Name: _____ **Date:** _____

Kinetic Curves & Phase Changes: 10th Grade Chemistry Quiz

Intermolecular forces, enthalpy of fusion, and triple point analysis. Ideal as a formative assessment or rigorous classroom review of molecular transitions.

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1. When examining a heating curve for an unknown substance, what occurs at the molecular level represented by a 'plateau' or horizontal line?

A. Kinetic energy increases as molecules move faster.
B. Potential energy increases as intermolecular forces are overcome.
C. The temperature of the substance rises proportionally to heat added.
D. Molecules undergo chemical synthesis into a new compound.

2. The specific temperature and pressure conditions at which the solid, liquid, and gas phases of a substance coexist in thermodynamic equilibrium is known as the _____.

A. Critical Point
B. Sublimation Threshold
C. Triple Point
D. Equilibrium Constant

3. True or False: In a vacuum with near-zero atmospheric pressure, it is possible for a substance to transition directly from a solid to a gas without ever becoming a liquid.

A. True
B. False

4. Which of the following substances would likely have the highest boiling point based on its predominant intermolecular forces?

A. Methane (CH_4)
B. Ammonia (NH_3)
C. Neon (Ne)
D. Nitrogen (N_2)

5. When a gas loses energy and transitions directly into a solid, bypassing the liquid phase, the thermochemical process is called _____.

A. Condensation
B. Vaporization
C. Deposition
D. Fusion

6. True or False: According to the Kinetic Molecular Theory, the particles in a 'Plasma' state are unique because they have been stripped of their electrons, resulting in an ionized gas.

A. True

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B. False

7. If you are cooking at a high altitude where atmospheric pressure is low, how does this affect the boiling point of water?

A. The boiling point increases because molecules need more energy to escape.
B. The boiling point remains 100°C because it is a physical constant.
C. The boiling point decreases because vapor pressure equals atmospheric pressure sooner.
D. Liquid water disappears instantly due to instantaneous sublimation.

8. The amount of energy required to change one mole of a substance from a solid to a liquid at its melting point is the Molar Enthalpy of _____.

A. Vaporization
B. Fusion
C. Sublimation
D. Condensation

9. True or False: Amorphous solids, such as glass or plastic, possess a highly ordered, repeating geometric internal structure.

A. True
B. False

10. In the context of phase diagrams, what happens to a substance once it passes the 'Critical Point'?

A. It becomes a supercritical fluid where gas and liquid phases are indistinguishable.
B. It instantly freezes into a crystalline solid regardless of temperature.
C. It ceases to have any mass or volume.
D. The substance undergoes a nuclear reaction.