

Name: _____

Date: _____

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Unit 6: Energetics and Thermochemistry

Section 1: Phase Diagrams

In this section, I will learn...

1. How phase Δ 's occur as a result of Δ 's in temperature + pressure
2. How to predict state of matter of substances at given T + P.

- Phase changes are physical changes that occur when a substance gains or loses energy and its particles expand or contract.
- The Kinetic Molecular Theory, also known as the KMT, is a concept that states that atoms and molecules possess energy of motion (kinetic energy) that we perceive and measure as temperature.
- Particles of a substance can also be affected by changes in pressure, measured in Atmospheres (atm) or Torr.
- Standard Temperature and Pressure (STP) on Earth is 0 °C or 273 K and 1 atm.

Phase Changes:

When a substance goes from a...

To a...

It is called...

When a substance goes from a...	To a...	It is called...
Solid	Liquid	Melting
Liquid	Solid	Freezing
Solid	Gas	Sublimation
Gas	Liquid Solid	Deposition
Liquid	Gas	Evaporation
Gas	Liquid	Condensation

**MEMORIZE THESE!!!!

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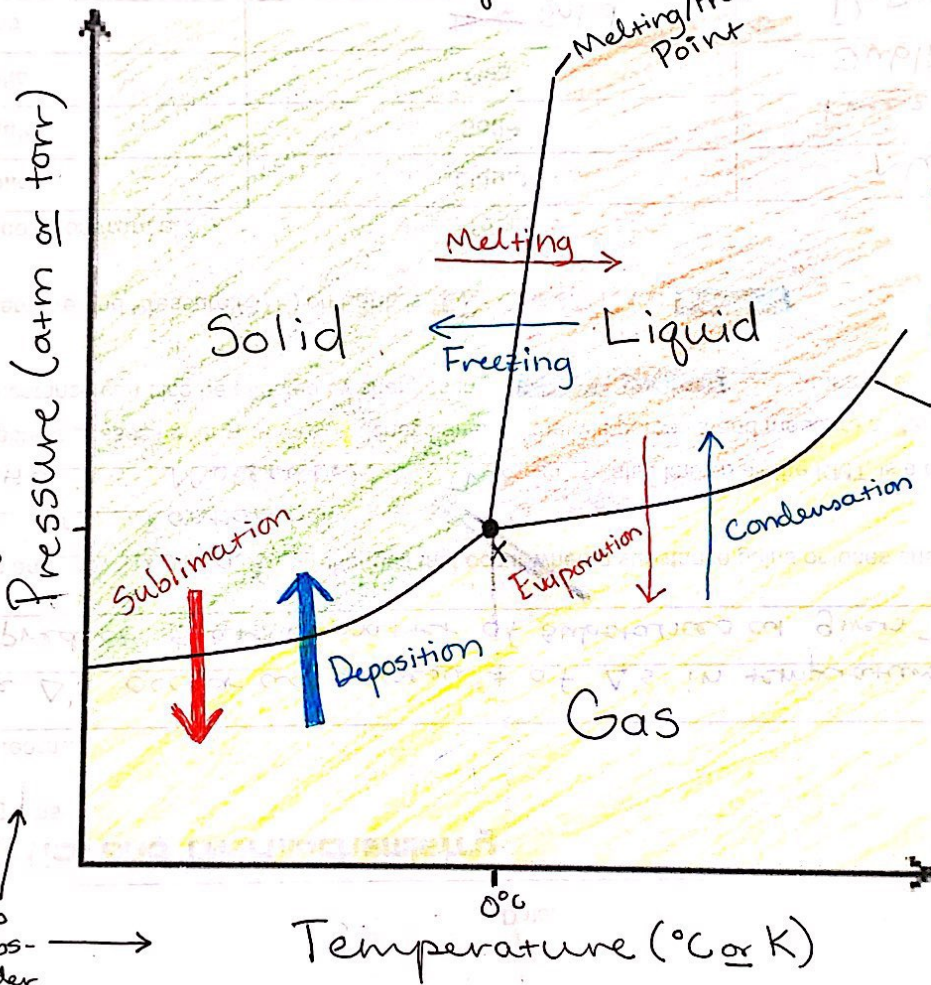
Phase Diagram of a Substance

H₂O

* Increasing Energy
Solid < Liquid < Gas

X = Triple Point;
equilibrium point
where the substance
is a solid, liquid, and
gas

* Normal
Melting +
Boiling Pts
(@ STP) -
Use Standard
Pressure



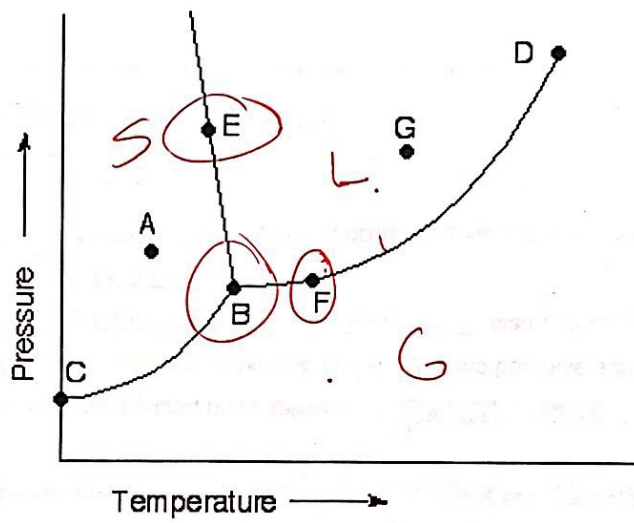
■ = Phase Δ's that
involve increasing
energy

■ = Phase Δ's that
involve decreasing
energy

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1. What state of matter would the substance be in at point A?

S

2. What state of matter would the substance be in at point G?

L

3. What phase changes can occur at point F?

Evap. + Condens.

4. What phase changes can occur at point E?

Melt + Freeze

5. What is point B called?

Triple Pt.