



INVOLVING DISSOLVING

Teacher's Guide



LAWRENCE HALL OF SCIENCE • UNIVERSITY OF CALIFORNIA AT BERKELEY

Activity 1

What You Need

For the class:

- 1 hot plate, electric coffeemaker, microwave oven or enough thermos bottles to hold several quarts of hot liquid
- 1 gallon (4 liter) pot (if you heat the liquid using a hot plate)
- 1 or 2 quart-size (1–2 liter) pitchers
- 2 cafeteria trays
- 1 roll of masking tape
- 1 teaspoon
- 1 thermometer
- 1 clear plastic 10 oz. cup
- sponges or paper towels
- chalkboard and chalk
- about $\frac{2}{3}$ cup fruit juice (for demonstration)

For each student:

- 1 clear plastic 10 oz. cup
- about $\frac{2}{3}$ cup fruit juice (See "Getting Ready" #1, below.)
- 1 teaspoon of unflavored gelatin (1/2 an envelope)
- 1 stir stick (plastic coffee stirrers work well)
- 1 plastic spoon (for the next day)

Activity 2

What You Need

For the class:

- 1 hot plate, electric coffeemaker, microwave oven, or a thermos bottle to keep one quart of water hot
- 1 pot or tea kettle, with at least 1 quart capacity (if you heat the water using a hot plate)
- 1 quart of water
- 1 thermometer
- 1 small pouring container, such as a measuring cup with a spout or a small pitcher (about 1 cup capacity)
- 2–3 squeeze bottles of food coloring. Different colors are preferable.
- a roll of masking tape
- newspaper
- a one-hole paper punch or glue

For each student:

- 1 small plastic, flexible lid with relatively high sides (See "Getting Ready" #1 below.)
- 1 envelope of unflavored gelatin (2 teaspoons)
- 1 sturdy paper plate (or 2 thinner ones)
- 1 stir stick (plastic coffee stirrers work well)
- a pencil
- 1 piece of yarn, (6" long if the students want hanging ornaments—15" long if the students want ornaments)

Activity 3

What You Need

For the class:

- 4 one-gallon plastic jugs, such as milk jugs
- 4 clear, colorless plastic soda bottles, 1 liter volume
- 20 coffee filters, about 10 inches in diameter, flat or cone-shaped (paper towels may be substituted)
- 1 or 2 water pitchers, 1 quart capacity or larger
- 1 styrofoam meat tray
- 2 cafeteria trays or 15 styrofoam meat trays
- 2 sheets of 8-1/2" x 11" black construction paper
- 1 cup kosher, pickling, or sea salt (these salts are preferable because when dissolved they leave no visible trace. The additives in most other varieties of table salt cause water to look cloudy. However, if additive-free salt is unavailable, any table salt will work.)
- 1/2 cup coarsely-ground pepper (finely-ground pepper is unsuitable)
- 5 clear plastic cups, 6-10 oz.
- chalkboard and chalk or a large sheet of butcher paper
- newspapers
- paper towels or sponges

For each team of four students:

- 2 small containers, such as cottage cheese containers, or ice cream dishes
- 2 teaspoons (or teaspoon-sized plastic spoons)

For each student:

- 1 stir stick
- 1 clear plastic cup, 6-10 oz.
- 1 light-colored crayon, such as white or yellow

Optional:

- a magnifying lens

Activity 4

What You Need

- 4 eggs
- 1.5 cups of white vinegar
- 1.5 cups of water in a pouring container
- 4 clear plastic cups, 6-10 oz.
- 2 small trays, such as styrofoam meat trays (or 2 clear pyrex baking dishes)
- 1 sheet of black construction paper, 8 1/2" x 11"
- 6 sheets of white paper
- 3 crayons or markers of different colors
- 1 plastic bag
- 1 pair of scissors