

# LESSON CLUSTER 7

## Explaining Melting and Solidifying

### Question Set 7.1: Melting Ice and Freezing Water

1. Fill in the blanks.

a) When a solid changes to a liquid, the process is called:

\_\_\_\_\_

b) When a liquid changes to a solid, the process is called:

\_\_\_\_\_ or \_\_\_\_\_

c) When a liquid changes to a gas, the process is called:

\_\_\_\_\_ or \_\_\_\_\_

d) When a gas changes to a liquid, the process is called:

\_\_\_\_\_

2. What causes water molecules to break out of their rigid pattern when the ice is warmed up?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. What causes water molecules to stick close together in a rigid pattern when water gets cold?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. How is melting like expansion caused by hearing? How is it different?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Activity 7.2: Melting and Solidifying Kitchen Substances

1. Your teacher will demonstrate the heating of four substances. One is a liquid, olive oil. The other three are solids, shortening, chocolate, and paraffin or candle wax. Can all three of the solids be changed into liquids? Heat the solids in boiling water. Which solid melts at the highest temperature?

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2. Will all four substances change to solids in ice water? Which substance solidifies at the lowest temperature?

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3. What are some other substances that can change states in a kitchen? List as many as you can?

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4. Pick one solid kitchen substance and explain what happens to its molecules as it melts.

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5. Pick one liquid kitchen substance and explain what happens when it solidifies.

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6. Expansion occurs when heating a substance makes the molecules move faster, so they jiggle farther apart. How is melting different?

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### Question Set 7.3: Cluster Review

1. Fill in the names for the changes of state.
  - a. When a solid changes to a liquid, the process is called \_\_\_\_\_
  - b. When a liquid changes to a solid, the process is called \_\_\_\_\_
  - c. When a liquid changes to a gas, the process is called \_\_\_\_\_
  - d. When a gas changes to a liquid, the process is called \_\_\_\_\_

2. Why do molecules of a solid break out of their pattern if the solid is heated enough?

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3. Why do molecules of a liquid form a rigid pattern if the liquid is cooled enough?

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3. How is melting gold like melting ice? How are they different?

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5. How is freezing liquid oxygen like freezing water? How are they different?

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6. Label the following changes as melting, dissolving, expansion, or solidifying.

- a. \_\_\_\_\_ candle wax turns from solid to liquid.
- b. \_\_\_\_\_ the liquid rises in a thermometer.
- c. \_\_\_\_\_ Kool-Aid is stirred in water until all the solid pieces are gone.
- d. \_\_\_\_\_ lava flowing out of a volcano cools and harden

