TEACHER'S GUIDE
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-moutheed, 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