Name: _____ **Date:** _____

Wrangle Molecular Transitions: 5th Grade Matter Lab Quiz

Synthesize knowledge of kinetic energy and molecular arrangement to predict how substance behavior shifts during complex phase change scenarios.

---

1. A scientist observes that the molecules in a sealed container are moving at high speeds and can be compressed into a smaller volume. Which state of matter is being observed, and what happens to the pressure if the volume is halved?

A. Solid; pressure disappears
B. Liquid; pressure remains constant
C. Gas; pressure increases
D. Plasma; pressure fluctuates

2. During the process of melting, the temperature of a substance continues to rise steadily even while the solid is turning into a liquid.

A. True
B. False

3. When a windshield becomes covered in frost on a cold morning without it raining first, it is an example of _____, where a gas turns directly into a solid.

A. Sublimation
B. Condensation
C. Deposition
D. Evaporation

4. If you move a gallon of milk from a square jug to a round bowl, why does the volume remain the same even though the shape changes?

A. Molecules are locked in a rigid crystalline lattice
B. Molecules are close together but can slide past one another
C. Molecules have gained enough energy to move independently
D. Molecules have stopped moving entirely due to surface tension

5. The phase change known as _____ occurs when a substance at its boiling point gains enough latent heat for molecules to break free from the surface.

A. Freezing
B. Vaporization
C. Melting
D. Sublimation

6. Substances in a solid state possess kinetic energy.

A. True

B. False

7. A block of dry ice is left on a table at room temperature. It seems to disappear without leaving a puddle. What is the molecular explanation for this?

A. The molecules are condensing into the air
B. The molecules are gaining energy and transitioning directly to gas
C. The molecules are losing energy and becoming more compact
D. The molecules are reacting with oxygen to become liquid

8. The density of most substances increases when they transition from a liquid to a solid.

A. True
B. False

9. In a laboratory, a student notices beads of water forming on the outside of a beaker containing ice cubes. This process is called _____.

A. Deposition
B. Evaporation
C. Condensation
D. Solidification

10. Which scenario best demonstrates how thermal energy impacts molecular motion?

A. A balloon shrinking in a cold freezer
B. A rock sitting in the sun without changing shape
C. A magnet pulling iron filings together
D. A sponge absorbing a spilled liquid