

The Particle Model of Matter

Time: 15 min. 6 questions.

Instructions

Answer all six questions. Use what you know about how particles behave in solids, liquids, and gases. For short-answer questions, write one or two sentences. For multiple choice, circle the letter of the best answer.

Questions

- Which statement best describes how particles are arranged in a solid? ([Knowledge](#))
 - Particles are far apart and moving in all directions.
 - Particles are close together and vibrate in place.
 - Particles are separated by spaces and can slide past each other.
 - Particles have no spaces between them and do not move at all.
- In the particle model of matter, what are the three main ideas? Write them as a short list. ([Knowledge](#))
- True or False: In a gas, the attractive forces between particles are stronger than in a liquid. ([Knowledge](#))
- A block of wood has a mass of 240 grams. Write the mass using the correct SI unit abbreviation. ([Knowledge](#))
- How does the movement of particles in a liquid differ from the movement of particles in a gas? Explain in one or two sentences. ([Knowledge](#))
- Which state of matter has the weakest attractive forces between its particles? ([Knowledge](#))
 - Solid
 - Liquid
 - Gas
 - All states have equal attractive forces

Curriculum Coverage

Question	Learning Outcome	Skill or Knowledge
1	Knowledge	Particle arrangement in solids
2	Knowledge	Core ideas of the particle model
3	Knowledge	Attractive forces across states of matter
4	Knowledge	SI units and mass measurement
5	Knowledge	Particle movement in liquids and gases
6	Knowledge	Attractive forces in gases

Answer Key

1. **B) Particles are close together and vibrate in place.** In solids, particles are held tightly in place by strong attractive forces and can only vibrate, not move freely.
2. **All matter is made up of small particles; particles of matter are always moving; particles of matter have spaces between them.** These three ideas form the foundation of the particle model of matter ([Knowledge](#)).
3. **False.** Attractive forces between particles are weakest in gases and strongest in solids, so the statement reverses the correct relationship ([Knowledge](#)).
4. **240 g.** Grams (g) is the correct SI unit abbreviation for measuring mass ([Knowledge](#)).
5. **In a liquid, particles can slide past each other but stay close together with spaces between them. In a gas, particles move constantly in all directions and are separated by large spaces.** This contrast shows how particle movement relates to the state of matter ([Knowledge](#)).
6. **C) Gas.** Attractive forces are weakest in gases because particles are far apart and moving freely in all directions ([Knowledge](#)).