

# 4th Grade



## **Energy**

- 4-PS3-1** Use evidence to construct an explanation relating the speed of an object to the energy of that object.
- 4-PS3-2** Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electrical currents.
- 4-PS3-3** Ask questions and predict outcomes about the changes in energy that occur when objects collide
- 4-PS3-4** Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
- 4-ESS3-1** Obtain and combine information to describe that energy and fuels are derived from natural resources and that their uses affect the environment.

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

## **Structure, Function, and Information Processing**

- 4-PS4-2** Develop a model to describe that light reflecting from objects and entering the eyes allows objects to be seen.
- 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-LS1-2** 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.

## **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-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-ESS2-2** Analyze and interpret data from maps to describe patterns of Earth's features.
- 4-ESS3-2** Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

## **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 costs.
- 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-ETS1-3** 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.

\*Refer to evidence statements in [www.nextscience.org](http://www.nextscience.org)

Adapted from Achieve. (2016, January 28), from <http://www.nextgenscience.org>