

Scott Foresman
SCIENCE

Grade 2
Equipment Kit
Guide

Unit B
Physical Science

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Equipment Kits and Teacher's Guide

Equipment Kit Management

About Your Kits

The equipment in *Scott Foresman Science* is packaged in sturdy plastic bins for your convenience. The quantities included support eight groups of four students each.

Unit Kit/ Grade Level Kit

The Unit Kit contains most of the items you will need to conduct hands-on activities with your students. Equipment for each unit is contained in one or two bins. The Unit Kit is designed to be purchased separately. Each bin is clearly labeled with the grade level, bin number, unit name, and contents. A label inside the lid of each bin references the materials by activity. Only activities requiring kit items are listed.

Unit Kits are also available in a Grade Level Kit configuration. In this format, a common bin eliminates items duplicated across the units for cost savings and convenience.

Demonstration Kit

The Demonstration Kit gives teachers the opportunity to rehearse activities before conducting them in the classroom. Kit-provided materials for each activity are pre-packaged and labeled for easy identification. When used in conjunction with the activity videos, the demonstration kits make it easy to prepare and conduct all investigations and experiments.

Storage of the Kits

Your equipment is packaged in sturdy, translucent plastic bins and labeled for easy storage and access. Bins may be stacked or stored on shelves or carts. Bins are labeled on all sides for quick identification and location of items. This provides convenient organization of materials before and after use.

Replacement Materials

Use the Packing List/Replacement Parts Price List to reorder items as needed for the Unit Kit or Grade Level Kit. These order forms are packed in the plastic bins and can be photocopied. Each list provides a column for entering the quantities of items you need to replace. Materials are organized alphabetically and identified as consumable or nonconsumable.

Complete consumable Replacement Kits are available as well. These kits replenish all the consumable materials for each Unit Kit or Grade Level Kit.

Using the Teacher's Guide

This guide will help you better prepare to conduct the program activities in your classroom. Reviewing the guide while practicing with the activity video and demonstration kit or simply reading the guide upon receiving your classroom kit will make it easy to facilitate an activity with your students.

Getting Started

Familiarize yourself with the kit contents. To make sure your shipment is complete, check the packing statement provided with your kit.

Activity Notes

The Activity Notes in this guide provide comprehensive information to make your activity sessions a success. This information may include:

Video Segment

The video segment number is indicated to help you cue the tape to each Investigate and Experiment activity.

Materials

A materials list for each activity identifies kit-supplied and school-supplied materials. Use this list as a check of your kit contents and as a list for class preparation.

Material Substitutions

For increased flexibility, material substitutions, when appropriate, are indicated.

Advance Prep

These instructions offer preparation guidance as necessary. With these suggestions, you will always be well prepared to conduct activities in your class.

Hints and Tips

Detailed hints and tips help to ensure student success in the classroom. Notes range from how to enhance students' success to increasing your understanding of activity concepts.

Safety Notes

While safety should be practiced at all times for each activity, it may be necessary to consider specific activity concerns. These notes give activity-specific safety tips.

Additional Comments

This section provides extension ideas, alternate activities, and other helpful information.

Sort objects.

Explore Activity (B9)

Materials (per group)

Kit Items	School-Supplied Items
none	common classroom objects

Advance Prep

Gather objects of various shapes, sizes, and colors.

Hints and Tips

Give children some criteria for sorting objects such as by size, material, weight, texture, and use.

Compare objects.

Explore Activity (B11)

Materials (per group)

Kit Items	School-Supplied Items
balance	common classroom objects

Advance Prep

Gather objects of different shapes and sizes. Make sure to include some items of large size with small mass, such as lightweight blocks.

Hints and Tips

- Demonstrate how to use the balance scale.
- Encourage children to hold objects in their hands to make predictions.
- The term *weight* is substituted for *mass* at this grade level, even though the concepts are not identical. Weight is the pull of gravity on mass and can vary. Mass is a measure of how much matter an object contains.

Guess what is in the bag.

Science Center Activity (B13a)

Materials (per group)

Kit Items	School-Supplied Items
none	brown paper bag variety of classroom objects

Hints and Tips

Allow children to brainstorm properties of objects to help them describe their secret objects.

Find out what mixes with water.

Explore Activity (B15)

Materials (per group)

Kit Items	School-Supplied Items
plastic cup, 10 oz plastic lid, 10 oz	water oil, juice, other liquids confetti, sand, other solids

Hints and Tips

- Cups should only be about 3/4 full of liquid.
- Have children rinse cups with water between trials.

How fast can you melt an ice cube?

Investigate Activity (B18–B19)

Video Segment 1

Materials (per group)

Kit Items	School-Supplied Items
foam plate	clock with a second hand ice cube

Advance Prep

Prepare enough ice cubes for each child or for pairs of children.

Hints and Tips

Demonstrate how long it takes for an ice cube to melt on its own. This will give children an idea of how to make their predictions.

Safety Note

Make sure children find safe ways to melt their ice cubes. Do not allow them to melt ice cubes in their mouths.

Make a mixture.

Science Center Activity (B19a)

Materials (per group)

Kit Items	School-Supplied Items
liquid starch plastic cup, 10 oz	white glue craft stick measuring spoons

Hints and Tips

Follow the steps in sequence so the mixture will be the right consistency.

Safety Note

Make sure children wash their hands after this activity.

Make sounds.

Explore Activity (B25)

Materials (per group)

Kit Items	School-Supplied Items
none	classroom objects such as pencils, rulers, blocks, crayons

Hints and Tips

- Help children think of different ways to make sounds, such as tapping, rubbing and shaking objects.
- Give children a brief look at the objects being used to make sounds before they close their eyes and guess the objects.

Make a pitch finder.

Explore Activity (B27)

Materials (per group)

Kit Items	School-Supplied Items
rubber band	safety goggles book pencil

Material Substitutions

You can use a craft stick instead of the pencil.

Hints and Tips

Lift the rubber band wrapped around the book before moving the pencil.

Additional Comments

Introduce variables such as books and rubber bands of different sizes, or have children use string instead of rubber bands.

Explore sounds.

Science Center Activity (B27a)

Materials (per group)

Kit Items	School-Supplied Items
none	cans of different sizes classroom objects such as pencils, cotton, paper wads

Safety Note

Cover the sharp edges of cans with masking tape.

Which container will warm up fastest?

Investigate Activity (B30–B31)

Video Segment 2

Materials (per group)

Kit Items	School-Supplied Items
foam cup, 8 oz plastic cup, 10 oz foil pan 3 thermometers	masking tape metal can, 12 oz clock with a second hand cool water warm water

Advance Prep

Collect metal cans such as 12 oz soup cans.

Hints and Tips

- Cover the Fahrenheit side of the thermometer if it is too difficult for children to mark the temperature. Children do not have to read the thermometer in order to mark the temperature.
- The cold water in each container should contain the same amount of water and should be the same temperature.

Safety Note

Tape the edges of the metal can so children will not injure themselves on sharp edges.

Measure temperature.

Science Center Activity (B31a)

Materials (per group)

Kit Items	School-Supplied Items
thermometer	paper pencil

Hints and Tips

Review with children how to read a thermometer.

Safety Note

Tell children not to squeeze too hard on the thermometer.

Go on a scavenger hunt.

Explore Activity (B37)

Materials (per group)

Kit Items	School-Supplied Items
flashlight with D batteries	none

Advance Prep

Make sure that some of the following items are available for the scavenger hunt: mirror or foil (to bounce light), hand lens or eyeglasses (to bend light), cellophane or other transparent items (to let light pass through), books or other solid items (to block light).

Safety Note

Children should not shine the flashlight in the eyes of other children.

Experiment with shadows.

Experiment Activity (B38–B39)

Video Segment 3

Materials (per group)

Kit Items	School-Supplied Items
flashlight with D batteries	small toy or classroom object

Hints and Tips

The toy or object should be large enough to cast a well-defined shadow.

Additional Comments

Have children shine the flashlight on the object in front of a sheet of paper taped to the wall. Children should then trace the object's shadow and measure the shadow's diameter and height.

Play a mirror game.

Science Center Activity (B39a)

Materials (per group)

Kit Items	School-Supplied Items
none	pencil folder mirror, 7 x 12 inches outline maze of a star

Hints and Tips

Tape the folder to the desk to keep it in place.

Safety Note

Children should be careful handling the mirror.

Make an object move.

Explore Activity (B47)

Materials (per group)

Kit Items	School-Supplied Items
none	metric ruler common classroom objects

Advance Prep

Have a wide variety of objects available for use in this activity. Objects should include items that are heavy, light, large, small, and so on.

Hints and Tips

A large flat surface on which to place the objects works best for this activity.

Explore gravity.

Explore Activity (B49)

Materials (per group)

Kit Items	School-Supplied Items
none	common classroom objects

Advance Prep

Provide items of different weight so children can experiment dropping heavy and light items.

Safety Note

Use unbreakable objects for this activity.

Move an object.

Science Center Activity (B49a)

Materials (per group)

Kit Items	School-Supplied Items
none	variety of classroom objects such as a ball of paper, eraser, pencil, book

Hints and Tips

As a class, brainstorm a list of ways to make objects move. Allow children to refer to the list as they try to move their own objects.

Push and pull magnets.

Explore Activity (B51)

Materials (per group)

Kit Items	School-Supplied Items
3 donut magnets	unsharpened pencil

Hints and Tips

- Use only donut magnets (round magnets with a hole in the center) for this activity.
- This activity should be conducted in an area away from computers, taped recordings, or floppy disks.

Safety Note

Be sure to use unsharpened pencils.

Go fishing with a magnet.

Explore Activity (B53)

Materials (per group)

Kit Items	School-Supplied Items
donut magnet string	common classroom objects unsharpened pencil

Material Substitutions

Other types of magnets can be used for this activity.

Advance Prep

- Gather a mix of magnetic and nonmagnetic common classroom objects.
- Cut one 12-inch piece of string for each group.

Hints and Tips

- Children should hold the magnet at different distances to see how far the magnetic effects are evident.
- Keep magnets away from computers, computer disks, and cassettes.

How many paper clips will a magnet pick up?

Investigate Activity (B54–B55)

Video Segment 4

Materials (per group)

Kit Items	School-Supplied Items
donut magnet	200 large paper clips

Material Substitutions

Other magnets may be used in this activity.

Hints and Tips

- Children should remove paper clips from the magnet one at a time in order to count them.
- Keep magnets away from computers, computer disks, and cassettes.

Use a magnet.

Science Center Activity (B55a)

Materials (per group)

Kit Items	School-Supplied Items
donut magnet	paper clip common objects

Advance Prep

Gather common objects such as paper and aluminum foil.

Hints and Tips

Keep magnets away from computers, computer disks, and cassettes.

Light a bulb.

Explore Activity (B57)

Materials (per group)

Kit Items	School-Supplied Items
D battery miniature light bulb (miniature lamp #14) insulated wire	safety goggles

Material Substitutions

Holiday lights cut into sections can be substituted for bulbs. Aluminum foil strips could replace the wire.

Advance Prep

For each group, cut a 10-inch piece of insulated wire and strip the ends.

Hints and Tips

- Show children the complete circuit on textbook page B56 to help them create their own circuit.
- Have children explore different ways to connect the battery, bulb, and wire to make the bulb light.

Safety Note

Do not leave the wire connected to the battery or the wires will heat up.

Explore electricity.

Science Center Activity (B59a)

Materials (per group)

Kit Items	School-Supplied Items
insulated wire miniature light bulb (miniature lamp #14) D battery	metallic and nonmetallic objects masking tape

Advance Prep

For each group, cut a 10-inch piece of wire and strip the ends.

Safety Note

Remind children that the ends of the wire are sharp. Caution children not to put the wire into a plug or wall outlet.