

## FIRST GRADE SCIENCE AND ENGINEERING KITS

### **Designing Bridges (engineering kit)**

Design and build a bridge strong enough to support The Three Billy Goats Gruff. Explore three basic types of bridges (beam, arch, and double beam) using index cards, an abutment structure, and gram weights. Design, build, and test bridges with weights and describe the trade-off between number of index cards used, type of bridge, and the weight it will support.

For use as a complement to FOSS Balance and Motion. This is a stand along kit and does NOT need materials from FOSS Balance and Motion kit. Kit includes teacher's guide, read aloud book, and materials needed to build the bridges.

### **Designing Walls (engineering kit)**

Help The Three Little Wolves build a wall strong enough to keep out the Big Bad Pig. Explore the properties of mortar materials (sand, clay, and soil) with adhesion and earthquake tests. Survey wall types. Design a mortar "recipe," and build a small wall. Test the strength of the walls using a demolition ball.

For use in conjunction with FOSS Pebbles, Sand, and Silt. This kit NEEDS materials from the FOSS kit. Kit includes teacher's guide, read aloud book, and materials needed to build the walls.

### **Balance and Motion (science kit)**

Balance cardboard shapes and pencils. Make mobiles to explore balance, counterbalance, and stability. Optional spinning motion investigations with tops, zoomers, whirlers. Investigate rolling motion with wheel-and-axle systems and rolling cups. Make ramps and experiment with wheels of different sizes. Use flexible marble runways to investigate motion. Includes a Book Kit with a selection of books to supplement the hands on lessons.

### **Pebbles, Sand, and Silt (science kit)**

Learn about rocks by rubbing, sorting, washing, comparing, and seriating them. Separate mixtures of rocks with screens and investigate clay and soil. Do optional projects that demonstrate how people use earth materials in their daily lives. Go on a rock walk to look for earth materials in use. Put together and take apart soils; compare homemade soil to local samples. Includes a Book Kit with a selection of books to supplement the hands on lessons.

### **New Plants (science kit)**

Grow plants from seed using rapid-cycling brassica under a grow light and observe the life cycle in one month. Plant monocots (rye grass) and dicots (alfalfa) together in a "lawn" and compare the results of mowing. Closely examine seed germination in a straw. Propagate plants from cuttings and watch them grow into new plants. Plant onion and garlic bulbs and observe their development. Optional taste testing and farm connection lessons added. Includes a Book Kit with a selection of books to supplement the hands on lessons.