

Matter Matters

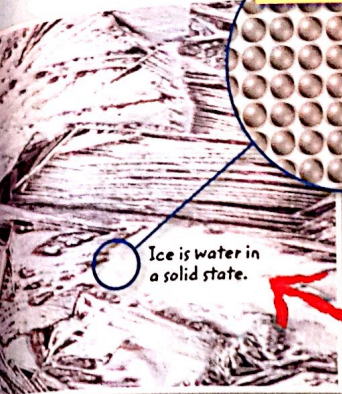
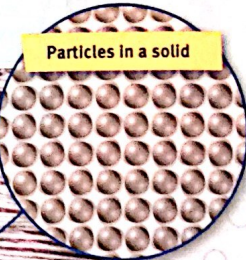
How can matter change from one state to another?

Matter can gain or lose energy from its surroundings. For example, when matter absorbs heat energy, the particles that make it up move faster. When matter loses heat energy, its particles move more slowly. If the energy of the particles changes enough, the matter can change state. Changes of state can be observed in nature. For example:

- The particles of ice in a frozen lake absorb heat energy from the sun. If they gain enough energy, the ice will begin to melt and form liquid water.
- Liquid water in oceans and rivers can also absorb heat energy from the sun. Once the particles in the liquid have gained enough energy, the liquid water can change into a gas. As this happens, the gaseous water escapes into the air.
- When the particles that make up gaseous water lose a certain amount of energy, the gas can change into a liquid or a solid. This change of state is responsible for the formation of clouds. Clouds are made up of small water droplets or ice crystals that are suspended in the air.

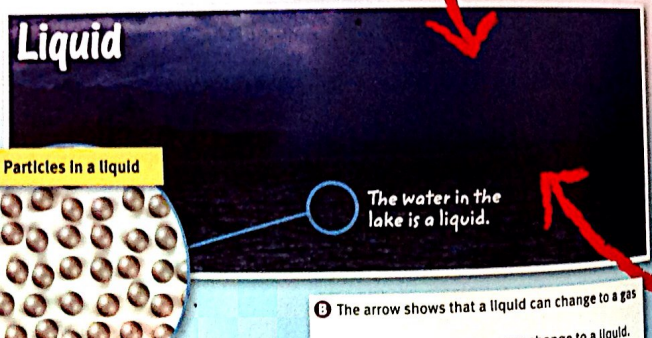
Visualize It!

5 Identify Fill in the blanks to describe the changes of state that each arrow represents.

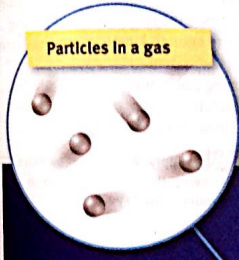


6 Apply Imagine a teapot that is full of water. As it heats up on the stove, steam comes out of the spout. Describe the states of matter that are involved.

A The arrow shows that a liquid can change to a solid and a solid can change to a _____



B The arrow shows that a liquid can change to a gas and a _____ can change to a liquid.



C The arrow shows that a gas can change to a _____ and a _____ can change to a gas.

