

Key

Warmup- Notes Quiz:

A	1. Assumes the shape of a container	a. Liquid
B	2. Maybe crystalline or amorphous	b. Solids
g	3. Classified as ionic, covalent, or metallic bonds.	c. sublimation
D	4. The normal boiling point for water	d. 100 degrees C
h	5. An endothermic process	e. freezing
e	6. An exothermic process	f. metallic
g	7. Change from solid to gas	g. Intramolecular forces
C	8. Forces with variable melting points, and are good conductors	h. melting
f		

Chapter 12:

- Intramolecular forces are the forces within a molecule due to bonding, these may be ionic, covalent, and metallic.
- Intermolecular forces are forces of attraction or repulsion which act between molecules. These include: dipole - dipole attraction, Hydrogen bonding Van der waals forces, and dipole- ion attraction.
- Describe the intermolecular forces in the following states of matter:
 - Gas = Weak
 - Liquid = intermediate Moderate
 - Solid = Strong
- Describe surface tension, give an example of surface tension.

a. The tendency of liquids to minimize their surface area

b.

Water strider - walks on H₂O

5. Illustrate the differences between evaporation and condensation:

Evaporation

water → gas

Condensation

gas → water

6. Describe Vapor Pressure:

The partial pressure of it's vapor in dynamic equilibrium w/ it's liquid

7. Describe boiling point:

The temp. @ which liquid vapor pressure equals the pressure above it

8. Molar heat of vaporization:

a. Calculate the amount of heat needed to vaporize 60.0 grams of water at it's boiling point.

$$\frac{60.0 \text{ g H}_2\text{O}}{18.02 \text{ g}} \times \frac{1 \text{ mol H}_2\text{O}}{1 \text{ mol}} \times 40.7 \text{ kJ} = 135.52 \text{ kJ}$$

b. Calculate the amount of heat needed to vaporize 75.25 grams of water at its boiling point.

$$\frac{75.25g}{18.02g} \times \frac{1 \text{ mol H}_2\text{O}}{1 \text{ mol}} \times \frac{40.7 \text{ kJ}}{1 \text{ mol}} = 169.96 \text{ kJ}$$

9. Briefly describe the types of intermolecular forces below:

a. Dispersion Forces

- AKA London forces
- Present in all molecules + atoms
- Caused by fluctuations in the distribution of electrons within molecules or atoms
- elect. clouds repel each other

b. Dipole-Dipole Forces

- Polar molecules have permanent dipoles that interact w/ the permanent dipoles of other polar molecules
- pos end attracted to neg end on other dipoles

c. Hydrogen bonding - not a bond - no elect. shared

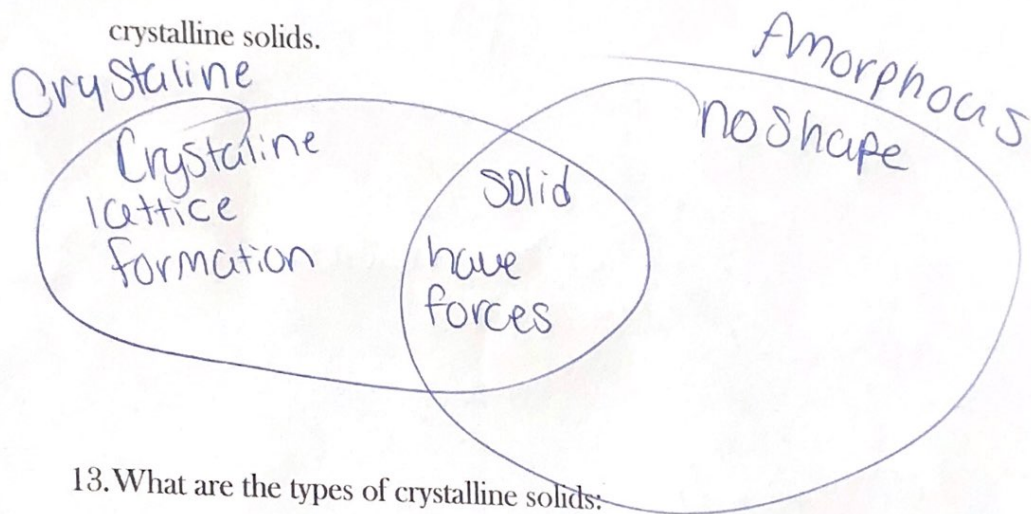
- type of dipole-dipole attraction
- strong attraction between H, + F, O, or N

10. Like dissolves Like

- a. Therefore, polar solvents dissolve Polar solutes, and nonpolar solvents dissolve nonpolar solutes.

11. Polarity determines miscibility.

12. Using a venn diagram, describe the difference between amorphous and crystalline solids.



13. What are the types of crystalline solids:

- Molecular
- Ionic
- Atomic

14. What are the 3 types of atomic solids?

- Covalent
- nonbonding
- Metallic

15. Hydrogen bonding is a special type of Dipole-Dipole attraction in molecules that contain H atoms bonded to F, O, and N.