SUFFOLK COUNTY VANDERBILT
Mansion | Museum | Planetarium

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New York State Science Learning Standards
To Space and Back

3rd Grade

- **3-PS2-2.** Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.
- **3-ESS3-1.** Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.

Disciplinary Core Ideas:

- PS2.A: Forces and Motion
- ESS2.D: Weather and Climate
- ESS3.B: Natural Hazards

Crosscutting Concepts:

- Patterns
- Cause and Effect
- Science is a Human Endeavor
- Interdependence of Science, Engineering, and Technology
- Influence of Engineering, Technology, and Science on Society and the Natural World

4th Grade

- **4-PS4-2.** Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.
- **4-ESS3-2.** Generate and compare multiple solutions to reduce impacts of natural Earth processes on humans.

Disciplinary Core Ideas:

- PS4.C: Information Technologies and Instrumentation
- PS4.B: Electromagnetic Radiation
- ESS3.B: Natural Hazards
- ETS1.B: Designing Solutions to Engineering Problems

Crosscutting Concepts:

- Patterns
- Cause and Effect
- Systems and System Models
- Science is a Human Endeavor
- Interdependence of Science, Engineering, and Technology
- Influence of Engineering, Technology, and Science on Society and the Natural World

5th Grade

- **5-ESS2-1.** Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
- **5-ESS3-1.** Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.
- **5-PS2-1.** Support an argument that gravitational force exerted by Earth on objects is directed down.
- **5-ESS1-1.** Support an argument that differences in the apparent brightness of the Sun compared to other stars is due to their relative distances from Earth.

5th Grade (cont'd)

Disciplinary Core Ideas:

- ESS2.A: Earth Materials and Systems
- ESS3.C: Human Impacts on Earth Systems
- PS2.B: Types of Interactions
- ESS1.A: The Universe and its Stars
- ESS1.B: Earth and the Solar System

Crosscutting Concepts:

- Patterns
- Cause and Effect
- Systems and System Models
- Scale, Proportion, and Quantity
- Science Addresses Questions About the Natural and Material World
- Influence of Engineering, Technology, and Science on Society and the Natural World

Middle School

- **MS-PS4-2.** Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.
- **MS-PS4-3.** Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.
- **MS-LS1-3.** Construct an explanation supported by evidence for how the body is composed of interacting systems consisting of cells, tissues, and organs working together to maintain homeostasis.
- **MS-LS1-8**. Gather and synthesize information that sensory receptors respond to stimuli, resulting in immediate behavior and/or storage as memories.
- **MS-ESS1-2.** Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
- **MS-ESS3-2.** Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- **MS-ESS3-3.** Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

Disciplinary Core Ideas:

- PS2.B: Types of Interactions
- PS4.A: Wave Properties
- PS4.B: Electromagnetic Radiation
- PS4.C: Information Technologies and Instrumentation
- LS1.D: Information Processing
- ESS1.A: The Universe and Its Stars
- ESS1.B: Earth and the Solar System
- ESS2.D: Weather and Climate
- ESS3.B: Natural Hazards
- ESS3.C: Human Impacts on Earth Systems

Middle School (cont'd)

Crosscutting Concepts:

- Patterns
- Cause and Effect
- Systems and System Models
- Scale, Proportion, and Quantity
- Interdependence of Science, Engineering, and Technology
- Science Addresses Questions About the Natural and Material World
- Influence of Engineering, Technology, and Science on Society and the Natural World

High School

- **HS-PS4-2.** Evaluate questions about the advantages of using a digital transmission and storage of information.
- **HS-PS4-5.** Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.
- **HS-ESS1-2.** Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.
- **HS-ESS1-4.** Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.

Disciplinary Core Ideas:

- PS4.A: Wave Properties
- PS4.B: Electromagnetic Radiation
- PS4.C: Information Technologies and Instrumentation
- ESS1.A: The Universe and Its Stars
- ESS1.B: Earth and the Solar System
- ESS2.A: Earth's Materials and Systems
- ESS2.D: Weather and Climate
- ESS3.B: Natural Hazards
- ESS3.C: Human Impacts on Earth Systems
- ETS1.B: Developing Possible Solutions

Crosscutting Concepts:

- Patterns
- Cause and Effect
- Systems and System Models
- Scale, Proportion, and Quantity
- Interdependence of Science, Engineering, and Technology
- Science Addresses Questions About the Natural and Material World
- Influence of Engineering, Technology, and Science on Society and the Natural World