**Effective and Safe Classroom Activities**

Conducting safe classroom demonstrations and activities is essential to successful elementary science education. The following resources provide Core Knowledge’s recommendations for developing effective science classroom activities.

These resources, included at the back of the Teacher Guide on pages 209–213, consist of the following:

- Classroom Safety for Activities and Demonstrations
- Strategies for Acquiring Materials
- Advance Preparation for Activities and Demonstrations
- What to Do When Activities Don’t Give Expected Results

These resources may also be accessed within the CKSci Online Resources Guide for this unit:

www.coreknowledge.org/cksci-online-resources

**Materials and Equipment**

The unit, like all hands-on science, requires a large variety of materials to support various ways of learning (including doing, discussing, listening, watching, reading, and writing). Prepare in advance by collecting the materials and equipment needed for all the demonstrations and hands-on investigations.

- Roll paper, poster board, or a bulletin board should be dedicated at the beginning of the unit to serve as a question board to cumulatively document and return to student questions. The question board is referred to in the materials for lesson segments in which it is used but is not repeated in the materials listed here.
- Internet access and the means to project images/videos for whole-class viewing is also required in many lesson segments but is not repeated below.

**Unit Opener**

(Day 1)
- shallow bowls (1 per group)
- room-temperature water (1 quart)
- droppers (1 per group)
- large marker
- sticky notes (1 pack)

(Day 2)
- chart paper (1 sheet per week)
- weather thermometer
- rolled cotton (1 box)

**Unit Opener, continued**

- blue construction paper (1 sheet per student)
- paste (1 teaspoon per student)

**Lesson 1 Sunlight**

**Lesson 1.1**
- clear plastic cups (1 per student)
- ice cubes (1 per student)
- light-colored dry sand (1/2 cup)
- dark-colored dried soil (1/2 cup)
- water (1/2 cup)
Lesson 1.1, continued

- crayons or colored pencils (1 set per team)

Lesson 1.2

- clear plastic cups (6 per team)
- light-colored sand (1 cup per team)
- dark-colored dried soil (1 cup per team)
- water (1 cup per team)
- grease pencils or other materials for labeling the plastic cups (1 set per team)
- paper towels (6 sheets per team)
- digital thermometers (1 per team)

Lesson 1.3

- large sheets of drawing paper (1 per student)
- crayons or markers (1 set per student)
- scissors (1 per student)
- paste or glue (1 bottle per pair)
(For the Challenge activity)
- clear plastic cups (3)
- light-colored sand (1 cup)
- dark-colored dried soil (1 cup)
- water (1 cup)
- paper towels (3 sheets)
- digital thermometer
(For the Extend activity)
- shallow boxes (2)
- white pebbles (to fill 1 box)
- black pebbles (to fill 1 box)

Lesson 2 Designing for Sunlight

Lesson 2.1

- zippered plastic snack or sandwich bag
- ice cube

Lesson 2.1, continued

- black paper, 9 by 12 inches (2 sheets per team)
- white paper, 9 by 12 inches (2 sheets per team)
- wood sticks (6 per team)
- tape (1 roll per team)
- paper towels (2 sheets per team)
- straws (6 per team)
- paper plates (1 per team)
- cloth squares (1 per team)
- scissors (1 per team)

Lesson 2.2

- zippered plastic snack or sandwich bag
- ice cube
- white poster board, 12 by 12 inches (1 per team)
- black paper, 9 by 12 inches (2 sheets per team)
- white paper, 9 by 12 inches (2 sheets per team)
- wood sticks (6 per team)
- tape (1 roll per team)
- paper towels (2 sheets per team)
- straws (6 per team)
- paper plates (1 per team)
- cloth squares (1 per team)
- scissors (1 per team)

Lesson 2.3

- zippered plastic snack or sandwich bags (2 per team)
- ice cubes (2 per team)
- white poster board, 12 by 12 inches (1 per team)
- insulated cooler or bag to carry ice cubes in

Lesson 2.4

- masking tape loops (1 per student)
### Lesson 3 Patterns of Weather

#### Lesson 3.1
- weather thermometer
- construction paper (9 by 12 inches 1 sheet per student)
- scissors (1 per student)
- tape or glue (1 roll or bottle per pair)

#### Lesson 3.2
- weekly weather charts from this unit
- colored pencils, crayons, or markers

#### Lesson 3.3
- colored markers or crayons

#### Lesson 3.4
- colored markers or crayons
- toy microphone (optional)

### Lesson 4 Severe Weather

#### Lesson 4.1
- scissors (1 per student)
- paste or glue (1 bottle per student)

#### Lesson 4.2
- yellow highlighters (1 per student)

#### Lesson 4.4
- scissors (1 per student)
- paste or glue (1 bottle per student)

### Unit Capstone
- child-sized umbrella