

CHAPTER

# 13

# Reinforcement

## Materials



- three plastic medicine cups
- tap water
- rubbing alcohol
- salad oil
- 10-cm square of waxed paper
- three droppers
- three toothpicks

## Cohesion and Adhesion

### Problem

How do cohesive and adhesive forces affect the behavior of substances?

### Procedure

1. Fill three labeled medicine cups about half full, one each with water, alcohol, and salad oil. Place a dropper in each cup.
2. Lay the wax paper on the table. With the tip of the dropper nearly touching the paper, place two separate drops of water on the left side of the paper. Observe the shape of the drops from the side.
3. Holding a toothpick at about a 45° angle, pull one of the drops close to, but not touching, the second drop.
4. Dip the toothpick in the water cup. Holding the toothpick upright, place the tip between the two drops. Record what happens.
5. Repeat steps 2–4 with the oil and alcohol, using clean toothpicks for each liquid.

### Results

1. Which of the liquids had the greatest cohesive force? How do you know?

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2. What was the reason for dipping the toothpick in water before putting it between the drops?

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3. Compare and contrast the adhesive and cohesive forces between the liquids and waxed paper.

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