

Elementary Standards

Students in kindergarten through fifth grade begin to develop an understanding of the four disciplinary core ideas: physical sciences; life sciences; earth and space sciences; and engineering, technology, and applications of science. In the earlier grades, students begin by recognizing patterns and formulating answers to questions about the world around them. By the end of fifth grade, students are able to demonstrate grade-appropriate proficiency in gathering, describing, and using information about the natural and designed world (s). The performance expectations in elementary school grade bands develop ideas and skills that will allow students to explain more complex phenomena in the four disciplines as they progress to middle school and high school. While the performance expectations shown in kindergarten through fifth grade couple particular practices with specific disciplinary core ideas, instructional decisions should include use of many practices that lead to the performance expectations.

ENGINEERING STANDARDS 3-5

- 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-ETS1-2. 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.

Fifth Grade

CONCEPTS

- describe that matter is made of particles too small to be seen through the development of a model
- regardless of the type of change that matter undergoes, the total weight of matter is conserved
- mixing of two or more substances results in new substances,
- ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact,
- describe and graph data to provide evidence about the distribution of water on Earth
- plants get the materials they need for growth chiefly from air and water,
- describe the movement of matter among plants, animals, decomposers, and the environment
- energy in animals' food was once energy from the sun,
- patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky

SKILLS

cause and effect; scale, proportion, and quantity; energy and matter; and systems and systems models, developing and using models, planning and carrying out investigations, analyzing and interpreting data, using mathematics and computational thinking, engaging in argument from evidence, and obtaining, evaluating, and communicating information

STANDARDS

MATTER AND ENERGY IN ORGANISMS AND ECOSYSTEMS

- ✓ Where does the energy in food come from and what is it used for? 5-PS3-1
- ✓ How does plant energy move in matter cycles? 5-LS2-1
- ✓ How does matter cycle through ecosystems? 5-LS-2.A

STARS AND THE SOLAR SYSTEM

- ✓ How do lengths and directions of shadows or lengths of day and night change from day to day? 5-SS1-2
- ✓ How does the appearance of some stars change in different seasons? 5-SS1-1
- ✓ Why do some stars and solar system objects seem brighter than others?
- ✓ Why do objects fall? 5-PS2.B

EARTH SYSTEMS

- ✓ How do the geosphere, hydrosphere, atmosphere, and biosphere interact and influence each other? ESS2.A
- ✓ How much water can be found in different places on Earth? ESS2.C
- ✓ What effect does human activity have on Earth's systems? ESS3.C

STRUCTURE AND PROPERTIES OF MATTER

- ✓ When matter changes, does its weight change? 5-PS1-2
- ✓ How can you show matter that is too small to see? 5-PS1-1
- ✓ Can new substances be created by combining other substances? 5-PS1-4
- ✓ Can you identify materials based on their properties? 5-PS1-3