

Guided Notes: Solutions

Name: _____ Period: _____

What is a solution?

- **Solutions** are _____ of 2 or more substances.
 - They are well _____. You can't see _____ phases (_____).
- Examples:

 - Are solutions only liquids? _____

Solution Vocabulary

- Solvent: substance _____. Usually present in a _____ amount.
 - Ex. _____
- Solute: substance that gets _____.
 - Ex. _____
- Soluble: a substance that _____ in a solvent.
 - Ex. _____
- Insoluble: a substance that _____ in a solvent.
 - Ex. _____
- Solvation: process of surrounding _____ particles with _____ particles to form a _____.

Factors Affecting the Rate of Solvation...

- Agitation: (_____ or _____) increases the rate of solvation (substances dissolve _____ with mixing)
- Particle size: _____ particles solvate faster (crushed sugar dissolves _____ than chunks)
- Temperature: usually _____ temperature = faster solvation (salt in _____ water dissolved _____ than in water at room temperature or cooler)

Solubility

- The _____ amount of _____ that will dissolve in a given amount of _____ at a particular _____.
 - Usually given in units of:
 - _____
 - _____
- “ _____ ”
- Phrase scientists when _____.
- Means that _____ occurs when the solute and solvent are _____.
- Substances that are similar in size (_____) and _____ (polar or nonpolar) will be soluble

Water: The *Super Solvent*

- Sometimes called the _____ because it is a very versatile _____
- Water is _____ and _____ -- its ability to attract other _____ particles makes it an excellent solvent

Water Dissolves Many Covalent Substances

- Water is also a good solvent for many _____ compounds.
- What types of elements make up a covalent compound?

- Example: Sucrose (table sugar) $C_{12}H_{22}O_{11}$
- It's possible to dissolve almost _____ of sugar in _____ of water!!!

Temperature & Solubility

- Solubility of solids usually _____ with an increase in _____, (_____ relationship)
- Solubility of a gas in a liquid usually _____ with an increase in _____, (_____ relationship)

Pressure & Solubility

- As the external pressure of a gas in any solution _____, its solubility _____.
- Pressure and solubility are _____ related.

Solubility Graph

- What is the solubility of $NaNO_3$ at $10^\circ C$? _____
- How many grams of KNO_3 can dissolve in 200 g of water at $20.0^\circ C$? _____