

## **Dance of the Molecules [Activity]**

This activity is intended to show the difference between hot and cold on a molecular level. Food coloring mixes more quickly in hot water than in cold water due to the greater motion of molecules in the hot water.

### *Answers to Procedure Questions*

2. Predictions will vary.
3. The food coloring is more thoroughly mixed in the hot water than in the cold water. Sketches should reflect this.

### *Answers to Summing Up Questions*

1. The fast-moving molecules in the hot water move the food coloring around and mix it more rapidly than the slow-moving molecules in the cold water. If the molecules had equal speeds in hot and cold water, the mixing would have occurred at an equal rate.
2. Both jars would look the same; the food coloring would be thoroughly mixed in both jars.
3. Air molecules moving around in the room would mix the fragrance molecules throughout the room just like the water molecules mixed the food coloring.
4. It would take longer for the fragrance to mix throughout the room if the air were colder, just like the food coloring in the cold water takes longer to mix.