

LO: Students will be able to distinguish between solutions, colloids, and suspensions.

DOL: Students will be able to appropriately use vocabulary associated with solutions at least 4/5 times.

Solutions - Review of vocabulary

soluble - capable of being dissolved

solution - homogeneous mixture of two or more substances in a single phase

solvent - dissolving medium of a solution

solute - what is being dissolved

Solutions are not always liquids.

Typically, the solute is the thing there is less of

Examples of Solutions

oxygen "dissolved" in nitrogen - gas solution

sugar in water - liquid solution

copper in nickel (alloy) - solid solution

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Suspension

the particles in a solvent are so large that they settle out unless the mixture is constantly stirred or agitated

Colloid

aka colloidal dispersions, particles are larger than those in a solution, but smaller than a suspension. Typically the particles are between 1 nm and 1000 nm

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Example

A muddy puddle. At the bottom of the puddle there will be larger particles that fell out of suspension, but the water remains cloudy. The cloudy part is the colloid.

The colloidal particles are known as the **dispersed phase**, the water as the **dispersing medium**.

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Table 13.7 Types of Colloids

Colloid Type	Dispersed Substance	Dispersing Medium	Example(s)
Aerosol	Liquid	Gas	Fog
Aerosol	Solid	Gas	Smoke
Foam	Gas	Liquid	Whipped cream
Solid foam	Gas	Solid	Marshmallow
Emulsion	Liquid	Liquid	Milk
Solid emulsion	Liquid	Solid	Butter
Sol	Solid	Liquid	Paint; cell fluid
Solid sol	Solid	Solid	Opal



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Tyndall Effect

-when light is shined into a "clear" colloidal, the particles become visible



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Comparison of Solutions, Colloids, and Suspensions

Type of Mixture	Type of Particle	Effect of Light	Settling	Separation
Solution	Small particles such as single atoms, ions, or molecules	Transparent	Particles do not settle	Particles cannot be separated by filters or semipermeable membranes
Colloid	Larger molecules or groups of molecules or ions	Tyndall effect	Particles do not settle	Particles can be separated by semipermeable membranes
Suspension	Very large particles that may be visible	Opaque	Particles settle rapidly	Particles can be separated by filters

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Conducting Electricity....

an **electrolyte** is a substance that when dissolved in water, it creates a solution that **DOES** conduct electricity.

-ionic compounds disassociate into cations and anions and will thus conduct electricity

-some highly polar covalent compounds will **ionize** in water and conduct electricity

nonelectrolytes do not conduct electricity when dissolved into a solution

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