

**McKinley Presidential Library & Museum
Planetarium Show Ohio Science Standards
Second Grade**



MCKINLEY PRESIDENTIAL
Library & Museum

Strand:	The Atmosphere	<i>This topic focuses on air and water as they relate to weather and weather changes that can be observed and measured.</i>
Earth	<p>The atmosphere is made up of air.</p> <p>Water is present in the air.</p> <p>Long- and short-term weather changes occur due to changes in energy.</p>	<ul style="list-style-type: none"> • Air has properties that can be observed and measured. The transfer of energy in the atmosphere causes air movement, which is felt as wind. Wind speed and direction can be measured. • Water is present in the air as clouds, steam, fog, rain, ice, snow, sleet or hail. When water in the air cools (change of energy), it forms small droplets of water that can be seen as clouds. Water can change from liquid to vapor in the air and from vapor to liquid. The water droplets can form into raindrops. Water droplets can change to solid by freezing into snow, sleet or hail. Clouds are moved by flowing air. • Changes in energy affect all aspects of weather, including temperature, precipitation amount and wind.
Strand:	Interactions with Habitats	<i>This topic focuses on how ecosystems work by observations of simple interactions between the biotic/living and abiotic/nonliving parts of an ecosystem. Just as living things impact the environment in which they live, the environment impacts living things.</i>
Life	<p>Living things cause changes on Earth.</p> <p>Some kinds of individuals that once lived on Earth have completely disappeared, although they were something like others that are alive today.</p>	<ul style="list-style-type: none"> • Living things function and interact with their physical environments. Living things cause changes in the environments where they live; the changes can be very noticeable or slightly noticeable, fast or slow. • Living things that once lived on Earth no longer exist; their basic needs were no longer met.
Strand:	Changes in Motion	<i>This topic focuses on observing the relationship between forces and motion.</i>
Physical	<p>Forces change the motion of an object.</p>	<ul style="list-style-type: none"> • Motion can increase, change direction or stop depending on the force applied. The change in motion of an object is related to the size of the force. Some forces act without touching, such as using a magnet to move an object or objects falling to the ground.

During the years of PreK to grade 4, all students must develop the ability to:

- ***Observe and ask questions about the natural environment***
- ***Plan and conduct simple investigations***
- ***Employ simple equipment and tools to gather data and extend the senses***
- ***Use appropriate mathematics with data to construct reasonable explanations***
- ***Communicate about observations, investigations and explanations***
- ***Review and ask questions about the observations and explanations of others.***

Third Grade-Interconnections Within Systems: Matter is what makes up all substances on Earth. Matter has specific properties and exists in different states. Earth's resources are made of matter. Matter can be used by living things and can be used for the energy they contain. There are many different forms of energy. Each living component of an ecosystem is composed of matter and uses energy

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Strand:	Earth's Resources	<i>This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.</i>
Earth	<p>Earth's resources can be used for energy.</p> <p>Some of Earth's resources are limited.</p>	<ul style="list-style-type: none"> • Many of Earth's resources can be used for the energy they contain. Renewable energy is an energy resource, such as wind, water or solar energy, that is replenished within a short amount of time by natural processes. Nonrenewable energy is an energy resource, such as coal or oil, that is a finite energy source that cannot be replenished in a short amount of time • Some of Earth's resources become limited due to overuse and/or contamination. Reducing resource use, decreasing waste and/or pollution, recycling and reusing can help conserve these resources
Strand:	Behavior, Growth and Changes	<i>This topic explores life cycles of organisms and the relationship between the natural environment and an organism's (physical and behavioral) traits, which affect its ability to survive and reproduce.</i>
Life	Plants and animals have life cycles that are part of their adaptations for survival in their natural environments.	<ul style="list-style-type: none"> • Over the whole earth, organisms are growing, reproducing, dying and decaying. The details of the life cycle are different for different organisms, which affects their ability to survive and reproduce in their natural environments.
Strand:	Matter and Forms of Energy	<i>This topic focuses on the relationship between matter and energy. Matter has specific properties and is found in all substances on Earth. Heat is a familiar form of energy that can change the states of matter.</i>
Physical	Heat, electrical energy, light, sound and magnetic energy are forms of energy.	<ul style="list-style-type: none"> • There are many different forms of energy. Energy is the ability to cause motion or create change.

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(Ohio Dept. of Education, adopted 2011)

Fourth Grade-Interconnections Within Systems: Heat and electrical energy are forms of energy that can be transferred from one location to another. Matter has properties that allow the transfer of heat and electrical energy. Heating and cooling affect the weathering of Earth's surface and Earth's past environments. The processes that shape Earth's surface and the fossil evidence found can help decode Earth's history

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Strand:	Earth's Surface	<i>This topic focuses on the variety of processes that shape and reshape Earth's surface.</i>
Earth	<p>Earth's surface has specific characteristics and landforms that can be identified.</p> <p>The surface of Earth changes due to weathering.</p>	<ul style="list-style-type: none"> About 70 percent of the Earth's surface is covered with water and most of that is the ocean. Only a small portion of the Earth's water is freshwater, which is found in rivers, lakes and ground water. Earth's surface can change due to erosion and deposition of soil, rock or sediment. Catastrophic events such as flooding, volcanoes and earthquakes can create landforms. Rocks change shape, size and/or form due to water or ice movement, freeze and thaw, wind, plant growth, gases in the air, pollution and catastrophic events such as earthquakes, mass wasting, flooding and volcanic activity.
Strand:	Earth's Living History	<i>This topic focuses on using fossil evidence and living organisms to observe that suitable habitats depend upon a combination of biotic and abiotic factors.</i>
Life	<p>Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.</p>	<ul style="list-style-type: none"> Ecosystems can change gradually or dramatically. When the environment changes, some plants and animals survive and reproduce and others die or move to new locations. An animal's patterns of behavior are related to the environment. This includes the kinds and numbers of other organisms present, the availability of food and resources, and the physical attributes of the environment.
Strand:	Electricity, Heat and Matter	<i>This topic focuses on the conservation of matter and the processes of energy transfer and transformation, especially as they relate to heat and electrical energy</i>
Physical	<p>The total amount of matter is conserved when it undergoes a change.</p> <p>Energy can be transformed from one form to another or can be transferred from one location to another.</p>	<ul style="list-style-type: none"> Energy transfers from hot objects to cold objects as heat, resulting in a temperature change. Electric circuits require a complete loop of conducting materials through which an electrical energy can be transferred. Electrical energy in circuits can be transformed to other forms of energy, including light, heat, sound and motion. Electricity and magnetism are closely related.

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