

5TH GRADE SCIENCE

Students should be able to use science and engineering practices and understand the following content

Science and Engineering Practices

- Development of habits of mind that are necessary for scientific thinking and that allow students to engage in science in ways similar to those used by scientists and engineers
- Asking and answering questions about the natural world
- Developing and using models to (1) build understanding of phenomena, processes and relationships, (2) test devices or solutions, or (3) communicate ideas to others
- With teacher guidance, conduct structured investigations to answer scientific questions, test predictions, and develop explanations
- Collecting and analyzing data from investigations to construct explanations and communicate results
- Using mathematical and computational thinking in collecting and communicating data
- Using technology to collect data and in communication of results

Physical Science (Matter and Mixtures, Motion)

- Demonstrate an understanding of the physical properties of matter and mixtures
- Explain why matter can be classified as a solid, liquid, or gas
- Describe what happens to the properties of substances when two or more are mixed together
- Describe the properties of solutions
- Describe and use appropriate methods to separate various mixtures
- Demonstrate an understanding of the factors that affect the motion of an object
- Summarize the motion of an object in terms of position, direction, and speed
- Explain the effects of unbalanced forces on the rate and motion of an object
- Describe how friction affects motion and ways to reduce friction

Earth Science (Landforms)

- Demonstrate an understanding of how natural processes and human activities affect the features of Earth's landforms and oceans
- Explain how different landforms and surface features result from the movement of water on the Earth's surface through watersheds and rivers
- Describe and compare locations and characteristics of landforms on continents and on the ocean floor
- Analyze and interpret data to describe and predict how natural processes affect the Earth's surface
- Explain and use models to describe the effects of moving ocean water
- Describe how human activities affect the land and oceans
- Describe the kinds of information that are used to predict the weather
- Propose solutions that help reduce or adjust impacts on landforms and ocean zones

Life Science (Ecosystems)

- Demonstrate an understanding of relationships among biotic and abiotic factors within terrestrial and aquatic ecosystems
- Analyze and interpret data related to abiotic factors (light, soil, water, etc.) in terrestrial and aquatic ecosystems
- Describe and compare biotic factors in terrestrial and aquatic ecosystems
- Explain how organisms get their energy and also describe how energy moves through an ecosystem
- Classify organisms as producers, consumers, or decomposers
- Describe the kinds of interactions that occur among organisms
- Discuss how limiting factors (low food supply, little space, etc.) or introduced organisms can impact an ecosystem

Activities:

- Take an inventory of the solids, liquids, and mixtures in your kitchen and other areas on your home
- Go online and find maps that show landforms and oceans around the world
- Visit an amusement park and take photos or video of various rides and discuss the forces and motion of objects
- Visit a science center with an interactive force and motion exhibit
- If you bike, rollerblade, or ride a skateboard analyze your motion. Note how you move to change direction.
- Visit a nature center, a pond, a lake, the shore, etc. Talk about the similarities and differences you see in plants and animals and where each lives.
- Read about endangered species and the reasons they are endangered.

Books:

- Boudreau, Gloria. *Ecosystems - Life in a Forest*
- Clifford, Nick. *Incredible Earth*
- Cobb, Vicki. *Science Experiments You Can Eat*
- Gardner, Robert. *Science in Your Backyard*
- Gilbreath, Alice T. *The Continental Shelf: An Underwater Frontier*
- Nankivell-Aston, Sally and Dorothy Jackson. *Science Experiments with Forces*
- Southgate, Merrie. *Agnes Pflumm and the Stonecreek Science Fair*
- Southgate, Merrie. *No Place Like Periwinkle*

Websites

- AAAS Science Netlink - www.sciencenetlinks.com
- Bill Nye, The Science Guy - www.billnye.com
- Franklin Institute - www.fi.edu
- NASA's earth science website - <http://kids.earth.nasa.gov>