Name_____ Date _____

Science _____ **Phase Changes 2 WS**

Read & Remember!

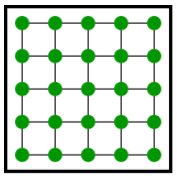
Kinetic Theory of Matter:

- Molecules are always moving. This is known as the kinetic theory of matter.
- We measure the kinetic energy with a thermometer as temperature.
- The greater the material's internal energy, the higher the temperature of the material.
- Heat is the energy flow between objects of different temperatures.

Phases of Matter:

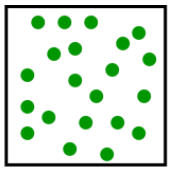
SOLID

- Matter that has definite shape and volume.
- The molecules are packed together tightly and move slowly.



LIQUID

- Matter that has no definite shape but definite volume.
- The molecules are loosely packed and move with greater speed; a liquid can flow & spread.

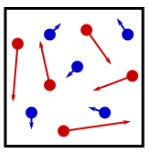


GAS

- Matter that has indefinite shape and volume.
- The molecules are so loosley arranged and move very rapidly that they fill their container.

PLASMA

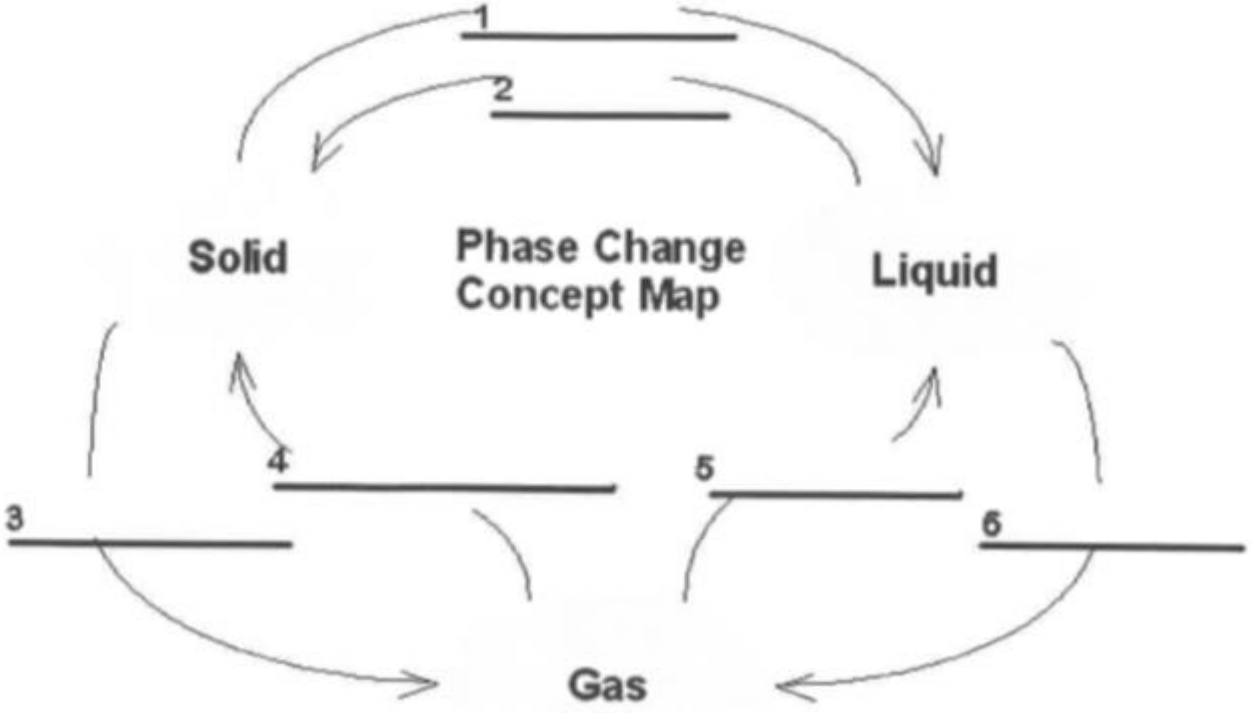
- Matter that has no definite shape or volume and whose particles have broken apart.
- Plasma is ionized gas; basically gas with electricity running through it.

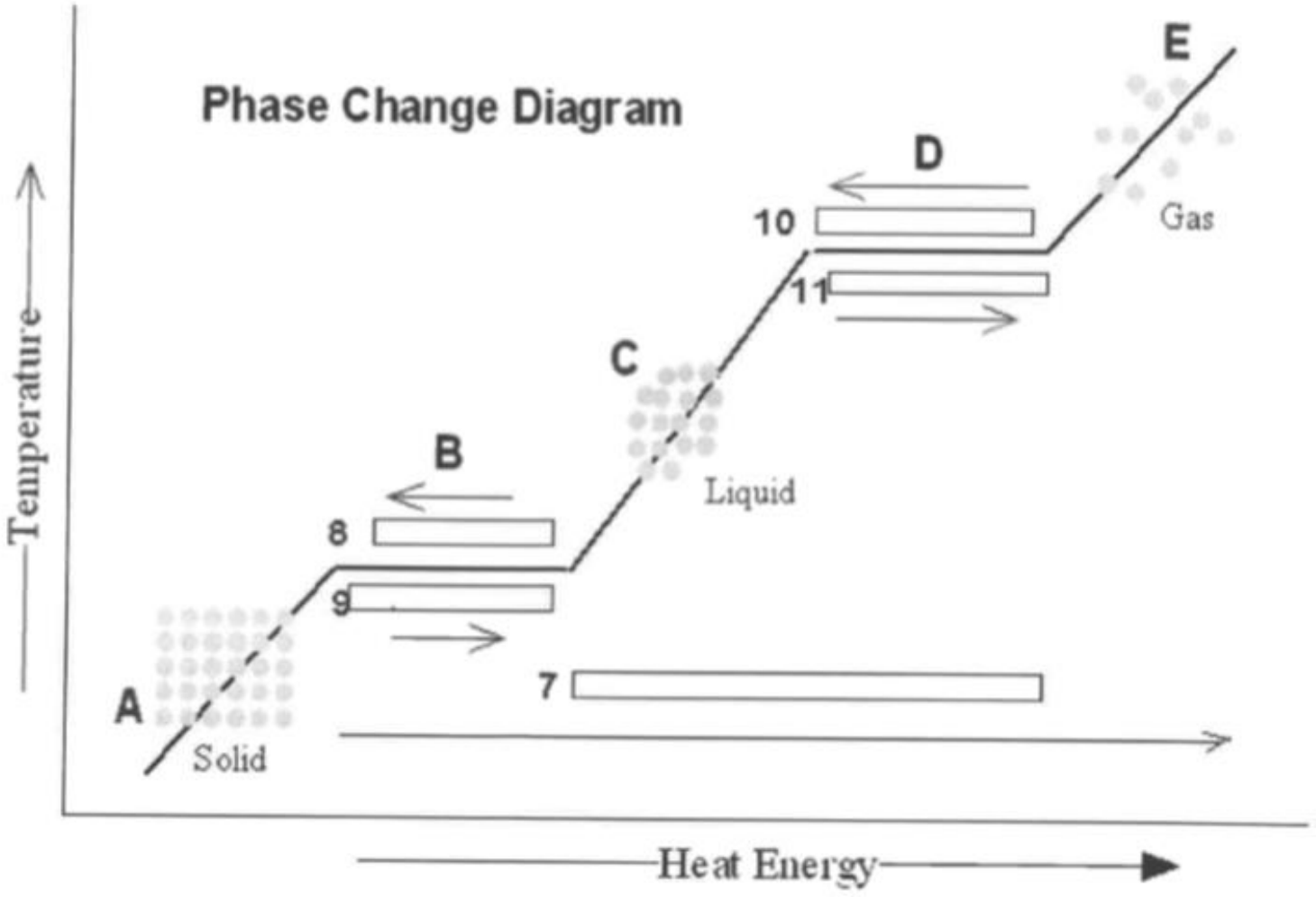


Phase Changes Descriptions:

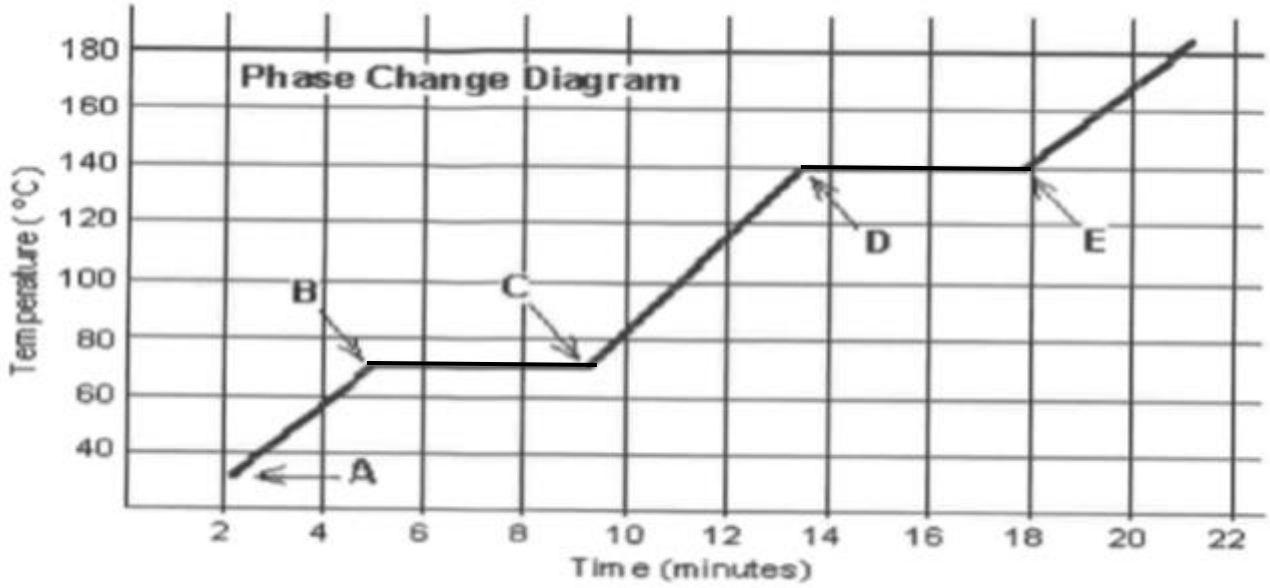
1. **MELTING**: the change from _____ to _____.
2. **FREEZING**: the change from _____ to _____.
3. **EVAPORATION**: the change from _____ to _____.
4. **CONDENSATION**: the change from _____ to _____.
5. **SUBLIMATION**: the change from _____ to _____.
6. **DEPOSITION**: the change from _____ to _____.

Fill in the phase changes in the blank provided.





This graph was drawn from data collected as a substance was heated at a constant rate. Use the graph to answer the following questions.



At **point A**, the beginning of observations, the substance exists in a solid state. Material in this phase has _____ volume and _____ shape. With each passing minute, _____ is added to the substance. This causes the molecules to _____ more rapidly which we detect by a steady rise in _____. At **point B**, the temperature of the substance is _____°C. The solid begins to _____.At **point C**, the substance is completely _____ or in a _____ state. Material in this phase has _____ volume and _____ shape. The energy put into the substance between 5 and 9 was used to convert the substance from a _____ to a _____.

Between 9 and 13 minutes, the added energy increases the _____ of the substance. During the time from **point D** to **point E**, the liquid is _____. By **point E**, the substance is completely in the _____ phase. Material in this phase has _____ volume and _____ shape. The energy put into the substance between 13 and 18 minutes converted the substance from a _____ to a _____ state. Beyond **point E**, the substance is still in the _____ phase, but the molecules are moving _____ as indicated by the increasing temperature.

Which of these 3 substances was likely used in this phase change experiment?

_____

Substance	Melting point	Boiling point
Bolognium	20 ^0C	100 ^0C
Unobtainium	40 ^0C	140 ^0C
Foosium	70 ^0C	140 ^0C