

# 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

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**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

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**4-PS3-3.** Ask questions and predict outcomes about the changes in energy that occur when objects collide. 4-PS3-3

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**4-PS3-4.** Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. 4-PS3-4

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**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

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## 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

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**4-PS4-3.** Generate and compare multiple solutions that use patterns to transfer information. 4-PS4-3

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## 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

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**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

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**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

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**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

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**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

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

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**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

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**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

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**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

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**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