Year 7 Science: The particle model: solids, liquids, gases and changes of state

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. Which state of matter has particles touching each other but able to slide past one another?

2. Name the change of state when a puddle dries up on a sunny day.

3. Naphthalene mothballs slowly get smaller in a wardrobe without ever becoming liquid. Which change of state is this?

4. Why does a gas fill its whole container while a liquid sits at the bottom?

5. A class heats wax. Its temperature stays at 55 °C for 4 minutes while it turns to liquid. What is happening during those 4 minutes?

Fix the mistake

6. Correct this statement: "When ice melts, the particles themselves melt and get softer."

7. Correct this statement: "There is air between the particles in a gas."

8. Correct this statement: "The drops on the outside of a cold drink leaked through the glass."

9. Correct this statement: "Condensation happens when something is heated."

Answer key (for parents and tutors)

1. Which state of matter has particles touching each other but able to slide past one another?
   A liquid.
2. Name the change of state when a puddle dries up on a sunny day.
   Evaporation (liquid to gas).
3. Naphthalene mothballs slowly get smaller in a wardrobe without ever becoming liquid. Which change of state is this?
   Sublimation (solid straight to gas).
4. Why does a gas fill its whole container while a liquid sits at the bottom?
   Gas particles have only weak attractions and move fast in all directions, so they spread out; liquid particles are held close together by attraction.
5. A class heats wax. Its temperature stays at 55 °C for 4 minutes while it turns to liquid. What is happening during those 4 minutes?
   The wax is melting: the thermal energy is breaking the particles out of their fixed pattern instead of raising the temperature.
6. Correct this statement: "When ice melts, the particles themselves melt and get softer."
   The particles do not change at all; they just move faster and leave their fixed pattern.
7. Correct this statement: "There is air between the particles in a gas."
   Between gas particles there is empty space; air is itself made of particles.
8. Correct this statement: "The drops on the outside of a cold drink leaked through the glass."
   They are water vapour from the air that condensed on the cold glass.
9. Correct this statement: "Condensation happens when something is heated."
   Condensation happens when a gas loses thermal energy and cools into a liquid.