

# FOSS Kit Descriptions

## **Air and Weather**

This module involves students in monitoring weather. They use syringes and tubes to discover that air takes up space and builds up pressure when compressed. They also construct devices that use moving air to function—including balloon rockets, kites, and whirligigs. *Grade Levels 1 & 2*

## **Balance & Motion**

Includes such activities as balancing cardboard shapes and pencils, investigating motion through tops, zoomers, whirlers, wheel and axle systems, and rolling cups. *Grade Levels 1 & 2*

## **Earth Materials**

The activities in this module encourage students to research and identify the characteristics of rocks and minerals. Students get practice with the tools and methods geologists use to determine the minerals inside rocks, and learn techniques for identifying several specific rocks and minerals, including calcite, quartz and granite. *Grade Levels 3 & 4*

## **Fabric**

Students become acquainted with the properties of several types of fabrics and learn one of their important uses by sewing two pieces together. They stain fabrics and try to clean them, observe how certain fabrics repel or absorb water, and dye cloth to change its color. *Grade Level Kindergarten*

## **Food & Nutrition**

Students analyze common foods for fats, sugars, and acids. "Free Lunch" the fourth and final activity, ask students to identify 20 lunch foods by their ingredients alone and to plan lunch menus based on a proper balance of carbohydrates, proteins, and fats. *Grade Levels 5 & 6*

## **Human Body**

With this module, students discover how bones, joints, and muscles work together. They build model skeleton parts, study their stimulus/response systems, and see what it's like to perform routine tasks with certain joints immobilized. Integrated multimedia materials explain how we use food, air, and our senses. *Grade Levels 3 & 4*

## **Ideas & Inventions**

Here's a great idea for encouraging the inventiveness of students: Ask them to observe things that can't be seen with the naked eye. This module's four activities introduce students to rubbing, carbon printing, chromatography, and mirror imagery, and key science techniques for making the invisible visible. In the end, students will be inventing ways to extend these techniques. *Grade Levels 3 & 4*

## **Landforms**

This module illustrates how forces of nature shape the earth's surface. Students practice the science of cartography, making maps of their school year, and creating topographic maps of Mt. Shasta and other areas of this country. *Grade Levels 5 & 6*

## **Levers & Pulleys**

Understanding simple machines—and what they reveal about the relationships between effort and the work produced—is essential to understanding complex ones. Students will grasp that idea through the activities of this module, which encourages them to create and operate two simple labor savers: levers and pulleys. *Grade Levels 5 & 6*

## **Magnetism & Electricity**

Watch the light bulb of discovery click on when young scientists study the concepts in this unit's activities, which integrate doing and viewing, teach magnetism, electricity, and build a telegraph, develop a code, and use their inventions for classroom communication. *Grade Levels 3 & 4*

## **Measurement**

This module awakens students to the importance of measurement—of determining how far, how long, how high, how much, and how many. Using such tools as a meter tape and a balance, students also learn about the metric system. *Grade Levels 3 & 4*

### **Mixtures & Solutions**

This module helps students learn fundamental ideas of chemistry: mixture, solution, concentration, saturation, and reaction. Ideas are reinforced with multi-media experiences exploring solids, liquids, and gases. *Grade Levels 5 & 6*

### **Models & Designs**

In this module, students learn that scientific knowledge is not just accumulated, it is also applied, helping people in many ways. The activities encourage students to use creative thinking and problem-solving skills to build working models, including a model of a device they can hear but cannot see. *Grade Levels 5 & 6*

### **Paper**

This module encourages students to focus on paper's properties, to make paper constructions, and to see how paper interacts with water. They complete their scientific investigations by making some paper of their very own.

*Grade Level Kindergarten*

### **Pebbles, Sand & Silt**

Students learn about rocks by sorting, washing, comparing, and seriating them. They separate mixtures of rocks with screens and then investigate clay and soil. In the end, they do projects that demonstrate how people use earth materials in their daily lives. *Grade Levels 1 & 2*

### **Physics of Sound**

Helps students learn that sound originates from a vibrating source; that individual sounds can be discriminated and matched; that sound is energy that can travel through solids, liquids, and gases; that the pitch of a sound is related to the physical properties of the sound source; and more. *Grade Levels 3 & 4*

### **Solar Energy**

The sun gives off energy--but can we tap it for fuel? With this module of activities and videos, students find out for themselves. They see how differences in the size and position of shadows reflect the relative position of the sun and later assemble model houses and try to heat them with solar energy. *Grade Levels 5 & 6*

### **Solids & Liquids**

Invites students to investigate the properties of particulate solids (cornmeal, beans, rice) and liquids (water, corn syrup, oil) and compare their behaviors. Among other activities, students examine toothpaste to determine whether it's a solid or a liquid. *Grade Levels 1 & 2*

### **Trees**

Using real and representational materials, students adopt school-yard trees, observe tree parts, investigate leaves, and keep scrapbooks. Then the special treat: Students plant and grow a tree on the school grounds. *Grade Level Kindergarten*

### **Variables**

This module introduces the controlled experiment. Students identify and control variables in experiments involving a swing pendulum, a floating "paper cup" boat, a flying windup airplane, and a mini-catapult. The activities reveal that relationships between things always involve interactions, dependencies, and cause-and-effect events. *Grade Level 5 & 6*

### **Water**

Without water, life on earth would end. In this module, students perform activities and view videos that look into this all-important substance. Students observe water as a liquid and a solid; investigate the phenomena of evaporation and condensation, and more. *Grade Level 3 & 4*

### **Wood**

Students take wood apart, put wood together, and sink, nail, and glue it. It's all part of an effort to learn the properties of different kinds of wood: pine, plywood, redwood, particleboard, and basswood. *Grade Level Kindergarten*