

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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Third Grade



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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 nonliving resources have specific properties.</p> <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"> • Soil is composed of pieces of rock, organic material, water and air and has characteristics that can be measured and observed. Rocks have unique characteristics that allow them to be sorted and classified. Rocks form in different ways. Air and water are nonliving resources. • 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	<p>Individuals of the same kind differ in their traits and sometimes the differences give individuals an advantage in surviving and reproducing.</p> <p>Plants and animals have life cycles that are part of their adaptations for survival in their natural environments.</p>	<ul style="list-style-type: none"> • Plants and animals have physical features that are associated with the environments where they live. Plants and animals have certain physical or behavioral characteristics that improve their chances of surviving in particular environments. • 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>

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Physical	All objects and substances in the natural world are composed of matter. Matter exists in different states, each of which has different properties. Heat, electrical energy, light, sound and magnetic energy are forms of energy.	<ul style="list-style-type: none">• Matter takes up space and has mass.• The most common states of matter are solids, liquids and gases. Shape and compressibility are properties that can distinguish between the states of matter. One way to change matter from one state to another is by heating or cooling.• There are many different forms of energy. Energy is the ability to cause motion or create change.
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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.***

(Ohio Dept. of Education, adopted 2011)

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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> <p>The surface of Earth changes due to erosion and deposition.</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. • Water, wind and ice physically remove and carry (erosion) rock, soil and sediment and deposit the material in a new location. Gravitational force affects movements of water, rock and soil.
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> <p>Fossils can be compared to one another and to present-day organisms according to their similarities and differences.</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. • The concept of biodiversity is expanded to include different classification schemes based upon shared internal and external characteristics of organisms. Most types of organisms that have lived on Earth no longer exist. Fossils provide a point of comparison between the types of organisms that lived long ago and those existing today
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>

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

Physical	The total amount of matter is conserved when it undergoes a change. Energy can be transformed from one form to another or can be transferred from one location to another.	<ul style="list-style-type: none">• When an object is broken into smaller pieces, when a solid is dissolved in a liquid or when matter changes state (solid, liquid, gas), the total amount of matter remains constant.• 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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