

3-2 States of Matter

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The following exercise will help you with your reading of this section. Work independently and at your own pace.

1. Explain how a crystalline solid differs from an amorphous solid.

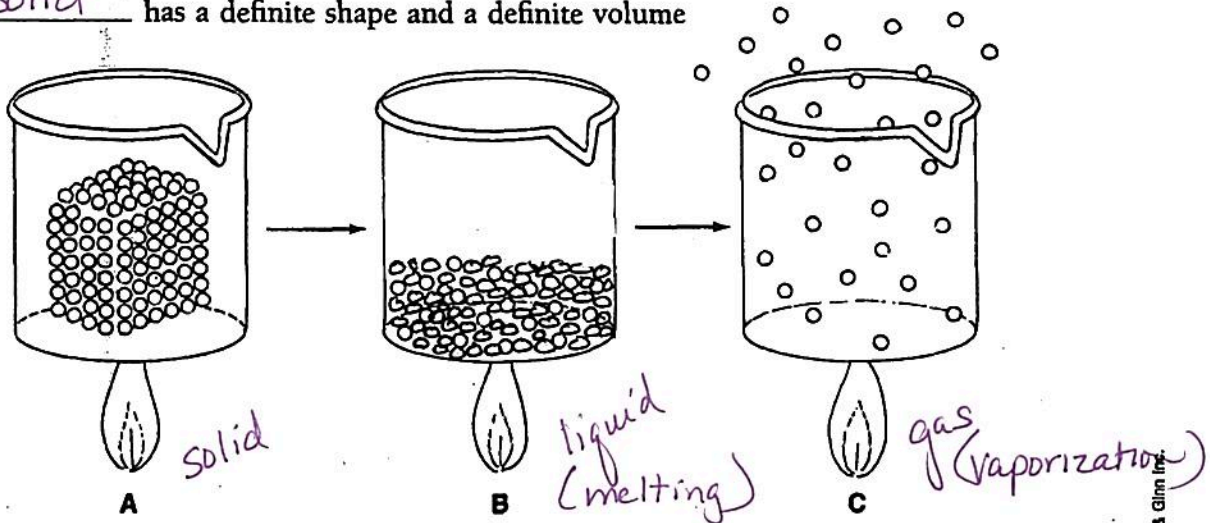
A crystalline solid has particles arranged in a pattern. Amorphous solids do not.

2. Describe the motion of particles in a solid.

The particles vibrate in place.

3. There are four states of matter: liquid, plasma, gas, and solid. Match each state with its description.

- a. Gas does not have a definite shape nor a definite volume
- b. liquid has a definite volume but no definite shape
- c. plasma a hot gas that contains electrically charged particles
- d. solid has a definite shape and a definite volume



4. As the solid in container A is heated, it changes into a liquid in container B and then into a gas in container C. Explain what change has occurred in the particles.

As the solid melts, the particles begin to spread out. As they continue to heat up they vaporize. The energy continues to increase.

Solids, Liquids, and Gases ▪ Review and Reinforce

Changes of State

Understanding Main Ideas

Complete the table by writing whether there is an gain or loss of thermal energy for each change of state and whether the movement of particles increases or decreases.

Change of State	Thermal Energy	Movement of Particles
1. Melting	gain	Increase
2. Freezing	loss	decrease
3. Vaporization	gain	increase
4. Condensation	loss	decrease
5. Sublimation	gain	increase

Building Vocabulary

From the list below, choose the term that best completes each sentence.

- | | | |
|---------------|----------|--------------|
| melting point | melting | sublimation |
| boiling point | freezing | vaporization |
| evaporation | boiling | condensation |

- The temperature at which a liquid boils is called its boiling point.
- The change in state from gas to liquid is called condensation.
- The change in state from liquid to gas is called vaporization.
- Gas bubbles forming throughout the liquid is called boiling.
- Liquid changing to gas only at the surface is called evaporation.
- The change in state from solid to liquid is called melting.
- The change in state from liquid to solid is called freezing.
- In most pure substances, melting occurs at a specific temperature, called the melting point.
- In sublimation, particles pass directly from solid to gas.

Solids, Liquids, and Gases