

# The Ice Pop Mystery

Figure 1: A melting ice pop sitting on a picnic table at a sunny soccer field, with droplets of juice forming and dripping, showing the change from solid to liquid.

Maya held a solid ice pop. "It's rock solid," she said, tapping it. Her friend Deepak grinned. "That's because its tiny particles are packed close and just wiggle in place. That's why it holds its shape." Ten minutes later, the ice pop changed to a liquid and dripped down Maya's hand. "Now it's a liquid," she said. "Right," said Deepak. "The particles got more space and can slide past each other now. That's why it pours." At lunch, Maya smelled gas particles in the air that were constantly moving in all directions. "I can smell popcorn from the cafeteria!" "That's gas particles," Deepak said. "They spread out everywhere, moving fast in every direction. In solids, attractive forces are strongest and hold particles tightly together. In gases, there's barely any pull holding them together, so they spread out freely." Maya nodded thoughtfully. "So my ice pop went from solid to liquid to gas as it melted and evaporated. The attractive forces between particles got weaker, and that's why the particles could move more and spread out. That's how the particle model explains all three states of matter!"

## Words to know

- **Particle model of matter:** An idea used to explain how matter behaves, based on tiny particles that make up everything, are always moving, and have spaces between them.
- **Solid:** A state of matter where particles are close together and vibrate in place.
- **Liquid:** A state of matter where particles have space between them and can slide past each other.
- **Gas:** A state of matter where particles have large spaces between them and move quickly in all directions.
- **Attractive forces:** Pulls between particles that hold them together, strongest in solids and weakest in gases.

## Check your understanding

1. Use the particle model to explain why a solid ice pop holds its shape but a liquid doesn't.
2. How do attractive forces change as matter goes from a solid to a liquid to a gas?
3. Draw or describe how particles are arranged and moving in a solid, liquid, and gas.

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