

Grade 5 Science Units:

Earth and Sun (FOSS)

The Foss **Earth and Sun** Module provides students with experiences to explore the properties of the atmosphere, energy transfer from the Sun to Earth, and the dynamics of weather and water cycling in Earth's atmosphere. Other experiences help students to develop and use models to understand Earth's place in the solar system, and the interactions of Earth, the Sun, and the Moon to reveal predictable patterns—daily length and direction of shadows, day and night, and the seasonal appearance of stars in the night sky.

Students gain experiences that will contribute to the understanding of crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; systems and system models; and energy and matter.

- **5-PS2-1. Support an argument that the 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 the Earth.**
- **5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.**

Mixtures and Solutions (FOSS)

The Foss **Mixtures and Solutions** Module introduces students to fundamental ideas about matter and its interactions. Students come to know that matter is made of particles too small to be seen and develop the understanding that matter is conserved when it changes state—from solid to liquid to gas—when it dissolves in another substance, and when it is part of a chemical reaction.

Students have experiences with mixtures, solutions of different concentrations, and reactions forming new substances. They also engage in engineering experiences with separation of materials. Students gain experiences that will contribute to the understanding of crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; systems and system models; and energy and matter.

- **PS1-1: Develop a model to describe that matter is made of particles too small to be seen.**
- **PS1-2: Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.**
- **PS1-3: Make observations and measurements to identify materials based on their properties.**
- **PS1-4: Conduct an investigation to determine whether the mixing of two or more substances results in new substances.**

Living Systems (FOSS)

In the Foss **Living Systems** Module, students think about systems on different scales— nutrient and transport systems within an organism that moves matter and provides energy to the individual organism, and feeding relationships in ecosystems that move matter among plants, animals, decomposers, and the environment.

Students come to understand through a variety of experiences that plants get the materials they need for growth primarily from water and air, and that energy in animals' food was once energy from the Sun. There are many opportunities for students to explore how human activities

in agriculture, industry, and everyday life can have major effects on these systems. Students gain experiences that will contribute to the understanding of crosscutting concepts of patterns; scale, proportion, and quantity; systems and system models; and energy and matter.

- **5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.**
- **5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.**
- **5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.**
- **5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.**
- **5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.**
- **5.ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.**