

Scott Foresman
SCIENCE

Grade 4
Equipment Kit
Guide

Unit A
Life 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.

Classifying Seeds

Explore Activity (A6)

Materials (per group)

Kit Items	School-Supplied Items
resealable plastic bag 15 bean soup mix (seeds)	paper colored pencils or crayons

Material Substitutions

Many other items can be used in classification activities. Other types of seeds, coins, leaves from local trees, shoes, and rocks are a few possibilities.

Advance Prep

Place up to 15 different kinds of beans into a bag for each group. Students should be able to classify the beans into at least four groups.

Hints and Tips

- If students can classify items into more than four groups, they may need more paper to attach to their original chart.
- You may wish to have students prepare their own classification bags using the beans or other items.

Observing the Parts of Flowers

Investigate Activity (A24–A25)

Video Segment 1

Materials (per group)

Kit Items	School-Supplied Items
hand lens plastic knife	safety goggles newspapers 2 different flowers with visible pistils, stamens, petals, and sepals (lilies, tulips, hibiscus, etc.)

Material Substitutions

Other flowers with visible pistils, stamen, petals, and sepals may be used. Choose flowers with both stamens and pistils and, if possible, flowers with distinct sepals and petals. Use the following examples as a guide. African violets have stamens, a pistil, and distinct sepals and petals. Cyclamen have stamens, a pistil, and distinct sepals and petals. Lilies and tulips have stamens and a pistil. They have showy sepals on the outside ring of the flower, and the inside ring consists of the petals. Lisianthus have stamens, a pistil, and distinct sepals and petals. Snapdragons have stamens, a pistil, and distinct sepals and petals. Tulips have stamens and a pistil. They have showy sepals on the outside ring of the flower, and the inside ring consists of the petals. Fuchsia have stamens, a pistil, and distinct sepals and petals.

Advance Prep

- Check for student allergies to flowers and pollen prior to conducting this activity.
- Obtain flowers for each group. You may wish to contact a local florist to request a donation of flowers that are past their peak blooming and are to be discarded.

Hints and Tips

In flowers such as lilies and tulips (monocotyledons), the sepals and petals look very similar. The outer three petal-like structures are the sepals.

Safety Note

Have students wash their hands after handling plants.

Experimenting with Seed Germination

Experiment Activity (A29–A31)

Video Segment 2

Materials (per group)

Kit Items	School-Supplied Items
3 plastic resealable bags measuring cup seed starter mix plastic spoon 3 plastic cups, 9 oz radish seeds grid paper	masking tape marker water

Material Substitutions

Other seeds (such as bean, sunflower, or grass seeds) may be used in place of radish seeds.

Hints and Tips

- Make sure that students cover the seeds in each cup with the same amount of seed starter mix. Seeds should be covered with no more than 1/4 in. (6 mm) of seed starter mix.
- Students may poke tiny holes into the soil with the tip of a pencil, drop the seeds in the holes, and then lightly brush seed starter mix into the holes to cover the seeds.

Safety Notes

Remind students to wipe up spills immediately. Students should keep the seeds away from their mouths and wash their hands after planting the seeds.

Exploring Animal Characteristics

Explore Activity (A36)

Materials (per group)

Kit Items	School-Supplied Items
plastic cup, 10 oz plastic dropper live coupon, earthworms hand lens	paper towel water

Advance Prep

Order live materials at least 2 weeks in advance.

Hints and Tips

- Remind students that the worms and any other living animals must be handled carefully.
- The earthworms will be studied in a later activity in this chapter. You may keep them alive in a carton of moistened soil stored in a cool place or refrigerator.

Safety Note

Remind students to wash their hands after handling live animals or plants in the classroom.

Classifying Animals Without Backbones

Investigate Activity (A44–A45)

Video Segment 3

Materials (per group)

Kit Items	School-Supplied Items
none	animal photographs (see textbook page A45) paper pencil

Material Substitutions

You may wish to have students collect their own pictures of invertebrates and glue them to index cards. Students may then classify the animal cards.

Hints and Tips

Before beginning the activity, have students look at the pictures on page A45 and suggest ways that the animals are alike and different. Make sure students take note of body segments, number of legs, and antennae.

Additional Comments

As an extension of this activity, have students research and make classification cards for invertebrates native to your area.

Observing How Animals Respond to Stimuli

Investigate Activity (A60–A61)

Video Segment 4

Materials (per group)

Kit Items	School-Supplied Items
live coupon, earthworms plastic dropper cotton swab plastic cup, 10 oz potting soil	paper towel water

Advance Prep

Order live materials at least 2 weeks in advance.

Hints and Tips

Remind students that the worms and any other living animals must be handled carefully.

Safety Note

Remind students to wash their hands after handling live animals or plants in the classroom.

Making a Woodland Habitat Model

Explore Activity (A66)

Materials (per group)

Kit Items	School-Supplied Items
gravel or pebbles potting soil wood chips plastic cup, 10 oz	2 plastic bottles (2 L, with tops removed) metric ruler large spoon small houseplant rocks water scissors masking tape

Material Substitutions

Small ferns, aluminum plants, or other small household plants are suitable for the terrarium.

Advance Prep

Remove the tops of the bottles in advance.

Hints and Tips

You may wish to cut a small slit in the upper bottle to make it easier to fit the bottles together.

Safety Note

Remind students to wash hands after handling soil and plants.

Additional Comments

Students may temporarily place other living organisms, such as pill bugs, in their woodland habitat models. They could add some leaf litter and a small slice of potato for food and moisture.

Investigating a Habitat

Investigate Activity (A72–A73)

Video Segment 5

Materials (per group)

Kit Items	School-Supplied Items
4 resealable plastic bags hand lens 3 pieces of string thermometer	plot area in school yard masking tape paper

Advance Prep

- Cut one piece of string to 4 m in length, and two pieces of string to 1 m in length.
- Select plots that have a variety of plant and insect life. Try to select plots with different characteristics so groups can compare and contrast their findings.

Hints and Tips

- Before going outside, draw a picture of a sample plot on the board. Show students how the plot is divided into four parts and how each part is labeled square A, B, C, or D.
- Students may use the items in the bags and other art supplies to decorate the group's plot drawings. Prior to conducting the activity, point out objects students should not collect (rooted plants, insects, etc.).
- In some schoolyards, it is possible that students will not find much plant material or animal life. This could lead to a discussion of why these things were absent and what is needed for organisms to survive.

Safety Note

Remind students to wash their hands after handling soil, plant, or animal materials.

Investigating Decomposition

Investigate Activity (A90–A91)

Video Segment 6

Materials (per group)

Kit Items	School-Supplied Items
potting soil 2 pieces of plastic wrap piece of aluminum foil	safety goggles newspaper large spoon metric ruler piece of paper fruit peel lettuce leaves piece of bread piece of popped popcorn water masking tape 1 L plastic bottle (with top removed)

Material Substitutions

You may wish to include some other objects (cleaned) that can become litter, such as pieces of a foam cup or other types of plastic.

Advance Prep

- Use scissors to remove the tops of the bottles and to poke three holes in the bottom of each bottle.
- Cut a section of plastic wrap to use as a cover. Cut a small piece of plastic wrap as a test item.

Hints and Tips

Remind students to place each buried object near the side of the container to facilitate observation for the next several weeks.

Safety Notes

Remind students not to eat or taste any of the materials used in this activity. Have students wash their hands after setting up this activity and after checking objects for decomposition.

Additional Comments

Students can do research on how materials are handled in landfills, and how landfills are engineered to keep from polluting surrounding areas or groundwater. Students may also learn more about decomposition by researching how to make a compost pile.

Exploring How Animals Hide

Explore Activity (A96)

Materials (per group)

Kit Items	School-Supplied Items
none	crayons (or markers or colored pencils) transparent tape scissors 4 index cards (4 in. x 6 in.) clock with a second hand

Additional Comments

As an alternate activity, students can make three-dimensional models of animals hidden in their surroundings. Modeling clay of different colors or other materials can be used.

Investigating Migration

Investigate Activity (A112–A113)

Video Segment 7

Materials (per group)

Kit Items	School-Supplied Items
24 chips	2 sheets of paper scissors paper bag (containing paper slips numbered 1–8)

Materials Substitutions

Buttons, coins, or gram cubes can be used in place of chips.

Advance Prep

Cut a sheet of paper into eight equal pieces. Number the sheets from 1–8.

Hints and Tips

- Before doing the activity, post the following rules of the game and discuss them with students:
 1. Only two chips can survive in a single habitat.
 2. Set aside chips without habitats (birds they represent “die”).
 3. If there is more habitat than needed in the spring habitat only, some chips that have “died” can come back into the simulation as hatchlings.
 4. Count the chips and record each Environmental Change Statement.
- Students may repeat this activity several times in order to gather more data for graphing.

Additional Comments

You can extend this activity by having students graph the results of the population changes.