**Factors that Affect Solubility**

**YOYO**: In full sentences answer the following questions.

1. What is solubility IN YOUR OWN WORDS?

1. How do we know if a solute will dissolve in a particular solvent?

Solubility Textbook Definition Review

* Solubility –\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Temperature

* Q: What happens in terms of solubility when we place a tea bag into HOT water?
* A:
* Q: What happens in terms of solubility if we now place the tea bag in COOL water?
* A:
* Q: Ms. Scanlon notices that when she orders a hot coffee with 2 sugars, all the sugar is dissolved, but when she orders iced coffee, the sugar accumulates on the bottom.  Why?
* A:

Temperature: The Trend: For GASES

\* Note: This is the opposite of solids and liquids

Pressure: The Trend



Agitation/Stirring

* Q: What do I need to do for the strawberry syrup to mix in with the milk?  What happens in terms of solubility if I do this?
* A:
* Q: Can I pile sugar and ice tea powder to make iced tea?
* A:

Agitation/Stirring: The Trend

Surface Area: The Trend

Natures of Solutes and Solvents

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  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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  + Remember: Solubility depends on the type of solvents
* Q: Using the concept of “like dissolves like,” do you think oil will mix with water?  Explain in terms of polarity.
* A:

Particle Size: The Trend

Wrap it Up: Fill in the Chart Below

|  |  |
| --- | --- |
| **Factors** | **Effect on the Solubility of Gases** |
| Temperature |  |
| Particle Size |  |
| Surface Area |  |
| Agitation/Stirring/Shaking |  |
| Pressure |  |
| Nature of Solvent |  |

Practice Questions

1. You are given an aqueous solution of sodium chloride that is saturated and has crystals of sodium chloride floating in it.  What will happen to the sodium chloride crystals are you raise the temperature?
   1. They will begin to boil
   2. They will grow as sodium chloride precipitates out
   3. They will begin to dissolve
   4. They will stay the same size

Explanation:

1. As you cool a solution of a gas in water, what happens to the solubility of the gas?
   1. It goes down
   2. It goes up
   3. It depends on the gas
   4. It stays the same

Explanation:

1. Under what conditions of temperature and pressure is a gas most soluble in water?
   1. High temperature and low pressure
   2. High temperature and high pressure
   3. Low temperature and low pressure
   4. Low temperature and high pressure

Explanation:

1. At room temperature, the solubility of which solute I water would be most affected by a change in pressure?
   1. Methanol
   2. Sugar
   3. Carbon dioxide
   4. Sodium nitrate

Explanation:

1. At which temperature can water contain the most dissolved oxygen at a pressure of 1 atmosphere?
   1. 10 °C
   2. 20 °C
   3. 30 °C
   4. 40 °C

Explanation:

1. The attraction between water molecules and an Na+ ion or a Cl- ion occurs because water molecules are
   1. Linear
   2. Symmetrical
   3. Polar
   4. Nonpolar

Explanation: