

<p>Grade, Subject/Course: 2nd Grade Science</p>	
<p>Unit: Erosion and Earth’s Surface</p>	<p><input checked="" type="checkbox"/> Essential <input type="checkbox"/> Important <input type="checkbox"/> Compact</p>
<p>Big Ideas:</p> <ul style="list-style-type: none"> ● Earth scientists reconstruct events in Earth's planetary history by examining the structure, sequence, and properties of rocks, sediments, and fossils and the locations of current and past ocean basins, lakes, and rivers. ● Earth is a complex system of interacting subsystems: the geosphere, hydrosphere, atmosphere, and biosphere. ● Plate tectonics is the unifying theory that explains the past and current movements of the rocks at the Earth’s surface and provides a coherent account of its geological history. ● Earth is often called the water planet because of the abundance of liquid water on its surface and because water’s unique physical and chemical properties are central to Earth’s dynamics. ● Human cultures and societies experience and interact with the environment in various ways. 	
<p><u>PA STEELS (Science, Technology & Engineering, and Environmental Literacy & Sustainability) Standards:</u></p> <p>3.3.2.A. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.</p> <p>3.3.2.B. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.</p> <p>3.3.2.C. Develop a model to represent the shapes and kinds of land and bodies of water in an area.</p> <p>3.3.2.D. Obtain information to identify where water is found on Earth and that it can be solid or liquid.</p> <p>3.4.K-2.B Examine how people from different cultures and communities, including one’s own, interact and express their beliefs about nature.</p> <p>3.4.K-2.C Explain ways that places differ in their physical characteristics, their meaning, and their value and/or importance.</p> <p>3.4.K-2.D Plan and carry out an investigation to address an issue in</p>	<p><u>Interdisciplinary Standards (if applicable):</u></p>

<p>the local environment and community.</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How do people reconstruct and date events in Earth’s planetary history? • How do Earth’s major systems interact? • Why do the continents move, and what causes earthquakes and volcanoes? • How do the properties and movements of water shape Earth’s surface and affect its systems? • How are natural resources managed by people from various cultures and communities? • How do human cultures and societies experience, interact, and value local, regional, and/or global environments? • How do various human cultures express their beliefs about nature and the environment? <p><u>Knowledge:</u></p> <ul style="list-style-type: none"> • Some events happen very quickly, while others occur very slowly, over a period much longer than one can observe. • Wind and water can change the shape of the land. • Maps show where things are located. One can map any area's shapes and kinds of land and water. • Water is found in the ocean, rivers, lakes, and ponds, as solid ice and in liquid form. • Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. • Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. 	<p><u>Understandings:</u> Students will know...</p> <ul style="list-style-type: none"> • how water shapes the Earth's surface. • that water flows downhill, transforming huge rocks into tiny grains of sand at the beach. • the causes of erosion and design solutions to erosion-related problems. • how farming and agriculture affect the community. <p><u>Do/Skills:</u> Students will be able to...</p> <ul style="list-style-type: none"> • compare multiple solutions for preventing erosion. • create a model landform and investigate how some Earth events can occur quickly while others occur slowly. • use a model (i.e., a map) to examine the different factors, including the shapes and kinds of land, that contribute to flash floods. They use this to predict where flash floods are most likely to happen. • investigate the effects of rocks tumbling in a river. Based on their observations, they explain why rocks at the top of mountains are much bigger than the sand at the beach. • develop a model of the Earth’s surface and use it to discover an important principle about how rivers work: rivers flow downhill, from high places to low places. • identify farms, gardens, or other agricultural sites in their community • explain why farming is important to the local community
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Vocabulary:

- accumulation
- condensation
- Earth
- evaporation
- groundwater
- lake
- landscape
- liquid
- moon
- planet
- pond
- precipitation
- river
- solid/ice
- vapor/gas
- types of clouds
- materials
- resources
- community
- energy
- materials
- resources
- transportation
- agriculture
- farming

Core Resources:

- Mystery Science
- PA Farm Bureau Agriculture Literacy Week

Common Assessment(s):

Supplemental Resources:

- Brainpop Jr.
- Discovery Education
- Generation Genius

<p>Grade, Subject/Course: 2nd Grade Science</p>	
<p>Unit: Plant Adaptations</p>	<p><u> x </u> Essential <u> </u> Important <u> </u> Compact</p>
<p>Big Idea:</p> <ul style="list-style-type: none"> Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment. Biodiversity—the multiplicity of genes, species, and ecosystems—provides humans with renewable resources, such as food, medicines, and clean water. 	
<p><u>PA STEELS (Science, Technology & Engineering, and Environmental Literacy & Sustainability) Standards:</u></p> <p>3.1.2.A. Plan and conduct an investigation to determine if plants need sunlight and water to grow.</p> <p>3.1.2.B. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.</p> <p>3.1.2.C. Make observations of plants and animals to compare the diversity of life in different habitats.</p> <p>3.5.K-2.BB Compare the natural world and human-made world.</p>	<p><u>Interdisciplinary Standards (if applicable):</u></p>
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> How do organisms interact with the living and nonliving environments to obtain matter and energy? What is biodiversity, how do humans affect it, and how does it affect humans? 	<p><u>Understandings:</u> Students will know...</p> <ul style="list-style-type: none"> the needs of plants. how and why plants disperse their seeds what plants need to grow what adult plants need to survive and thrive.
<p><u>Knowledge:</u></p> <ul style="list-style-type: none"> Plants depend on water and light to grow. Plants depend on animals for pollination or to move their seeds around. There are many different living things in any area, and they exist in different places on land and in water. 	<p><u>Do/Skills:</u> Students will be able to...</p> <ul style="list-style-type: none"> develop physical models of seed structures. They observe how structure affects the seed's function in dispersing away from the tree. investigate to determine that plants need water and light to grow. develop a model of a furry animal and then use it to test how far seed models with different structures can travel. develop a model of a furry animal and then use it to test how far seed models with different structures can travel.

Vocabulary:

- environment
- survive
- organism
- species
- minerals
- soil
- sunlight
- water
- biodiversity
- microorganisms
- needs
- organism
- survive
- exist
- habitats
- land
- living things

Core Resources:

- Mystery Science

Common Assessment(s):

Supplemental Resources:

- Brainpop Jr.
- Discovery Education
- Generation Genius

<p>Grade, Subject/Course: 2nd Grade Science</p>	
<p>Unit: Animal Biodiversity</p>	<p><u> x </u> Essential <u> </u> Important <u> </u> Compact</p>
<p>Big Idea:</p> <ul style="list-style-type: none"> Biodiversity—the multiplicity of genes, species, and ecosystems—provides humans with renewable resources, such as food, medicines, and clean water. 	
<p><u>PA STEELS (Science, Technology & Engineering, and Environmental Literacy & Sustainability) Standards:</u></p> <p>3.1.2.C. Make observations of plants and animals to compare the diversity of life in different habitats.</p> <p>3.4.K-2.A Categorize ways people harvest, redistribute, and use natural resources.</p> <p>3.4.K-2.C Explain ways that places differ in their physical characteristics, their meaning, and their value and/or importance.</p> <p>3.5.K-2.BB Compare the natural world and human-made world.</p>	<p><u>Interdisciplinary Standards (if applicable):</u></p>
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> What is biodiversity, how do humans affect it, and how does it affect humans? 	<p><u>Understandings:</u> Students will know...</p> <ul style="list-style-type: none"> the world's animal biodiversity. animal classification and the traits that define each group. how the surrounding environment affects what organisms live in a particular environment.
<p><u>Knowledge:</u></p> <ul style="list-style-type: none"> There are many living things in any area, and they exist in different places on land and water. 	<p><u>Do/Skills:</u> Students will be able to...</p> <ul style="list-style-type: none"> observe the traits of different animals and use that information to organize them into groups based on their characteristics. observe animals, plants, and the physical characteristics of two different habitats. They collect and analyze data to compare the biodiversity between the two habitats. identify frogs based on their unique calls and use that information to determine the level of frog species diversity within multiple habitats. investigate which kinds of birds are likely to visit a bird feeder based on what they eat and design and build a prototype bird feeder that attracts a specific type of bird.

Vocabulary:

- biodiversity
- microorganisms
- needs
- organism
- survive
- exist
- habitats
- land
- living things
- water

Core Resources:

- Mystery Science

Common Assessment(s):

Supplemental Resources:

- Brainpop Jr.
- Discovery Education
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<p><u>Grade, Subject/Course:</u> 2nd Grade Science</p>	
<p><u>Unit:</u> Material Properties</p>	<p><u> x </u> Essential <u> </u> Important <u> </u> Compact</p>
<p><u>Big Idea:</u></p> <ul style="list-style-type: none"> ● All forms of matter exist due to the combination or rearrangement of atoms. ● The atoms of some substances combine or rearrange to form new substances with different properties. 	
<p><u>PA STEELS (Science, Technology & Engineering, and Environmental Literacy & Sustainability) Standards:</u></p> <p>3.2.2.A. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</p> <p>3.2.2.B. Analyze data obtained from testing different materials by their observable properties that are best suited for an intended purpose.</p> <p>3.2.2.C. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.</p> <p>3.2.2.D. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.</p>	<p><u>Interdisciplinary Standards (if applicable):</u></p>
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> ● How do particles combine to form the variety of matter one observes? ● How do substances combine or change (react) to make new substances? ● How does one characterize and explain these reactions and make predictions about them? 	<p><u>Understandings:</u> Students will know...</p> <ul style="list-style-type: none"> ● the properties of materials and matter. ● different types of materials by properties: hardness, flexibility, and absorbency. ● how those properties are useful in meeting basic human needs (such as clothing and cooking). ● how heating and cooling affect the properties of materials.

<p><u>Knowledge:</u></p> <ul style="list-style-type: none"> ● Different kinds of matter exist, many of which can be solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. ● Different properties are suited to different purposes. ● Various objects can be built up from a small set of pieces. ● Heating or cooling a substance may cause changes that can be observed. Sometimes, these changes are reversible, and sometimes they are not. 	<p><u>Do/Skills:</u> Students will be able to...</p> <ul style="list-style-type: none"> ● investigate different material properties, such as flexibility and absorbency, and use those properties to design and build a hat that protects them from the sun. ● investigate conductors and insulators to determine which are best suited for allowing people to handle hot items. ● investigate different materials to determine which are most and least easily melted. ● design a new invention that takes advantage of the unique properties of a futuristic material. ● construct an evidence-based account of how a structure built of paper can be disassembled and rebuilt in new ways. ● conduct an investigation where they examine three different soil models. They use this information to determine which type of soil has the properties that will result in the best mud that can be used to build a house.
<p><u>Vocabulary:</u></p> <ul style="list-style-type: none"> ● classify ● describe ● gas ● liquid ● matter ● patterns ● solid ● weight ● color ● flexibility ● properties ● texture ● investigations ● argument ● boiling ● cause and effect ● evidence ● freezing ● melting ● reverse ● data ● functions ● test ● construct 	<p><u>Core Resources:</u></p> <ul style="list-style-type: none"> ● Mystery Science

- design
- engineer
- problem-solving
- solutions
- disassemble

Common Assessment(s):

Supplemental Resources:

- Brainpop Jr.
- Discovery Education
- Generation Genius