Chapter 17

ENRICHMENT

Use with Section 1

• Solids

Designing Scientific Models

As you have learned in this section, each type of matter has a melting point and a freezing point, which are the same, whether measured in the Farenheit or Celcius system. For water, the freezing point is 32°F, or 0°C. When water reaches a temperature above 0 degrees Celsius it exists either in the liquid or gaseous state, depending on how high the temperature goes. When the temperature of water falls below 0°C, it exists in a solid state. The molecules that make up ice are farther apart than the molecules that make up water. This property is what makes water unique: As a solid it is less dense than as a liquid. This is why ice cubes float when put in a glass of water.

Scientists use models to help them represent matter in its various states. The models can be created using a computer graphics program, by drawing them on paper, or by creating them out of three-dimensional objects. Using your knowledge that water in its solid state is less dense than water in its liquid state, create a model that would help explain to someone why ice cubes float in a glass of water.

Answer the following questions, using complete sentences.

1. What type of model did you choose to create? _____

2. Describe how your model represents water as a solid and as a liquid.

3. A copper penny will sink when placed in a container of molten copper. What can you infer about the differences in distance between each of the particles that make up the copper penny and the molten copper?