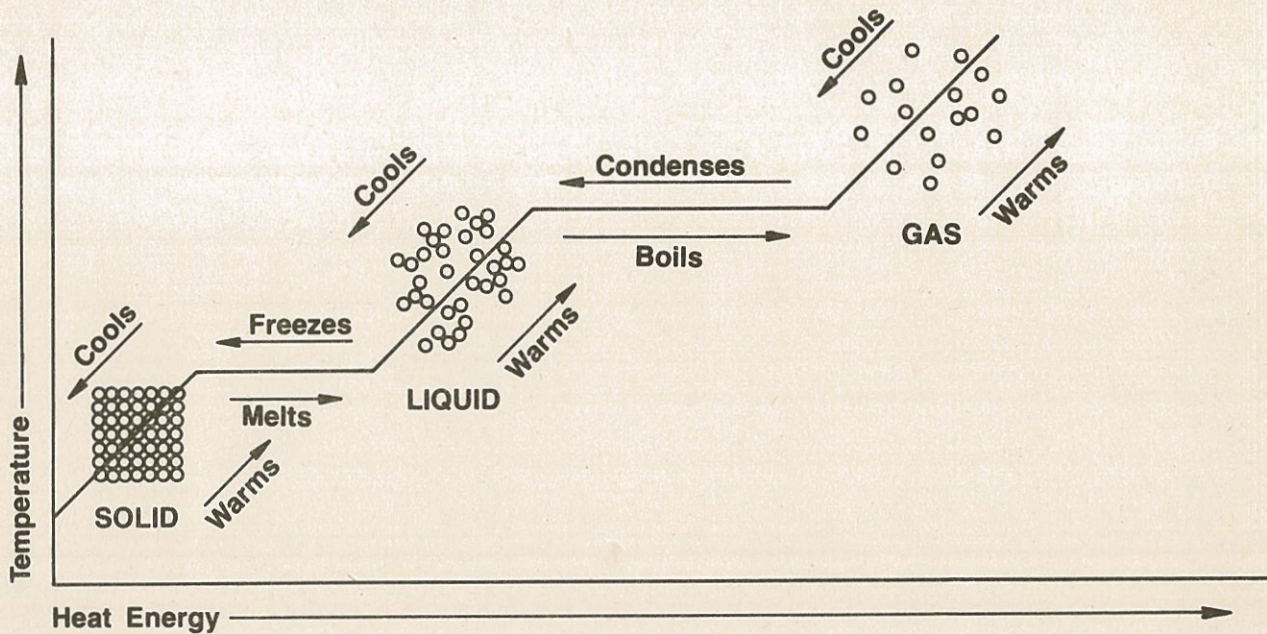


# Phase Changes

The accompanying graph shows the relationship between temperature and heat energy during the phase changes of water. Study the graph and answer the questions.



1. Does the temperature increase during melting? \_\_\_\_\_
2. Is energy required for each phase change? \_\_\_\_\_
3. Can both liquid water and steam exist at  $100^{\circ}\text{C}$ ? \_\_\_\_\_
4. What must be changed, temperature or heat energy, during condensation? \_\_\_\_\_
5. How would you describe the change in the arrangement of particles as heat energy and temperature increase? \_\_\_\_\_
6. What rule can you state about the relationship between phase changes and temperature? Between phase changes and heat energy? \_\_\_\_\_

# Identifying Physical and Chemical Changes

Identifying physical and chemical changes is an important science skill. Table A provides several examples of situations in which a substance undergoes a change. Decide if the description indicates a physical or a chemical change. Write your answer in the appropriate box. Also, briefly state why you made your choice. Table B provides several substances that can undergo both physical and chemical changes. In the appropriate box, describe what could be done to the substances to bring about these changes.

**Table A**

	Type of Change	Reason for Choice
1. While you are filling the gas tank on your minibike, a small amount of gasoline spills but soon disappears.		
2. As the minibike runs, less gasoline remains in the gas tank as carbon dioxide leaves the exhaust.		
3. After swimming in the ocean and resting on the beach, you are no longer wet, but your skin has a salty film on it.		
4. After stirring the sugar you added to some iced tea, the sugar disappears but the tea tastes sweet.		

**Table B**

	Description of a Physical Change That Could Happen	Description of a Chemical Change That Could Happen
1. Raw egg		
2. Pencil		
3. Antacid tablet		
4. Green plant		
5. Bicycle frame		