Name _____ Date _____ Physical Science Period _____

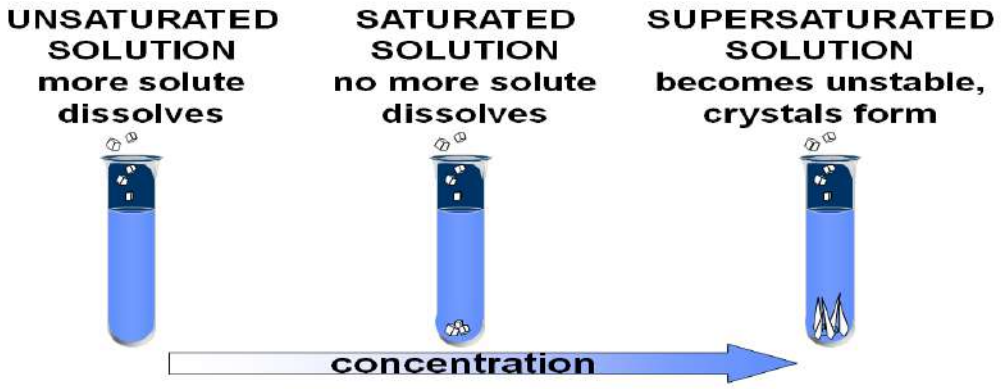
Chapter 8: Solutions Guided Notes

I. How Solutions Form

A. Definitions

- _____**–** a mixture that has the _____composition throughout the mixture; a _____ mixture.
- _____ - substance being dissolved *(in* _____*quantity)*
- _____– what the solute is dissolved in *(in* _____ *quantity)*
- **Example:** _____
- Solution – a mixture that has the same composition throughout the mix.
- Remember the difference between a mixture and a compound.
- _____ has the _____composition throughout.
- _____ can have a _____composition throughout.
- _____– the _____amount of solute that can be dissolved in the solvent at a given _____.
- _____ _____– _____ amount of solute at a given temperature.
- _____ _____– ***less than*** the maximum amount of solute at a given temperature.
- _____ _____– ***more than*** the maximum amount of solute at a given temperature; unstable.

B. Types of Solutions



C. Dissolving

- _____
  - occurs at the _____of the solute
  - solvent particles surround solute particles (+/- attraction)
  - _____ particles are _____ into solution

D. Rate of Dissolving

- _____ **dissolve faster...**
  - more _____
  - _____ particle size (increased surface area)
  - high _____
- _____**dissolve faster...**
  - no shaking or stirring
  - _____ pressure
  - _____ temperature

II. Concentration and Solubility

A. Concentration

- **% by Volume**
  - usually _____ in _____
  - Ex: _____
- **% by Mass**
  - usually _____ in _____
  - Ex: _____
- _____**solution**
  - _____ amount of solute
- _____**solution**
  - _____amount of solute

B. _____

- _____ grams of solute that will dissolve in 100 g of _____ at a given temperature
- varies with _____
- based on a _____ solution

Solids are more soluble at...

- _____ temperatures

Gases are more soluble at...

- _____temperatures
- high _____ (Henry's Law)

C. Solubility Chart

Compound	**0° C**	**20° C**	**60° C**	**100° C**
Ammonium chloride	29.4	37.2	55.3	77.3
Copper(II) sulfate	23.1	32.0	61.8	114
Lead(II)chloride	0.67	1.0	1.94	3.2
Potassium bromide	53.6	65.3	85.5	104
Sodium chlorate	79.6	95.9	137	204

1) How would you classify a solution of 65.3g of potassium bromide at 20ºC? _____

2) How would you classify a solution of 65.3g of potassium bromide at 60ºC? _____

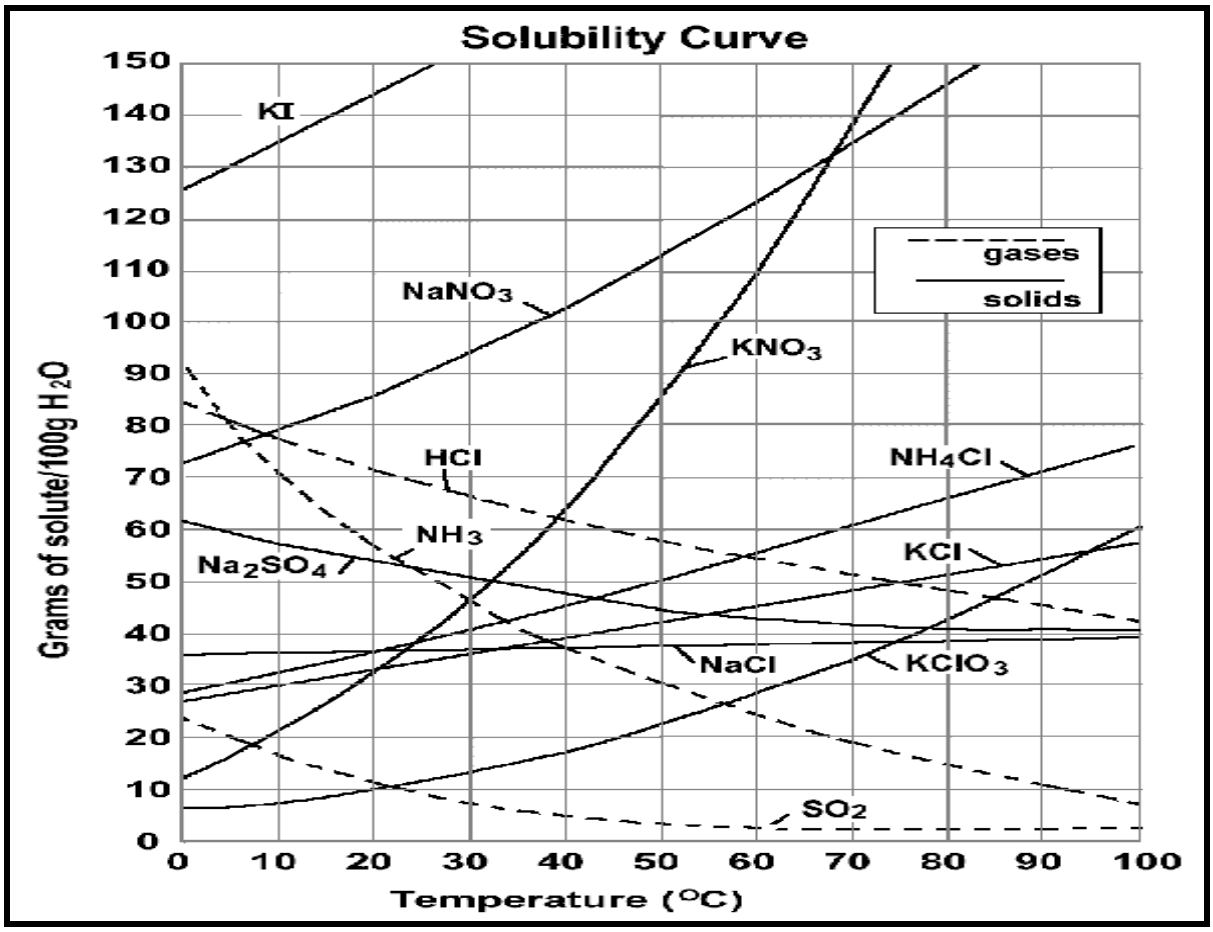
3) How would you classify a solution of 65.3g of potassium bromide at 0ºC? _____

4) How would you classify a solution of 37g of ammonium chloride at 20ºC? _____

5) How would you classify a solution of 2.5 g of lead (II) chloride at 20ºC? _____

D. Solubility Curve

- shows the dependence of _____ on _____



6) How would you classify a solution of 80g of HCl at 20ºC? _____

7) How would you classify a solution of 30g of KNO_3 at 20ºC? _____

8) How would you classify a solution of 39g of NaCl at 100ºC? _____

9) How would you classify a solution of 80g of $NaNO_3$ at 30ºC? _____

10) How would you classify a solution of 40g of $KClO_3$ at 80ºC? _____

11) How many grams of solute would you need to form a saturated solution of NH_4Cl at 50ºC? _____

12) How would you classify a solution of 20g of SO_2 at 0ºC? _____

13) How much KI would you need to form a saturated solution at 10ºC? _____

14) Which solid decreases in solubility as the temperature increases? _____