

Grade 4

Adopted 2015

Energy

4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object. [4-PS3-1](#)

4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. [4-PS3-2](#)

4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide. [4-PS3-3](#)

4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. [4-PS3-4](#)

4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. [4-ESS3-1](#)

Waves: Waves and Information

4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. [4-PS4-1](#)

4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information. [4-PS4-3](#)

Structure, Function, and Information Processing

4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. [4-PS4-2](#)

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. [4-LS1-1](#)

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. [4-LS1-2](#)

**Earth's Systems:
Processes that Shape
the Earth**

4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. 4-ESS1-1

4-ESS1-1MI. Identify evidence from patterns in rock formations and fossils in rock layers to support possible explanations of Michigan's geological changes over time. 4-ESS1-1MI

4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation 4-ESS2-1

4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features. 4-ESS2-2

4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. 4-ESS3-2

4-ESS3-2MI. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on Michigan's people and places. 4-ESS3-2MI

Engineering Design

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-1

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-2

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. 3-5-ETS1-3