cooled. Distinguish between changes that are reversible (melting, freezing) and not reversible (e.g. baking a cake, burning fuel).
- 3.2.1.A5** Constancy and change: Recognize that everything is made of matter.
- 3.2.1.B5** Compare and contrast how light travels through different materials. Explore how mirrors and prisms can be used to redirect a light beam.
- 3.2.2.A4** Experiment and explain what happens when two or more substances are combined (e.g. mixing, dissolving) and separated (e.g. filtering, evaporation)

Big Ideas	Essential Questions
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| <ul style="list-style-type: none"> • Everything consists of matter. • There are three specific forms of matter. | <ul style="list-style-type: none"> • Why is it important to know about the forms of matter? • How does knowing about the three forms of matter impact daily living? |
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Content	Skills
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| <ul style="list-style-type: none"> • Everything is made of matter • Matter exists in three states: solids, liquids, & gases • Solids have a definite shape and volume • Liquids do not have a definite shape but have a definite volume • Gases do not hold their shape or volume • There are different properties of matter • Properties of matter can change form • Solids and liquids can be sorted and classified (e. g. color, size, shape) • The state of matter can change when solids and liquids are mixed • Energy can affect the state of matter • Solids and liquids can be transparent, translucent or opaque | <ul style="list-style-type: none"> • Define matter • Identify and list properties of a solids, liquids, and gases • Identify the changes that occur when solids and liquids are mixed • Identify the changes that occur when two different liquids are mixed • Identify the change that occurs when a solid dissolves in a liquid (evaporation) • Identify the changes that occur when two liquids are combined (separation) • Describe how energy produces changes in matter (heating, cooling, melting) • Explain the characteristics of a transparent, translucent and opaque solid or liquid |
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Unit #/Title	2/Agriculture
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Stage 1 - Identify Desired Results

Standards

3.2.1.B6 Energy: recognize that light from the sun is an important source of energy for living and nonliving systems and some source of energy is needed for all organisms to stay alive and grow.

4.4.K.A Identify common plants and animals found in Pennsylvania agricultural systems.

4.4.K.D Identify tools and machinery commonly used in agriculture.

4.4.1.B Identify products and by-products of the agriculture system.

4.4.1.D Identify tools used by native Americans and early settlers in agriculture.

4.4.3.A Identify Pennsylvania crops that provide food for the table and fiber and textiles.

4.4.3.B Explain how agriculture meets the basic needs of humans.

4.4.4.A Describe the journey of local/global agricultural commodities from production to consumption.

4.4.4.B Describe how humans rely on the food and fiber system. Identify Pennsylvania’s important agricultural products.

4.5.1.B Describe why people consider some insects, plants and other living things to be pests, and ways to control their population numbers.

Big Ideas	Essential Questions
<ul style="list-style-type: none"> • Agriculture is essential for human survival. • Agriculture is a profession that provides for society. 	<ul style="list-style-type: none"> • Why is it important to know how agriculture affects living things? • What is the impact of agriculture on society?

Content	Skills
<ul style="list-style-type: none"> • Agriculture provides for our basic needs for survival • There are different types of farms in an agricultural system • There are a variety of crops associated with Pennsylvania agriculture • There are a variety of animals found in Pennsylvania agriculture • Crops and livestock raised on a farm need to be processed before human consumption • There are a variety of tools and equipment needed for agriculture • Native Americans/early settlers made their own agricultural tools • Farmers use pest management to deal with harmful animals, insects and plants 	<ul style="list-style-type: none"> • Identify crops and products made from crops (e.g. cotton, soy, corn) • Identify specific PA crops and their by-products • Identify farm animals and their importance to our basic needs • Identify types of livestock raised on a farm (llama, sheep, cows, horses, goat, fish) • Identify tools and equipment used in agriculture • Identify specific tools used by Native American/early settlers • Discuss ways that farmers deal with insects and weeds that hurt their crops

Unit #/Title	3/Life Cycles (Butterfly and Frog)
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Stage 1 - Identify Desired Results

Standards

3.1.4.A8 Models: Construct and interpret models and diagrams of various animal and plant life cycles.
4.4.1.C Describe the life cycles of different plants and animals in a terrestrial habitat.
4.4.2.C Examine life cycles of plants and animals in an aquatic habitat.

Big Ideas	Essential Questions
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| <ul style="list-style-type: none"> • Living things depend upon their habitat to meet their basic needs. | <ul style="list-style-type: none"> • How does an animal’s habitat provide for their basic needs? • How do living things go through life cycles? |
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Content	Skills
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| <ul style="list-style-type: none"> • Metamorphosis of a butterfly contains four stages (egg, larva, pupa, adult) • Characteristics of a caterpillar • Characteristics of a butterfly • Butterflies have special adaptations to survive throughout their life cycles in their habitat • Metamorphosis of a frog contains four stages (egg, tadpole, froglet, frog) • Characteristics of a tadpole and a froglet • Special adaptations of tadpoles and frogs to survive | <ul style="list-style-type: none"> • Name and sequence the steps in the butterfly and frog life cycles • Identify the body parts of the butterfly, caterpillar, tadpole, and frog • Compare and contrast the physical attributes of the caterpillar/butterfly, tadpole/frog • Observe and record changes that occur during the life cycle of a butterfly and frog • Describe adaptations butterflies/caterpillars, tadpoles/frogs use to survive in their environment |
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Unit #/Title	4/Aquatic Habitats
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Stage 1 - Identify Desired Results

Standards

- 3.3.1.A4** Identify and describe types of fresh and saltwater bodies (ocean, rivers, lakes, ponds).
4.1.K.A Identify the similarities and differences of living and nonliving things within the immediate and surrounding environment.
4.1.2.A Describe how a plant or an animal is dependent on living and nonliving things in an aquatic habitat.
4.1.2.C Identify sources of energy in an aquatic habitat.
4.2.2.C Identify and describe the basic needs of plants and animals in an aquatic ecosystem.

Big Ideas	Essential Questions
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| <ul style="list-style-type: none"> Living things depend on their habitat to meet their basic needs. | <ul style="list-style-type: none"> How does an animal’s habitat provide for its basic needs? What factors determine which plants and animals can survive in a particular habitat? |
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Content	Skills
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| <ul style="list-style-type: none"> There are different types of aquatic habitats Plants and animals in an aquatic ecosystem may satisfy their basic needs in a different manner than those in a terrestrial habitat Energy flows through an aquatic habitat by way of the food chain (e.g. sun gives energy to the plant, fish, people) All habitats consist of living and nonliving things Basic needs of survival of plants and animals in an aquatic habitat | <ul style="list-style-type: none"> Distinguish between freshwater and saltwater habitats Identify and describe the basic needs of plants and animals in an aquatic ecosystem Identify some characteristics of specific habitats Match living and nonliving organisms to their specific habitat Give examples of food chain reaction within a particular habitat (Polar Habitat: micro-organisms in the ocean, krill, penguin, sea leopard) |
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Unit #/Title	5/Ecology
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Stage 1 - Identify Desired Results

Standards

- 4.3.1.A** Identify some renewable resources used in the community.
- 4.3.1.B** Recognize the difference between renewable and nonrenewable resources.
- 4.5.K.B** Identify common pests in our homes, gardens and neighborhoods.
- 4.5.1.A** Identify resources humans use from the environment.
- 4.5.1.B** Describe why people consider some insects, plants and other living things to be pests, and ways to control their population numbers.
- 4.5.1.C** Describe how pollution affects the health of a habitat.
- 4.5.1.D** Identify where waste from the home, school and community goes for disposal.

Big Ideas	Essential Questions
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| <ul style="list-style-type: none"> • Human beings have a responsibility for the care of the earth. | <ul style="list-style-type: none"> • How does human activity affect the environment on a daily basis? • How are some insects and plants considered pests as well as assets to the environment? |
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Content	Skills
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| <ul style="list-style-type: none"> • Good waste management is important to our environment • Items can be reused, reduced, and recycled • The importance of community recycling (e.g. in our classroom) • Recognize the difference between renewable and nonrenewable resources. • The negative/harmful aspects of pollution and pesticides • Some plants and insects are considered pests in our environment | <ul style="list-style-type: none"> • Explain the waste management system in our community • Classify items that can be reused, reduced and recycled • Identify (and sort) products that are nonrenewable and renewable • List ways that people pollute our environment • Explain the effects of pollution on the environment • Identify and explain why common plants, insects, and animals can be pests in our environment • Explain ways to control the population of plants, insects and animals in our environment |
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Unit #/Title	6/Plants
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Stage 1 - Identify Desired Results

Standards

- 3.1.1.A2** Investigate the dependence of living things on the sun’s energy, water, food/nutrients, air, living space, and shelter.
- 3.1.1.A5** Identify and describe plant parts and their function.
- 3.1.1.B1** Grow plants from seed and describe how they grow and change. Compare to adult plants.
- 3.2.1.B6** Energy: Recognize that light from the sun is an important source of energy for living and nonliving systems and some source of energy is needed for all organisms to stay alive and grow.

Big Ideas	Essential Questions
<ul style="list-style-type: none"> Plants are needed for human survival. 	<ul style="list-style-type: none"> Why are plants important for the health of our habitat? What do plants need to grow from seed to adult plant?
Content	Skills
<ul style="list-style-type: none"> Plants have distinct stages in their life cycle To live and grow, plants need light, water, and nutrients from the soil Living organisms need plants for survival Plants use photosynthesis to produce food 	<ul style="list-style-type: none"> Identify the parts of the plant and describe their function Observe and record the stages of a seed as it grows Explain the process of photosynthesis Explain a plant’s role in a food chain

Unit #/Title	7/Terrestrial Habitats
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Stage 1 - Identify Desired Results

Standards

- 3.1.1.A1** Categorize living and nonliving things by external characteristics.
- 3.1.1.C3** Constancy and Change: Describe changes that occur as a result of habitat.
- 3.1.K.C3** Constancy and Change: Describe changes that occur as a result of climate.
- 3.1.2.A3** Identify similarities and differences in the life cycles of plants and animals.
- 4.1.K.A** Identify the similarities and differences of living and nonliving things within the immediate and surrounding environment
- 4.1.1.A** Identify and describe the basic needs of living things in a terrestrial habitat.
- 4.1.1.C** Describe a simple food chain within a terrestrial habitat.
- 4.4.1.C** Describe the life cycles of different plants and animals in a terrestrial habitat.
- 4.1.1.D** Identify living things that are threatened, endangered, or extinct.
- 4.1.1.E** Describe the seasons and describe how the change of the season affects living things.

Big Ideas	Essential Questions
<ul style="list-style-type: none"> • Living things depend on their habitat to meet their basic needs 	<ul style="list-style-type: none"> • How does an animal’s habitat provide for its basic needs? • What factors determine which plants and animals can survive in a particular habitat?

Content	Skills
<ul style="list-style-type: none"> • All habitats consist of living and nonliving things • There are different types of terrestrial habitats • Each habitat has its own physical characteristics that support living organisms specific to that habitat (temperate forest, rain forest, desert, grasslands, polar) • Basic needs of survival of plants and animals in a terrestrial habitat • Living things depend upon each other for survival • Living things in a habitat may become threatened, endangered, or extinct • Changes in climate affect habitats • Seasonal changes affect living things in a habitat 	<ul style="list-style-type: none"> • Categorize living organisms and nonliving objects within the immediate and surrounding environment • Identify the different types of terrestrial habitats • Classify plants and animals into their specific terrestrial habitat (temperate forest, rain forest, desert, grasslands, polar) • Identify and describe the basic needs of living things in a terrestrial habitat • Describe a simple food chain within a terrestrial habitat • Distinguish the difference between threatened, endangered, and extinct • Explain reasons for protecting the habitats (e.g. rainforest: deforestation causes extinction of plants and animals) • Describe how the change of the season affects living things. (e.g. Arctic Fox/adaptations with seasons)