

## Activity 1.9

### WHAT ARE MIXTURES AND SOLUTIONS?

#### Materials Needed

- Two glass jars
- Spoons (or stirrers)
- Sugar
- Water
- Marbles or small rocks
- Paper clips
- Toothpicks
- Bits of paper
- Paper and pencil

#### Procedure

1. Fill each jar about half full of water.
2. Put the marbles, paper clips, toothpicks, and bits of paper in one jar and a spoonful of sugar in the other jar.
3. Stir both jars and observe what happens to the materials in the water.
4. Compare the results in the two jars. One is a mixture and the other is a solution.
5. Try other substances in water, such as sand, powdered milk, or powdered chocolate. Make a list of those you think produce mixtures and those that produce solutions. Explain the differences you observe.

**For Problem Solvers:** Try to identify mixtures and solutions that are already in your environment. What about the soil in a flower bed at home or at school? What about the air? Make a list of all the mixtures you can find in nature and another list of all the solutions you can find. Notice different food products in your cupboards at home or on grocery-store shelves. Add these to your lists.

#### Teacher Information

A mixture consists of two or more substances that retain their separate identities when mixed together. Solutions result when the substance placed in a liquid seems to become part of the liquid. A solution is really a special kind of mixture—one in which the particles are all molecular in size.

Materials listed can easily be substituted or supplemented with other soluble and non-soluble materials.

**SKILLS:** Observing, inferring, classifying, comparing and contrasting

Nancy + Pauline

## Activity 2.20

# HOW CAN YOU BALANCE SEVERAL NAILS ON ONE NAIL?



*Take home and do with family and friends.*

### Materials Needed

- Wood base with nail hole in center
- Several flat-headed nails

### Procedure

1. This is an activity you can use to trick your family and friends. After they give up, you can show them how smart you are.
2. Stand one nail (we'll call it #1) in the hole in the board.
3. Lay a second nail (#2) on the table.
4. Place the remaining nails on the table with their heads over nail #2, in alternating directions.
5. Lay the last nail on top of nail #2, where the nail-heads overlap.
6. Pick up nail #2 and the last carefully by the ends. If you have set it up correctly, the criss-crossed nails will come, too.
7. Carefully balance the whole system on nail #1.

Figure 2.20-1  
Balancing Nails

