Utah Science

Grade 5

Adopted 2020

Characteristics And Interactions Of Earth's Systems 5.1

1. Analyze and interpret data to describe patterns of Earth's features. Emphasize most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans while major mountain chains may be found inside continents or near their edges. Examples of data could include maps showing locations of mountains on continents and the ocean floor or the locations of volcanoes and earthquakes. 5.1.1

2. Use mathematics and computational thinking to compare the quantity of saltwater and freshwater in various reservoirs to provide evidence for the distribution of water on Earth. Emphasize reservoirs such as oceans, lakes, rivers, glaciers, groundwater, and polar ice caps. Examples of using mathematics and computational thinking could include measuring, estimating, graphing, or finding percentages of quantities. 5.1.2

3. Ask questions to plan and carry out investigations that provide evidence for the effects of weathering and the rate of erosion on the geosphere. Emphasize weathering and erosion by water, ice, wind, gravity, or vegetation. Examples could include observing the effects of cycles of freezing and thawing of water on rock or changing the slope in the downhill movement of water. 5.1.3

4. Develop a model to describe interactions between Earth's systems including the geosphere, biosphere, hydrosphere, and/or atmosphere. Emphasize interactions between only two systems at a time. Examples could include the influence of a rainstorm in a desert, waves on a shoreline, or mountains on clouds. 5.1.4

5. Design solutions to reduce the effects of naturally occurring events that impact humans. Emphasize that humans cannot eliminate natural hazards, but they can take steps to reduce their impacts. Examples of events could include landslides, earthquakes, tsunamis, blizzards, or volcanic eruptions. 5.1.5

Properties And Changes Of Matter 5.2

1. Develop and use a model to describe that matter is made of particles on a scale that is too small to be seen. Emphasize making observations of changes supported by a particle model of matter. Examples could include adding air to expand a balloon, compressing air in a syringe, adding food coloring to water, or dissolving salt in water and evaporating the water. 5.2.1

2. Ask questions to plan and carry out investigations to identify substances based on patterns of their properties. Emphasize using properties to identify substances. Examples of properties could include color, hardness, conductivity, solubility, or a

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	response to magnetic forces. Examples of substances could include powders, metals, minerals, or liquids. 5.2.2
	3. Plan and carry out investigations to determine the effect of combining two or more substances. Emphasize whether a new substance is or is not created by the formation of a new substance with different properties. Examples could include combining vinegar and baking soda or rusting an iron nail in water. 5.2.3
	4. Use mathematics and computational thinking to provide evidence that regardless of the type of change that occurs when heating, cooling, or combining substances, the total weight of matter is conserved. Examples could include melting an ice cube, dissolving salt in water, and combining baking soda and vinegar in a closed bag. 5.2.4
Cycling Of Matter In Ecosystems 5.3	1. Construct an explanation that plants use air, water, and energy from sunlight to produce plant matter needed for growth. Emphasize photosynthesis at a conceptual level and that plant matter comes mostly from air and water, not from the soil. 5.3.1
	2. Obtain, evaluate, and communicate information that animals obtain energy and matter from the food they eat for body repair, growth, and motion and to maintain body warmth. Emphasize that the energy used by animals was once energy from the Sun. 5.3.2
	3. Develop and use a model to describe the movement of matter among plants, animals, decomposers, and the environment. Emphasize that matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Examples could include simple food chains from ecosystems such as deserts or oceans or diagrams of decomposers returning matter to the environment. 5.3.3
	4. Evaluate design solutions whose primary function is to conserve Earth's environments and resources. Emphasize how humans can balance everyday needs (agriculture, industry, and energy) while conserving Earth's environments and resources. 5.3.4