

4. States of matter

Starter Quiz · 课前小测

A-Level Chemistry

Name: _____ Score: _____

1. Gas pressure is caused by:

- ☐ molecules colliding with the walls of the container
- ☐ molecules joining together
- ☐ the mass of the gas pulling down
- ☐ forces between molecules

2. A simple molecular solid (like iodine) has:

- ☐ strong bonds inside each molecule but weak forces between molecules
- ☐ a giant lattice of ions
- ☐ a sea of delocalised electrons
- ☐ a covalent network of atoms

3. A substance has a high melting point when:

- ☐ strong forces (ionic, covalent or metallic) must be broken
- ☐ only weak intermolecular forces break
- ☐ it is a small molecule
- ☐ it has no bonds

4. An ideal gas is assumed to have:

- ☐ particles of zero volume and no forces between them
- ☐ large particles with strong forces
- ☐ particles that never move
- ☐ a fixed shape

5. A giant molecular (giant covalent) structure is:

- ☐ a huge network of atoms joined by strong covalent bonds
- ☐ separate small molecules
- ☐ ions in a lattice
- ☐ metal ions in an electron sea

6. Diamond and graphite are examples of giant _____ structures.

7. Simple molecular substances have low melting points because the forces between molecules are weak.

☐ True ☐ False

8. An ideal gas is assumed to have no forces between its particles and particles of negligible volume; real gases deviate most at high pressure and low temperature.

☐ True ☐ False

9. An ionic solid conducts electricity:

- ☐ only when molten or dissolved, so the ions can move
- ☐ when solid
- ☐ never
- ☐ always

10. A real gas behaves LEAST like an ideal gas at:

- ☐ high pressure and low temperature
- ☐ low pressure and high temperature
- ☐ standard conditions only
- ☐ any temperature

1. molecules colliding with the walls of the container

Each collision with the wall gives a tiny push; the many pushes add up to the pressure.

2. strong bonds inside each molecule but weak forces between molecules

Simple molecular substances are small molecules: strong covalent bonds inside, weak intermolecular forces between.

3. strong forces (ionic, covalent or metallic) must be broken

Breaking strong bonds needs lots of energy, giving a high melting/boiling point; weak forces give a low one.

4. particles of zero volume and no forces between them

The ideal-gas model assumes point particles (zero volume) with no intermolecular forces.

5. a huge network of atoms joined by strong covalent bonds

Diamond, graphite and silicon(IV) oxide are giant covalent networks of atoms.

6. covalent

Networks of covalently bonded atoms.

7. True

The covalent bonds within molecules are strong.

8. True

At high pressure and low temperature the particles are close, so their real volume and attractions matter.

9. only when molten or dissolved, so the ions can move

The ions are fixed in the solid lattice; only when molten or dissolved can they move and carry charge.

10. high pressure and low temperature

At high pressure and low temperature the particles are crowded, so their size and attractions matter.