

# Mixtures



# What Is A Mixture?

A mixture is the physical combination of 2 or more substances.

It is important to understand that a mixture is not chemically combined.



# What Is A Mixture?

A mixture is a combination of two or more substances where there is **no** chemical combination or reaction.



# How Do Mixtures Form?

Mixtures are formed by physically “junking” 2 or more substances together.

Remember no chemical change is occurring.

The formation of a mixture is not a result of lowering energy.



# How Do Mixtures Form?

Mixtures combine  
physically in no specific  
proportions.  
They just mix.



# How Do Mixtures Form?

Solids, liquids and gases  
can be combined to  
create a mixture.



# How Do Mixtures Form?

When you create a mixture, there are no new substances formed.

Each part of a mixture keeps its own properties.





# Mixtures

Mixtures can be separated by physical means such as filtration, distillation, sifting, and chromatography





# How Can You separate Mixtures ?

You can separate a simple mixture by physical means.  
No chemical reaction is needed.



Mixtures can be divided  
into 2 groups

Homogenous mixtures

Heterogeneous mixtures



# What are the two types of mixtures?

Mixtures can be heterogeneous or homogeneous.



# What Is a Homogenous Mixture?

A homogeneous mixture is a mixture that is evenly distributed

Homogeneous mixtures are commonly called solutions.

Solution = Solute + Solvent

- Solute: “stuff” being dissolved
- Solvent: “stuff” doing the dissolving

The solvent is present in greater quantity

The solute is present in the lesser quantity

– Ex: Salt water: Salt=solute,  
Water=solvent



What is a homogeneous mixture?  
Homogeneous mixtures are those where the materials are evenly distributed throughout. Homogenized milk is an example.



You make a mixture by adding at least one material to another. When you add material to a gas or liquid, the material you add is called the **solute** and the material you are adding to is called the **solvent**.





# What Is a Heterogeneous Mixture?

A heterogeneous mixture is a mixture that is unevenly distributed.

Examples:

Iced tea: The ice is floating at the top and therefore is not evenly distributed throughout the tea

Chex Mix: You may find a different number of pretzels or Chex cereal in each handful; therefore, the mixture is unevenly distributed





Heterogeneous mixtures are those where the substances are not distributed evenly. They usually involve a mixture of a solid in a solid. A mixture of stones in soil is an example of a heterogeneous mixture.



Mixtures can be classified into three types: suspension, colloidal and solution. Some liquid mixtures are solutions.



Solutions are homogeneous mixtures that consist of microscopic particles and evenly spread out molecules.



Suspension mixtures have larger particles and are heterogeneous. Most mixtures are suspension mixtures.

Italian salad dressing is a good example.



Colloidal mixtures fall between suspension and solution mixtures. The ingredients in colloidal mixtures are smaller and usually homogeneous.



# How Are Mixtures Important To My Life?

We encounter mixtures everywhere in our lives

Where would you be without:

- Ice cream
- Kool-aid
- Shampoo
- Soup
- Milk
- Orange juice



# Mixtures Lab

Click on the mixture lab link above to explore methods to separate mixtures.

Create a table in your notebook to name and describe the ways mixtures can be separated.





Method of Separation	How it works:
<b>Magnet</b>	When placing a magnet within a mixture containing iron, the magnet attracts the iron but not the other substances.
<b>Filtering (filtration)</b>	When a mixture of liquid ( <i>and anything dissolved in the liquid</i> ) with large solid particles is poured over filter paper, the water ( <i>and anything dissolved in the liquid</i> ) will pass through. The large solid particles will not and will remain on the sheet of filter paper.
<b>Evaporation</b>	When a solution is heated, the solvent will evaporate, while the solute will remain in the container.
<b>Chromatography</b>	This is done by placing paper (marked with specialized ink) within a container of a shallow layer of solvent (for example, water). As the solvent travels up the paper, it meets the color mixture (specialized ink) which also travels up the paper with the solvent. This allows the colors to separate.
<b>Sifting</b>	To separate particles according to size, or shape, or the property that makes them different.

