

PREPARING FOR THE ACTIVITIES—QUARTER 2

CLASSROOM MANAGEMENT

Materials

You may want to familiarize yourself with the materials used in this quarter before beginning the activities. We suggest that you refer to the Quarter 2 Materials List on page 139 of this guide as you review the materials in the drawers of the kit. (The contents of each drawer are listed on the drawer labels.)

Before beginning each activity, review the Materials list and the Preparation required for the activity. The Materials list indicates which items will be used in the activity, how many of each item will be needed for each individual and each student team, and the size of each team. We recommend that you ask student helpers to assist you in locating materials and preparing for each activity.

After you have completed the quarter, make a list of any items that need to be ordered for the next use. For information, call 1-800-258-1302.

Distribution Stations

The most efficient way to distribute materials during an activity is to set up distribution stations from which students can obtain materials as needed. If space in your classroom is limited, you may have room for only one station. If you have more space, we recommend setting up two or three distribution stations, each containing about half or one-third of all the materials listed in the Materials list for each activity. In this way, each distribution station will contain all of the different items used in the activity, and students will not need to visit more than one station to obtain all of their materials.

Cooperative Learning

The **Broward County Hands-On Science** program encourages and promotes cooperative

learning strategies. The quantity of materials included in each kit allows small groups of students to investigate phenomena and each student to make observations and report what he or she has learned. The interaction between team members is an integral part of each activity and enhances individual outcomes.

ADVANCE PREPARATION

Some of the activities in this quarter require you to supply plants or plant parts.

Activities 14, 15, 16, 19, & 20: You will need to grow small bean plants for these activities in the quantities listed below. Complete instructions for planting the seeds and maintaining the plants are given in Materials Management, page 142.

- **Activity 14**—1 plant for the entire class
- **Activities 15 & 16**—1 plant for each team of four
- **Activities 19 & 20**—2 plants for each team of four

Activities 15 & 16: Obtain one whole carrot and one whole radish, both with greens attached, for each team of four plus one carrot and one radish for a class demonstration.

Activity 17: Obtain one or more heads of celery (each team of four will need one stalk) and a long-stemmed white carnation for each team.

Activity 18: A day or two before this activity, collect a variety of leaves from plants growing outdoors and/or from common houseplants. You will need one leaf for each student in the class. Collect only leaves that you are *certain* are harmless, such as oak, maple, birch, willow, dogwood, elm, magnolia, hydrangea, lilac, catalpa, honeysuckle, and ivy. You can include duplicates of leaf types. If the leaves seem

likely to wilt, store them between damp paper towels until class time. **Note:** *If fresh leaves are not available when you do this activity, you could use artificial leaves purchased from a craft store.*

MATERIALS MANAGEMENT

You will need to plant the seeds about two weeks before doing the first plant activity (Activity 14, Observing Plants and Animals). The kit includes enough bean seeds, potting soil, and planter pots to grow all the plants you will need—25 plants (for a class of 32 students) plus a few extra in case some seeds do not sprout or some plants do not thrive.

Safety Note: *Use only the seeds provided in this kit. Because young children may put seeds into their mouths, do not use seeds sold commercially, as they may have been treated with toxic chemicals to retard mold growth. The seeds in this kit have not been so treated.*

Planting the seeds. Fill each planting pot about three quarters full with potting soil. (You may want to put a piece of a paper towel in the bottom of each pot first to prevent soil from leaking out of the drainage holes.) Plant two seeds in each pot, about 3 cm (1 ¼ in.) apart. Press the seeds down into the soil about 1 cm (½ in.) below the surface. Cover the seeds lightly with soil. Place the pots on plastic trays, and water the pots lightly with a sprinkler bottle or spray bottle. Place the trays in a warm location. Mung bean seeds should germinate in 3–5 days.

Failure of seeds to germinate. Seeds will not germinate if they receive too little or too much water, are too cold or too hot, are planted too deeply, or if the soil is compacted too firmly.

Thinning the sprouts. Although you planted two seeds in each pot, only one bean plant per pot is needed for the activities. Leaving both plants in each pot may adversely affect plant growth. When the sprouts are about 8–10 cm (3–4 in.) tall, remove one sprout from each pot, leaving the healthier of the two sprouts if there is any difference between them.

Light conditions. Light is not needed for seed germination, but once the plants sprout above the soil, you should move the trays to a location that gets filtered sunlight throughout much of the day or direct sunlight for part of the day. An ideal spot is a table or shelf near a window and away from the draft of a heating or air conditioning vent. If the plants start to lean toward the light source, rotate the trays to keep the plants growing upright.

Watering. The amount of water is one of the most important environmental factors for seed germination and plant growth. Check the moisture content of the soil every day, and add water when necessary. You can test soil moisture by pinching the soil. If it sticks together, it is moist enough. If it falls apart, it is too dry. If water drips from the pinch of soil, it is too moist, and you will need to avoid watering the plants again until the soil dries somewhat.

Maintaining plants during weekends or holidays. Maintain soil moisture during weekends or holidays by watering the plants well beforehand and putting each tray into a large, clear plastic bag or covering it with a sheet of plastic wrap propped up with tongue depressors.

Breakage. Prevent breakage by storing the plants where students are not likely to knock them over. Encourage students to be gentle with the plants when they handle them.

Plant diseases. Because you have grown the plants yourself from seed in the uncontaminated potting soil provided in the kit, plant diseases are unlikely, although still possible. Discoloration of leaves, leaf curl, and fuzzy spots on soil or plants may be signs of plant disease or insect infestation. Overwatering or poor air circulation can create favorable conditions for harmful molds and fungi. If you notice problems such as these, discard the diseased plants and their soil. The planter pots may be retained, but you should wash them thoroughly in hot, soapy water before reusing them.

