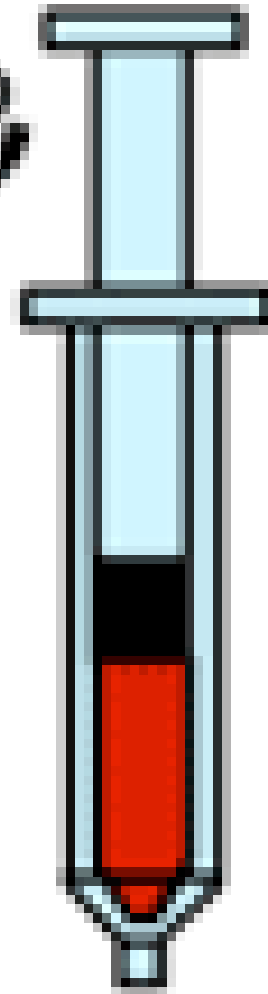
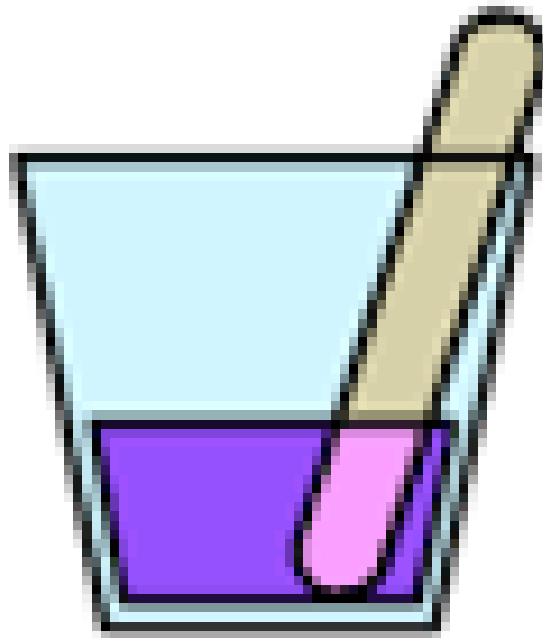
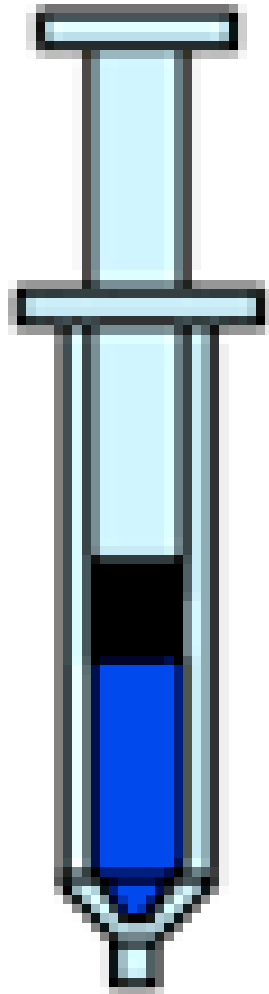
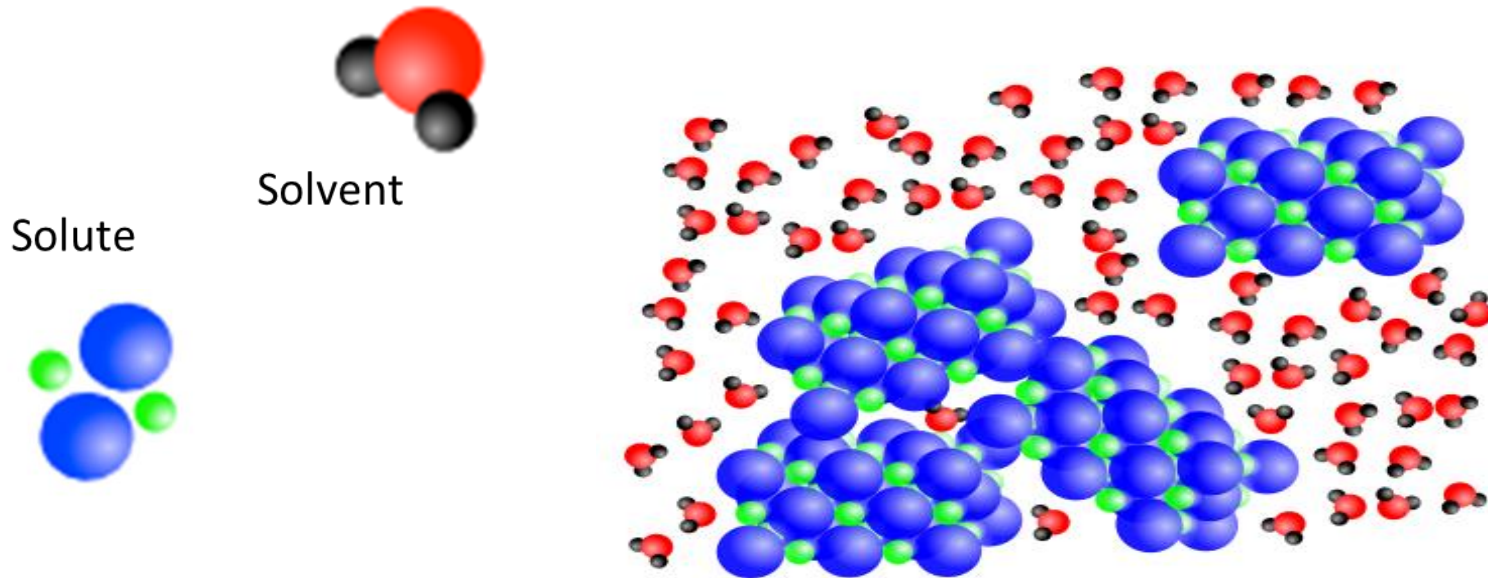


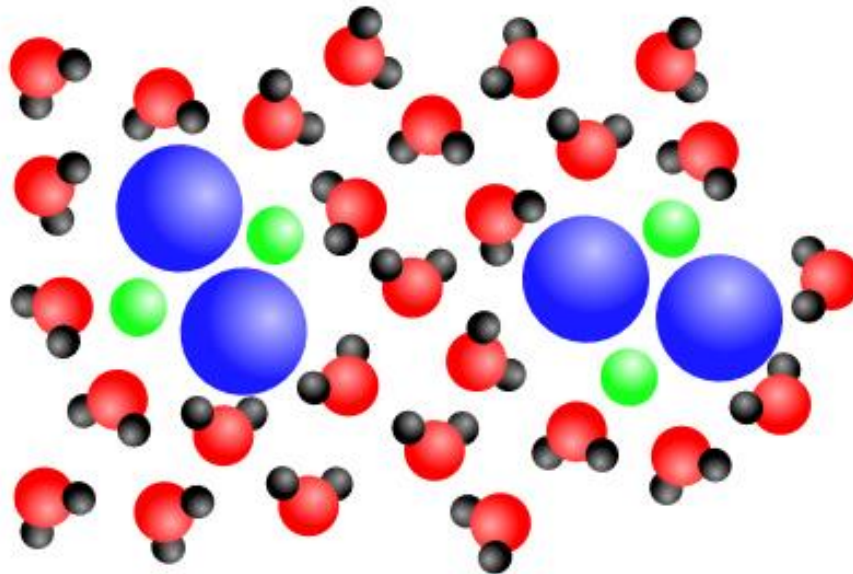
Mixtures & Solutions



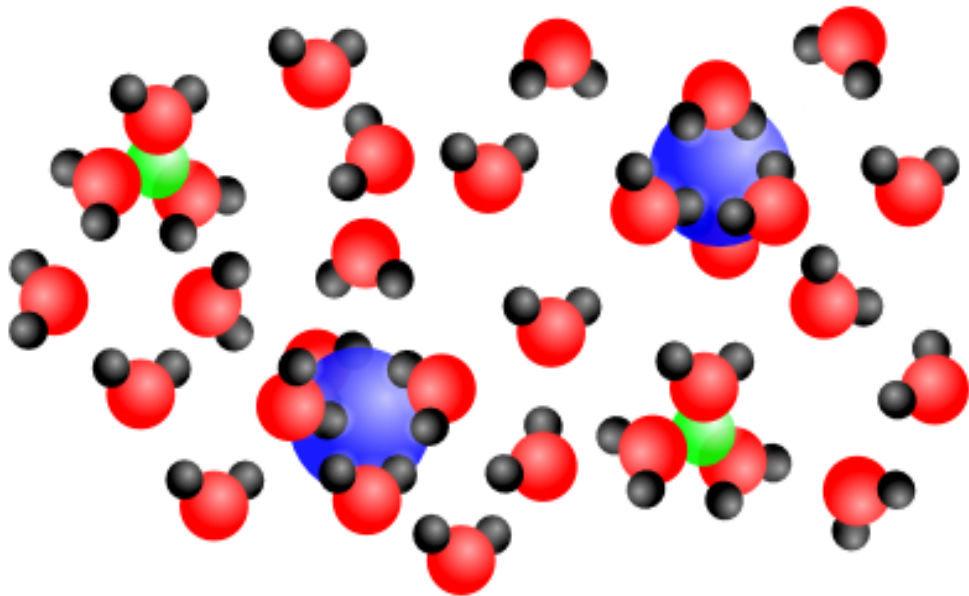
- **A suspension** is a mixture in which the solute particles (the substance that gets dissolved) are large enough to be seen by the naked eye. In addition, the particles are large enough for gravity to cause them to settle.



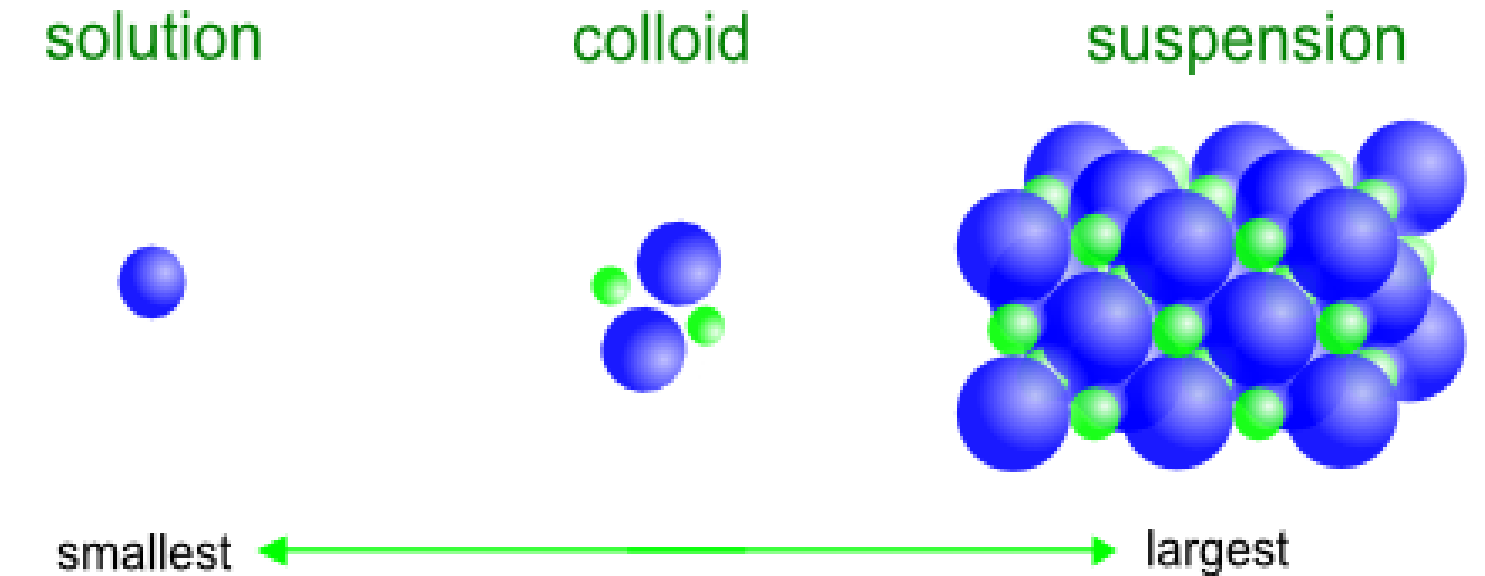
- **A colloid** is a mixture in which the solute is broken down into pieces that are too small to see with the naked eye, but are large enough to interfere with visible light. As a result, colloids are cloudy.



- **A solution** is a mixture in which the solute is broken down by the solvent (the substance that “does” the dissolving) into its smallest constituent parts. In other words, the solute is entirely broken down into individual ions or molecules.

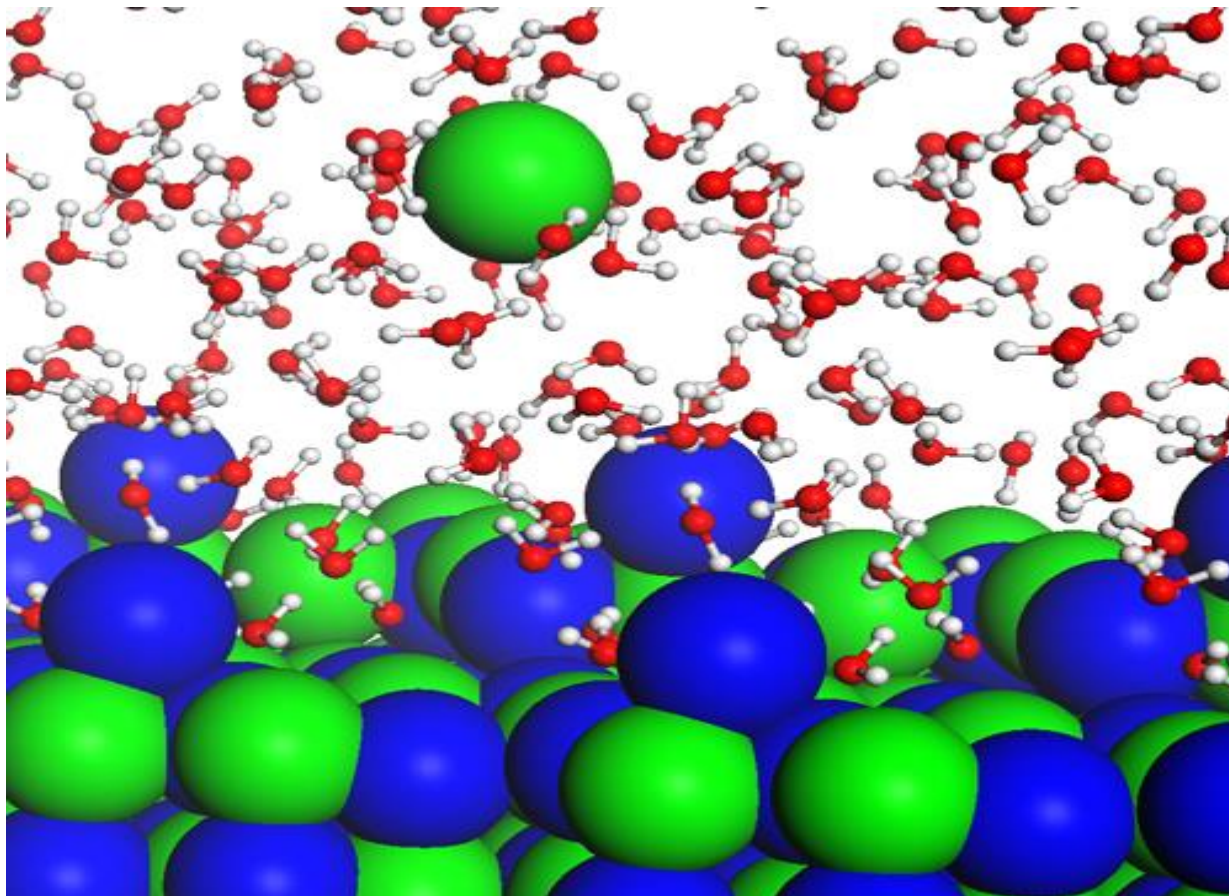


- So, in simplest terms, the difference between solutions, colloids and suspensions is the size of the solute particles:



SOLUTIONS

- **Dissolving-** A physical process where a solvent breaks up particles into smaller pieces into a solution.



The process of dissolving produces a solution:

- Examples of solutions:
 - Gatorade
 - Saline solution (for contact lenses – “salt water”)
 - Sugar in water/coffee/tea
 - Salt in water
 - Lemonade
 - Powdered drink mixes in water
 - Hot cocoa

Solution: A mixture that appears to be a single substance but is composed of particles of two or more substances that are evenly distributed amongst each other.

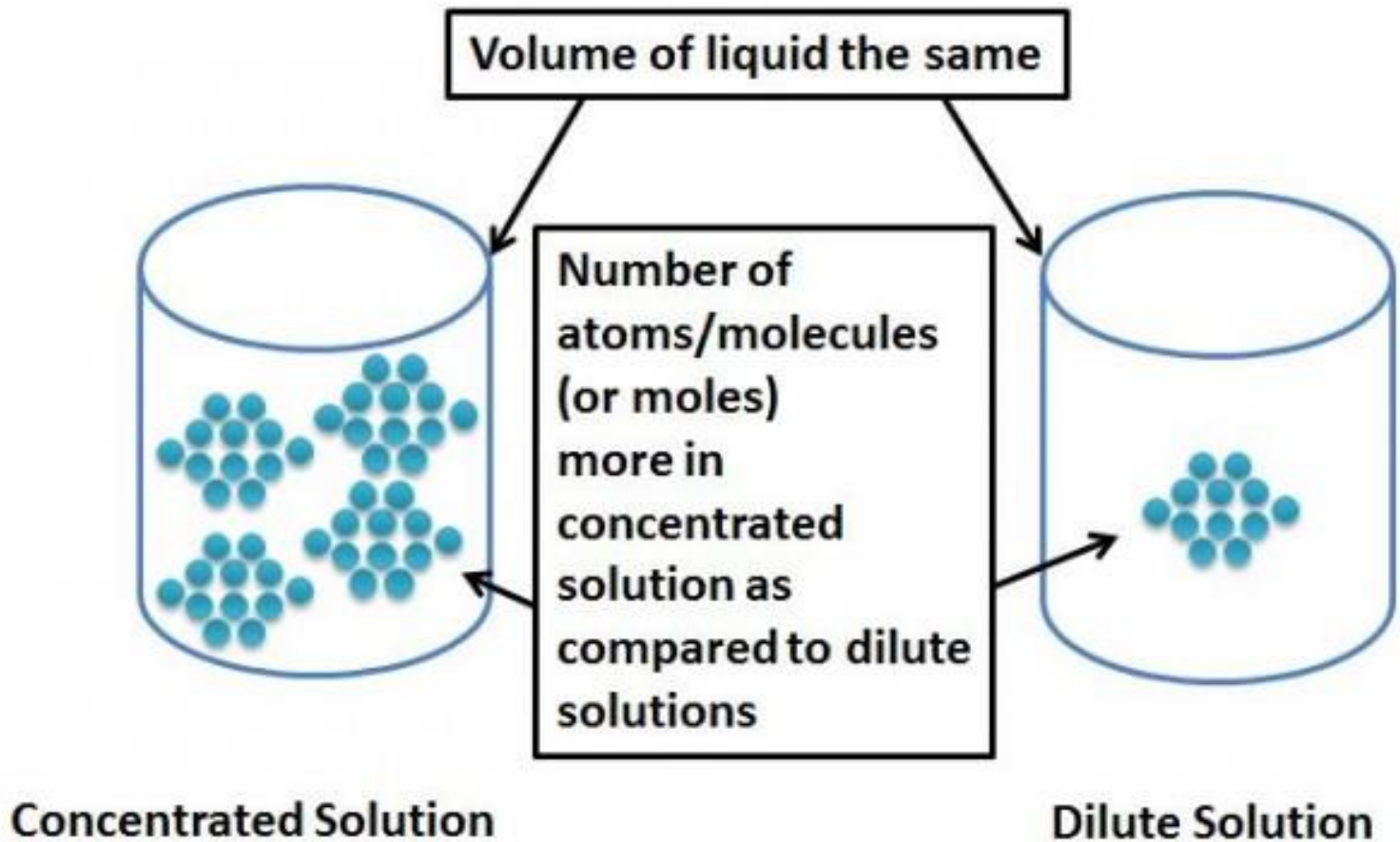
Solute: The substance that is dissolved.
Example - salt

Solvent: The substance doing the dissolving.
Example - water



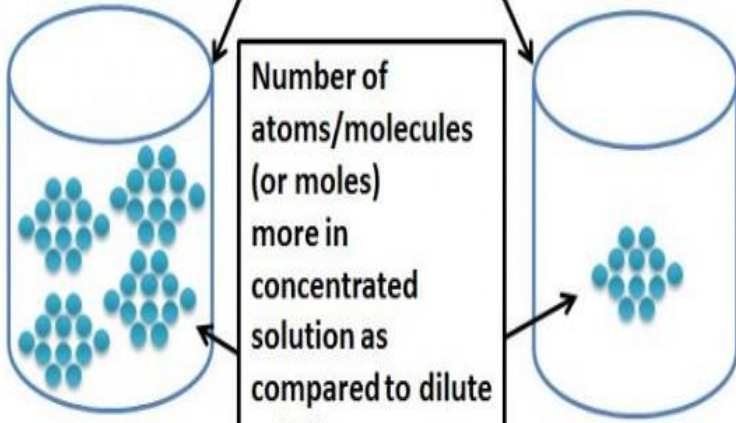
- **Soluble** – A substance that can be dissolved.
- **Insoluble** – A substance that cannot be dissolved.

- **Concentration** – The measure of the amount of dissolved material (solute) in a solution. Usually expressed in $\text{g}/100\text{cm}^3$



Volume of liquid the same

Number of atoms/molecules (or moles) more in concentrated solution as compared to dilute solutions



Concentrated Solution

Dilute Solution

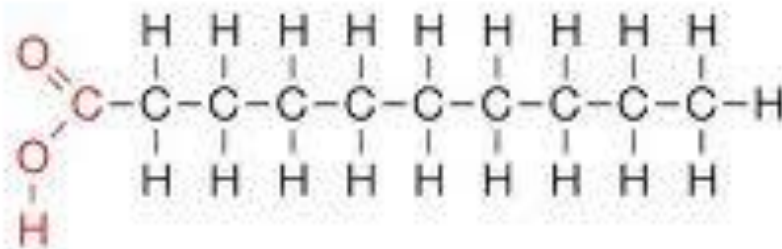
- **Dilute** - Thinner or less concentrated, containing more solvent.
- **Concentrated** – Thicker or containing more solute.



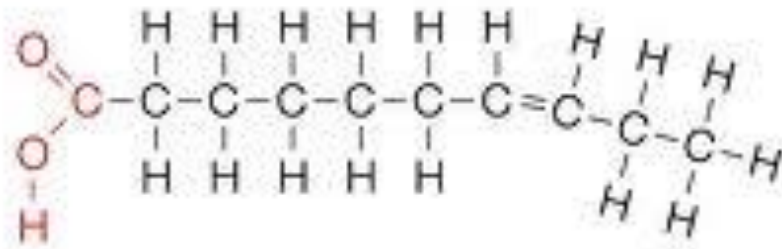
Diluted ←————→ **Concentrated**

- **Saturated** – A solution containing the maximum amount of solute.
- **Unsaturated** – A solution that has the ability to dissolve more solute.

Saturated



Unsaturated



- **Precipitate** – The term used when a substance comes out of solution because the solution is saturated.



- **Solubility** – The ability of a solute to dissolve in a solvent. The solubility of a substance is the amount of a substance that can dissolve at a given temperature.

