

Grade 4

Energy

Speed and Energy

Cause and Effect

- 1 Use evidence to explain the relationship between the speed of an object and its energy. 4.1
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Transference of Energy

Patterns

- 2 Plan and carry out investigations to answer questions regarding changes in energy when objects collide, and predict reasonable outcomes based on observed patterns. 4.2
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Transference of Energy

Energy and Matter

- 3 Plan and carry out investigations to provide evidence that energy is transferred by sound, light, heat, and electric currents. 4.3
 - a Construct an explanation using evidence to support the claim that heat can be produced in many ways. 4.3.A
 - b Construct an explanation with evidence supporting the claim that different objects can absorb, reflect, and/or conduct energy. 4.3.B
 - 4 Design, construct, and test a device that changes energy from one form to another. 4.4
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Waves and Their Applications in Technologies for Information Transfer

Wave Properties

Patterns

- 5 Develop and use models to describe amplitude and wavelength patterns and how waves can cause objects to move. 4.5
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Information Transfer

Patterns

- 6 Construct an explanation of how light, sound, and digitized information are transferred by waves. 4.6

Wave Properties

Cause and Effect

- 7 Develop a model to demonstrate that light reflecting from objects and entering the eyes allow objects to be seen. 4.7
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From Molecules to Organisms: Structures and Processes

Internal and External Structures

Structure and Function

- 8 Make a claim, using evidence, that the functions of both internal and external structures of plants and animals (including humans) support growth, survival, and behavior. 4.8
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Information Processing

Systems and System Models

- 9 Carry out investigations to support a claim that different animals receive information through their senses, process that information, and respond in various ways. 4.9
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Earth's Systems

Water

Systems and System Models

- 10 Develop and use a model to describe how water moves through Earth's systems by the processes of evaporation, condensation, and precipitation. 4.10
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Changes Over Time

Stability and Change

- 11 Construct explanations of Earth's changes over time through slow and rapid processes, citing evidence found in rock formations and fossils in rock layers. 4.11
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Changes Over Time

Scale, Proportion, and Quantity

- 12 Plan and carry out investigations to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, and vegetation, investigating a single form of weathering or erosion at a time. 4.12
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Physical Features

Patterns

- 13 Analyze and interpret data from maps to describe patterns of Earth's features on land and in the ocean. 4.13
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Earth and Human Activity

Natural Resources

Cause and Effect

- 14 Gather information to describe how the use of energy derived from renewable and nonrenewable resources affects the environment. 4.14
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Natural Hazard Solutions

Cause and Effect

- 15 Design, test, and evaluate a solution that will protect humans from the effects of natural Earth processes. 4.15