

Intermolecular Forces and Properties

Student Worksheet | g09_u06_w24

I can: identify London dispersion, dipole-dipole, and hydrogen-bonding interactions; connect IMFs to properties; and distinguish them from chemical bonds.

Vocabulary: intermolecular force, dispersion, dipole-dipole, hydrogen bonding, boiling point, viscosity, surface tension.

1. Define intermolecular force.

2. Where do IMFs act: within or between molecules?

3. Define London dispersion force.

4. What molecular feature enables dipole-dipole attraction?

5. What classroom condition enables hydrogen bonding?

6. Is O–H covalent bond an IMF?

7. Why can all molecules have dispersion forces?

8. Compare IMFs in CH₄ and H₂O.

9. Predict higher boiling point: H₂O or H₂S; state model.

10. Predict higher boiling point: I₂ or F₂; state dispersion reasoning.

11. Relate stronger IMFs to evaporation rate.

12. Relate stronger IMFs to viscosity.

13. Relate stronger IMFs to surface tension.

14. Why does melting/boiling usually not break covalent bonds in molecular substances?

15. What energy change occurs when attractive IMFs are overcome?

16. What energy change occurs when IMFs form?

17. Data: A bp 20 C, B bp 100 C, similar molar mass. What cautious IMF inference?

18. Compare ethanol and dimethyl ether using hydrogen-bonding possibility.

19. Correct claim: "hydrogen bonds are stronger than all covalent bonds."

20. Critique: "A high boiling point proves one specific IMF with no other evidence."
