Minnesota Science

Grade 6

Adopted 2019

Grade 6

Earth's Place in the Universe

1. Asking questions and defining problems. 6EU1.1
    1. Students will be able to ask questions about aspects of the phenomena they observe, the conclusions they draw from their models or scientific investigations, each other's ideas, and the information they read. 6EU1.1.1
        1. Ask questions that arise from observations of patterns in the movement of night sky objects to test the limitations of a solar system model. 6EU.1.1.1.1
1. Analyzing and interpreting data. 6EU.2.1
    1. Students will be able to represent observations and data in order to recognize patterns in the data, the meaning of those patterns, and possible relationships between variables. 6EU.2.1.1
        1. Analyze and interpret data to determine similarities and differences among features and processes occurring on solar system objects. 6EU.2.1.1.1
1. Developing and using models. 6EU.3.1
    1. Students will be able to develop, revise, and use models to represent the students' understanding of phenomena or systems as they develop questions, predictions and/or explanations, and communicate ideas to others. 6EU.3.1.1
        1. Develop and use scale models of solar system objects to describe the sizes of objects, the location of objects, and the motion of the objects; and include the role that gravity and inertia play in controlling that motion. 6EU.3.1.1.1
2. Constructing explanations and designing solutions. 6EU.3.2
    1. Students will be able to apply scientific principles and empirical evidence (primary or secondary) to explain the causes of phenomena or identify weaknesses in explanations developed by the students or others. 6EU.3.2.1
        1. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history. 6EU.3.2.1.1
2. Obtaining, evaluating and communicating information. 6EU.4.2
    2. Students will be able to gather information about and communicate the methods that are used by various cultures, especially those of Minnesota American Indian Tribes and communities, to develop explanations of phenomena and design solutions to problems. 6EU.4.2.2
        1. Communicate how a series of models, including those used by Minnesota American Indian Tribes and communities and other cultures, are used to explain how motion in the Earth-Sun-Moon system causes the cyclic patterns of lunar phases, eclipses and seasons. 6EU.4.2.2.1

Earth's Systems

1. Asking questions and defining problems. 6ES.1.1
    1. Students will be able to ask questions about aspects of the phenomena they observe, the conclusions they draw from their models or scientific investigations, each other's ideas, and the information they read. 6ES.1.1.1
        2. Ask questions to examine an interpretation about the relative ages of different rock layers within a sequence of several rock layers. 6ES.1.1.1.2
2. Planning and carrying out investigations. 6ES.1.2
    1. Students will be able to design and conduct investigations in the classroom, laboratory, and/or field to test students' ideas and questions, and will organize and collect data to provide evidence to support claims the students make about phenomena. 6ES.1.2.1
        1. Collect data and use digital data analysis tools to identify patterns to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions. 6ES.1.2.1.1
1. Analyzing and interpreting data. 6ES.2.1
    1. Students will be able to represent observations and data in order to recognize patterns in the data, the meaning of those patterns, and possible relationships between variables. 6ES.2.1.1
        2. Analyze and interpret data on the distribution of fossils, rocks, continental shapes, and seafloor structures to provide evidence of past plate motions. 6ES.2.1.1.2
1. Developing and using models. 6ES.3.1
    1. Students will be able to develop, revise, and use models to represent the students' understanding of phenomena or systems as they develop questions, predictions and/or explanations, and communicate ideas to others. 6ES.3.1.1
        2. Develop a model, based on observational evidence, to describe the cycling and movement of Earth's rock material and the energy that drives these processes. 6ES.3.1.1.2
        3. Develop a model, based on observational and experimental evidence, to describe the cycling of water through Earth's systems driven by energy from the Sun and the force of gravity. 6ES.3.1.1.3
1. Engaging in argument from evidence. 6ES.4.1
    1. Students will be able to engage in argument from evidence for the explanations the students construct, defend and revise their interpretations when presented with new evidence, critically evaluate the scientific arguments of others, and present counterarguments. 6ES.4.1.1
        1. Construct an argument, supported by evidence, for how geoscience processes have changed Earth's surface at varying time and spatial scales. 6ES.4.1.1.1

Earth and Human Activity

1. Asking questions and defining problems. 6EH.1.1
    1. Students will be able to ask questions about aspects of the phenomena they observe, the conclusions they draw from their models or scientific investigations, each other's ideas, and the information they read. 6EH.1.1.1
        3. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. 6EH.1.1.1.3
1. Analyzing and interpreting data. 6EH.2.1
    1. Students will be able to represent observations and data in order to recognize patterns in the data, the meaning of those patterns, and possible relationships between variables. 6EH.2.1.1
        3. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. 6EH.2.1.1.3
2. Constructing explanations and designing solutions. 6EH.3.2
    1. Students will be able to apply scientific principles and empirical evidence (primary or secondary) to explain the causes of phenomena or identify weaknesses in explanations developed by the students or others. 6EH.3.2.1
        2. Construct a scientific explanation based on evidence for how the uneven distribution of Earth's mineral, energy, or groundwater resources is the result of past geological processes. 6EH.3.2.1.2
        3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. 6EH.3.2.1.3