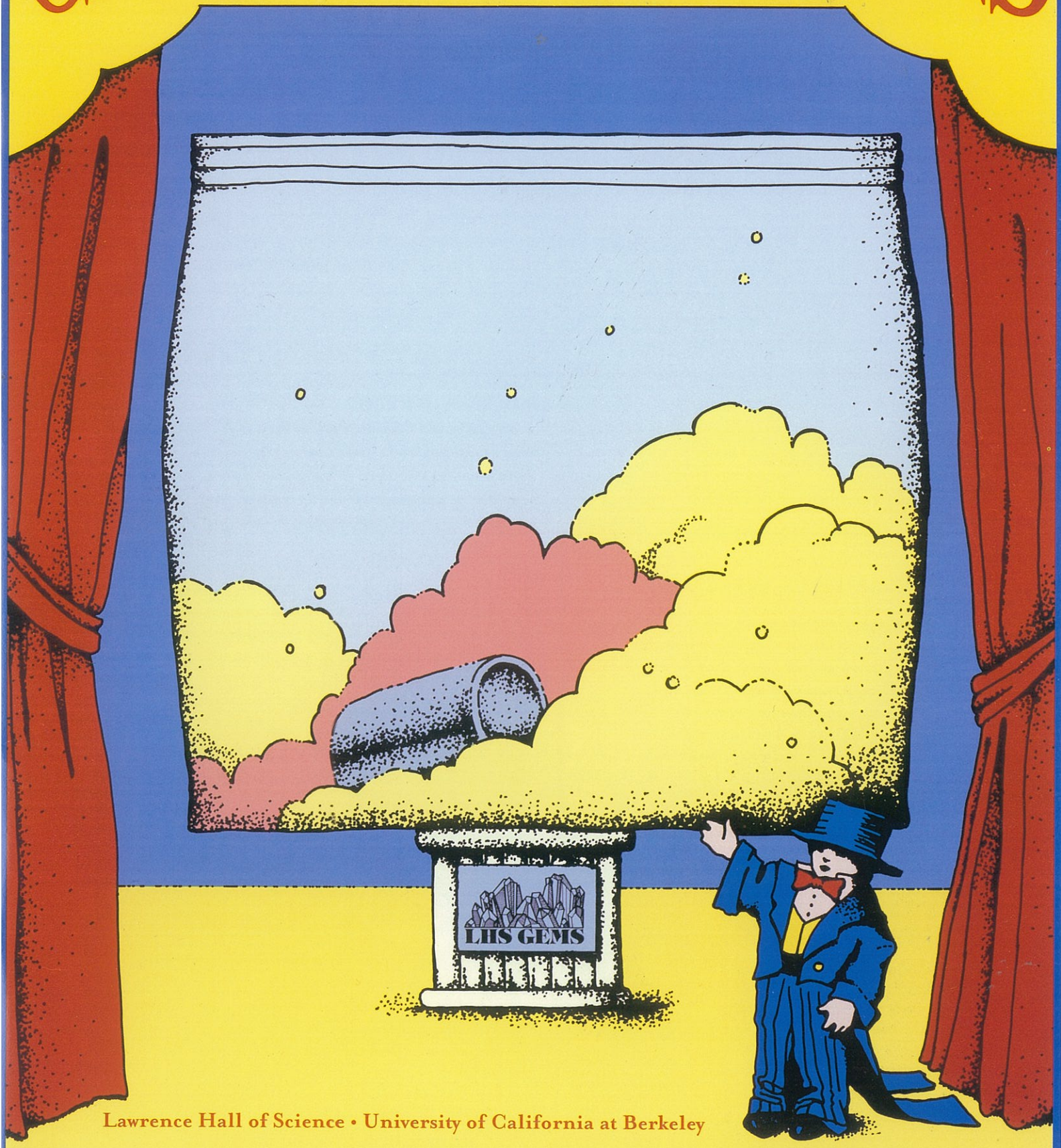


T E A C H E R ' S G U I D E

CHEMICAL REACTIONS



Lawrence Hall of Science • University of California at Berkeley

What You Need

For the class:

(These quantities are enough to conduct each activity 2–3 times with a group of 30 students.)

- 1.5 lbs. (about 750 g) sodium bicarbonate (baking soda)
- 3 lbs. (about 1.5 kg) calcium chloride (available at chemical supply houses and some hardware stores—see the “Behind the Scenes” section on page 24 for notes on acquiring and storing this chemical)
- phenol red powder or concentrate to make one gallon (about 4.5 liters) of dilute phenol red solution (available at pool supply stores and chemical supply houses)
- masking tape or several sheets of self-adhesive mailing labels
- 1 one-gallon, plastic container for mixing phenol red solution
- 1 plastic bucket
- access to a sink or 2 additional buckets
- water
- paper towels
- 1 or 2 pairs of rubber gloves
- chalkboard and chalk

For each group of 4–6 students

- 2 wide-mouthed, plastic containers (8–12 oz. yogurt or cottage cheese containers work well)
- 2 teaspoons
- 2 plastic stir sticks (such as coffee stirrers)
- 2 8 oz. (500 ml) squeeze or dropper bottles
- 1 graduated cylinder (for measuring 10 ml quantities)
- 6–9 small ziplock bags (one-quart capacity storage bags—1.75 mil plastic)
- 4–6 plastic vials (discarded pill containers from hospitals or new ones purchased from scientific supply companies)
- 4–6 copies of the “Chemical Reactions” data sheet (master included, page 20)
- 4–6 copies of the “Heat Experiments” data sheet (master included, page 21)
- 1 tray
- Optional: 4–6 pair of safety goggles (See “Safety Considerations,” page 6.)

For follow-up activities

- 1 thermometer per pair of students
- 1 styrofoam cup per pair of students