

Scott Foresman
SCIENCE

Grade 3

**Equipment Kit
Guide**

Unit A
Life Science

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ISBN: 0-673-59436-X

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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.

Exploring Parts of a Plant

Explore Activity (A6)

Materials (per group)

Kit Items	School-Supplied Items
plant (pinto bean seeds, seed starter mix, plastic cup, 9 oz) hand lens	newspaper

Material Substitutions

Mung beans, sunflower seeds, or other seeds can be used in place of the pinto beans.

Advance Prep

Use the pinto bean seeds, plastic cup, and seed starter mix to grow bean plants. Fill each plastic cup with seed starter mix. Plant a pinto bean seed about one-inch deep. Water until seed starter mix is moist. Water as needed. Do not overwater. Pinto bean plants should be grown for 1-2 weeks in advance.

Hints and Tips

You may wish to make sure that plants can be removed easily. If it is difficult to remove the soil with your fingers, try using a plastic fork to loosen up the roots and soil.

Safety Note

Remind students not to taste or eat fruits or seeds used in the activity.

Additional Comments

You may extend this activity by having students compare two types of plants. A dandelion plant or small square of grass from the schoolyard could be used in a comparison study.

Observing Fruits and Seeds

Investigate Activity (A12–A13)

Kit Items	School-Supplied Items
hand lens	variety of fruits, whole and cut into pieces (possible choices: pea or bean pods, grapefruit, apples, pears, oranges, tomatoes, peaches, cucumbers, avocados, squash, or grapes) paper towel colored pencils or crayons

Video Segment 1

Materials (per group)

Advance Prep

Cut the fruit you provide to expose the seeds. If the fruit has many seeds, cut it into four or more sections. Sections should be similar in size.

Hints and Tips

If the fruit has a small number of seeds, have students count them all. However, if the fruit contains many seeds, have students count the seeds within one section. Then have students multiply the number of seeds in one section by the number of sections to estimate the total number of seeds.

Safety Note

Remind students not to taste or eat fruits or seeds, and to keep the seeds away from their noses and mouths.

Additional Comments

Students may wish to try planting some of the seeds. Seeds from grapefruit and other citrus fruits are relatively easy to grow. Poke drainage holes in the bottom of a small plastic cup. Add moistened seed starter mix and cover the seeds with about 1/4 inch of the starter mix. Seal in a resealable plastic bag. Place the bag in a warm location. Germination may take several weeks.

Investigating Light and Plant Growth

Investigate Activity (A18–A19)

Video Segment 2**Materials (per group)**

Kit Items	School-Supplied Items
2 resealable plastic bags seed starter mix radish seeds hand lens	masking tape marker large spoon paper towel

Material Substitutions

Mung bean, pinto bean, or sunflower seeds can be substituted for radish seeds.

Advance Prep

Moisten the seed starter mix by adding water and mixing thoroughly. The starter mix should be moist to the touch, but not dripping wet.

Hints and Tips

- There is no need to add water to the bags once students begin the activity, unless plants grow to the tops of bags and the bags must be left open.
- The bag marked A should be placed near a sunny window or under a grow light or fluorescent lamp. The bag marked B should be in a completely dark environment. Bag B could be covered with a box.

Safety Note

Remind students not to put the seeds in their mouths. They should wash their hands after planting the seeds.

Additional Comments

Students may wish to keep growing the plants and observing any changes in the plants as they grow.

Exploring Eggs

Explore Activity (A30)

Materials (per group)

Kit Items	School-Supplied Items
hand lens plastic knife	hard-boiled egg paper towel

Advance Prep

Boil eggs and allow them to cool prior to conducting the activity.

Safety Notes

Remind students not to eat the eggs used in the activity. Have students wash their hands after handling the eggs.

Additional Comments

Students may be able to see a thin membrane next to the shell. In the thicker, rounded end of the egg, they should observe the membrane opening into an air space. The chick pokes its beak into the air space a few days before hatching.

Observing the Life Cycle of a Beetle

Investigate Activity (A40–A41)

Video Segment 3

Materials (per group)

Kit Items	School-Supplied Items
live coupon, mealworms hand lens plastic spoon plastic jar, 16 oz cheesecloth	paper towels cornmeal or cereal such as dry oatmeal piece of raw potato masking tape

Advance Prep

- Order the mealworms at least 2 weeks in advance.
- Cut pieces of cheesecloth to fit the containers.
- Cut pieces of potato to provide moisture for mealworms.

Hints and Tips

- Make sure the cereal does not contain preservatives.
- Change the potato every few days, as it provides water for the mealworms.

Safety Note

Remind students to wash their hands after working with live animals.

Additional Comments

As an alternative, set up a single group of mealworms in an aquarium. Remove them for observation at each stage.

Exploring Where Pond Snails Live

Explore Activity (A56)

Materials (per group)

Kit Items	School-Supplied Items
live coupon, elodea plants plastic spoon live coupon, pond snails plastic cup, 10 oz hand lens	plastic bottle, 20 oz with water colored pencils or crayons

Material Substitutions

You may find other water plants and snails at a pet store or a tropical fish store.

Advance Prep

- Order the live materials at least 2 weeks in advance.
- The water should stand for at least 24 hours to allow chlorine to dissipate.

Hints and Tips

Place the bottle aquarium in a well-lit place, but be sure it is not in direct sun. The water may become overheated, making it impossible for the snail and water plants to survive.

Safety Note

Have students wash their hands after working with plants and animals.

Additional Comments

After students have observed the bottle aquariums for a period of time, you may wish to transfer the plants and snails to a larger aquarium.

Comparing How Quickly Water Moves Through Leaves

Investigate Activity (A64–A65)

Video Segment 4

Materials (per group)

Kit Items	School-Supplied Items
live coupon, coleus plant live coupon, jade plant plastic cup, 9 oz	safety goggles pencil index cards water masking tape

Advance Prep

- Order the live materials at least 2 weeks in advance.
- Prepare the plant cuttings.

Hints and Tips

- Be sure index cards are taped firmly to the cup. Cards should completely cover the cup.
- Be sure plants receive sufficient light.
- You may want to seal the hole around the plant stem with a small amount of modeling clay.

Safety Note

Remind students to wipe up spills immediately and to wash their hands after handling the plants.

Additional Comments

As an alternate activity, add some vegetable oil to the water before placing plants in the cup. The oil will form a layer on the water, preventing the water from evaporating. You do not need to cover the plants with another cup. Monitor the water levels of the cups. The water level will vary among plants tested, because some of the plants use water more quickly than other plants.

Experimenting with a Plant Habitat

Experiment Activity (A77–A79)

Video Segment 5

Materials (per group)

Kit Items	School-Supplied Items
3 paper cups, 12 oz seed starter mix plastic spoon radish seeds 3 plastic graduated cups, 10 oz grid paper salt	safety goggles marker sharpened pencil newspaper metric ruler tap water (for saltwater solutions)

Material Substitutions

Other seeds may be used in this activity, such as pinto beans, sunflower seeds, or grass seeds.

Advance Prep

Prepare the low-salt solution and the high-salt solution according to these directions:

1. Low salt solution: Place 5 level spoonfuls (teaspoons) of salt in 2 L of tap water. Mix thoroughly until dissolved.
2. High salt solution: Place 10 level spoonfuls (teaspoons) of salt in 2 L of tap water. Mix thoroughly until dissolved.

Hints and Tips

Remind students that the layer of seed starter mix covering the seeds must be thin. Encourage students to space seeds evenly on top of the mix. The mix covering the seeds must be the same thickness in all three cups. Results may vary depending on the type of seeds used. Some species may tolerate higher salt concentrations better than other species. Students may experiment with solutions of lower and higher salt concentrations than those described above.

Safety Notes

Remind students to wipe up any spills immediately. Students should wash their hands after working with seed starter mix and plant materials. Students must not taste or eat the seeds.

Exploring Habitats

Explore Activity (A84)

Materials (per group)

Kit Items	School-Supplied Items
live coupon, jade plant live coupon, elodea plant plastic cup, 9 oz potting soil	water

Advance Prep

Order live plant materials at least 2 weeks in advance.

Hints and Tips

- The leaves and stem of the jade plant are thick and waxy-feeling. The elodea plant has many smooth leaves that are thin. The jade plant lives in a dry land habitat. The elodea plant lives in a water habitat.
- Students should observe that the elodea plant cannot live on dry land. It grows under water. Over time, the jade plant begins to wither under water. It needs to grow on dry land.

Cleaning Polluted Water

Investigate Activity (A100–A101)

Video Segment 6

Materials (per group)

Kit Items	School-Supplied Items
4 plastic cups, 10 oz (2 containing polluted water, one containing tap water, one empty) hand lens coffee filter	container of polluted water clock or timer tap water plastic bottle, 1 L masking tape marker

Advance Prep

- Prepare polluted water according to these directions: Mix 1 1/2 gal tap water, 1 1/2 c soil, 1 1/2 T detergent, and 1 1/2 T vegetable oil. Shake or stir polluted water before distributing it to students.
- Cut the plastic bottles in half.

Hints and Tips

- You may wish to allow the polluted water to age for a day. Particles in the water will settle more quickly after being shaken.
- The polluted water should look cloudy or muddy. When students examine the water after five minutes they should notice a layer of soil on the bottom of the cup.

Safety Note

Remind students not to drink any of the water and to wash their hands at the end of this activity.