

Read p. 99-103

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## Mixtures and Solutions

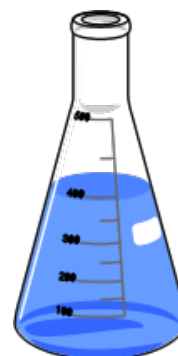
**Matter:** any material that takes up space and has a mass. This includes all solids, liquids and gasses.

**Properties:** Characteristics that are used to describe matter.

- Some materials can not be described by a single set of properties. Different materials have their own set of properties.

## Mixtures

Whenever you see materials that has more than one set of properties, you know that it is a mixture.



**Mixture:** a material made up of several different types of materials. In a mixture each material retains it's own properties.



Mixtures that are made up of parts that can be seen are called **heterogeneous**.

**Heterogeneous:** made up of parts or mixed.

Materials that have one set of properties are called **homogeneous**.

**Homogenous:** every part of the material is the same.

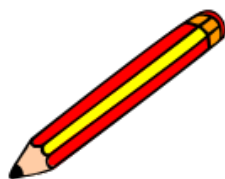
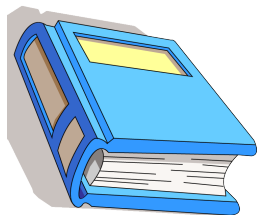
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<https://www.youtube.com/watch?v=NoMeoMygVy0>



Check your understanding:

Do questions # 1-3 in your binder.

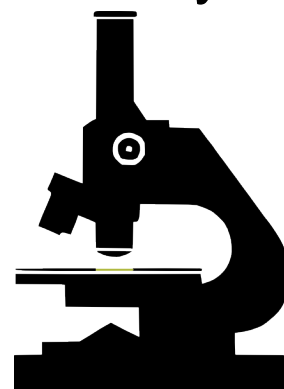


What is a mixture?

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Anything with two distinct sets of properties must be a mixture of at least two materials.


When a mixture's parts can be identified easily it is called a **mechanical mixture**.



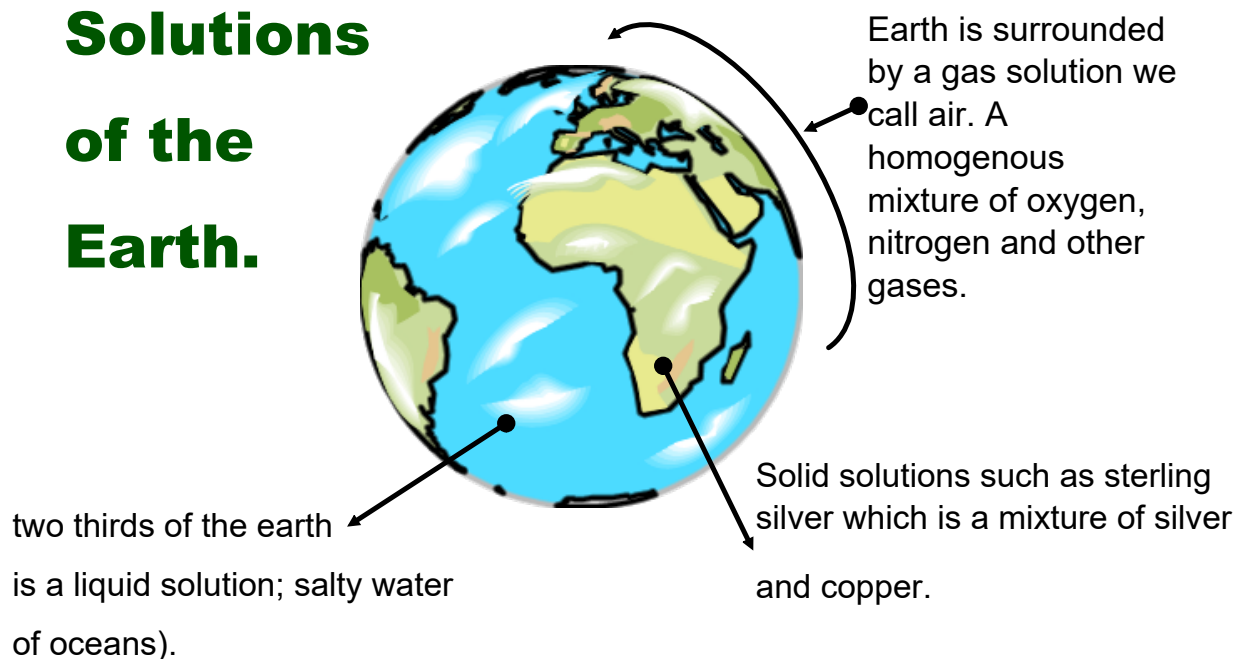
## Homogenous Mixtures

A Homogenous mixture is called a **solution**. They are everywhere the earth is surrounded by them.

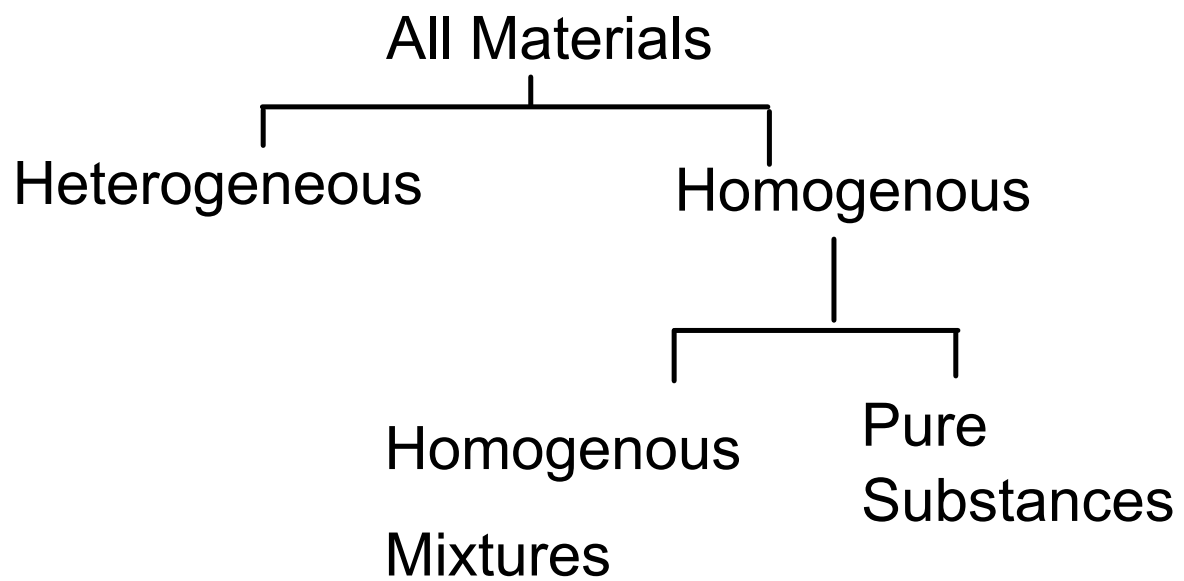
To be considered a solution the combination of materials must be the same.

**Video:**  <https://www.youtube.com/watch?v=t0iHbY9sjE>

## Solutions of the Earth.

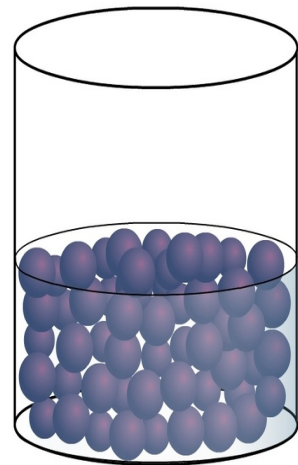


# All Matter Can be Classified



## Explaining Mixtures and Pure Substances

The Theory that scientist use to explain the properties of various mixtures and substances is called te **Particle Theory of Matter**



- \* All matter is made up of extremely tiny particles
- \* Each pure substance has it's own type of pure particle, different from the particles of other pure substances.



**Pure Substances:** is a material made up of only one kind of extremely small particle.

P. 115 Find Out Activity

p. 116 #1-4

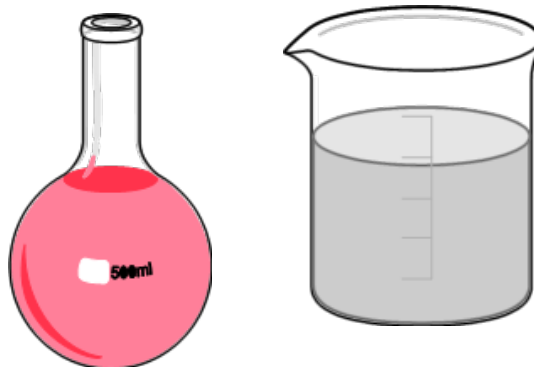
<https://www.youtube.com/watch?v=jA0PzblYPUM>



## Chapter 5

Read P. 120 - 125

# Solutions

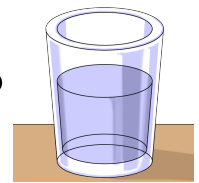


Terms: dissolving, solute, solvent, soluble, insoluble.

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What Makes Materials Dissolve?

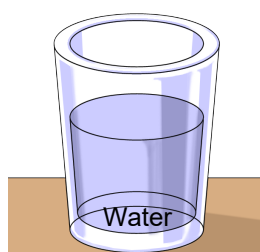


We can form solutions by mixing one or more together items like sugar and water. This is dissolving. Not all mixtures form solutions.

Particles stay together because they are attracted to each other. Sometimes particles can become attracted to other particles (like sugar and water).

Particles are always moving.

## Why Do Some Materials NOT Dissolve?



Solvent



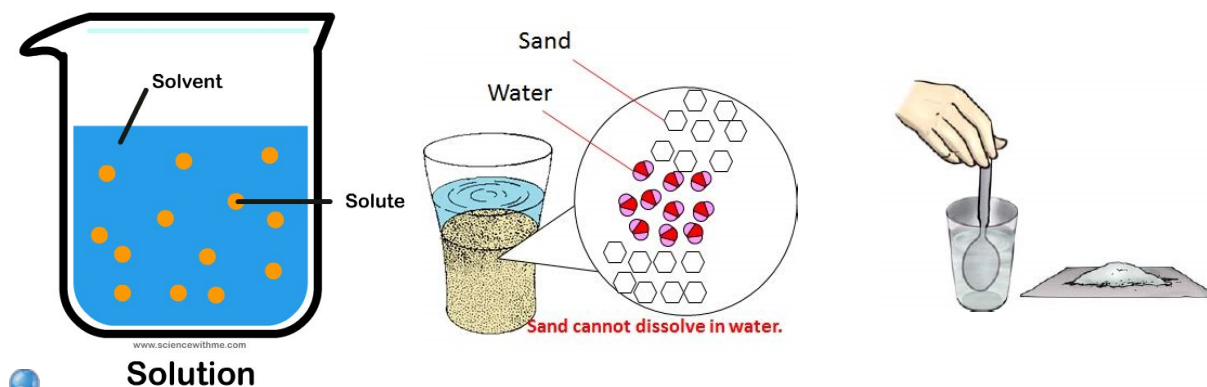
Solute

There is usually less solute than solvent in a solution and more solvent than solute.

You can also call use the term soluble when describing whether or not something dissolves.

When something is insoluble that means it will not dissolved in a solvent.

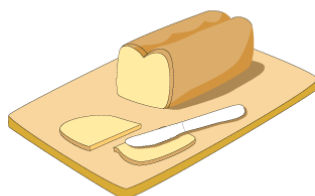
In order for materials to dissolve that have to be more attracted to solvent than other particles.



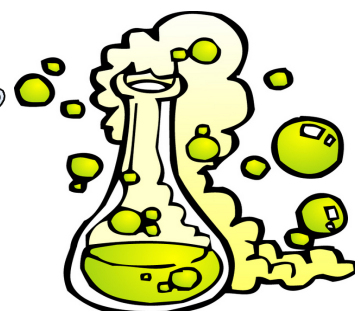
Video

## Changes in Mixtures and Solutions

**Physical Change:** Changes that do not alter the chemical nature of the substances involved. It can involve changing the size, color, shape, texture and volume. These changes are reversible.



Chemical Change: These are changes that substances undergo when they become a new or different substances. They are permanent changes and can not be reverse. Some examples are bubbling, fizzing, light production, smoke or heat.



video



Read p. 124-125 together

Check Your Understanding

Questions # 1,2,3 & 4.



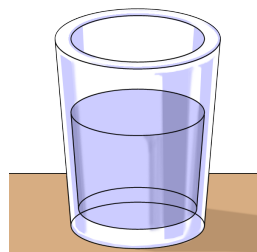
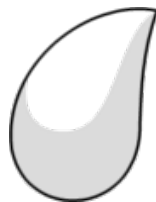
## Concentration or Concentrated Solution

The **concentration** of a solution is the proportion of the solute to solvent. If there is a lot of solute in a solution, then it is "**concentrated**".

If there is a low amount of solute, then the solution is said to be "**diluted**."

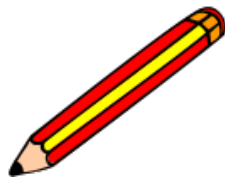
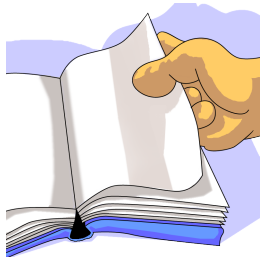


**Universal Solvent:** Water is known as the **universal solvent** because more solutes dissolve in it than any other substance. A **solvent** is a substance, usually a liquid, that dissolves other substances to form a solution. **All substances are not soluble in water.**



[http://6sci.pbworks.com/w/file/fetch/60131845/Handout\\_SolubilityWorksheet.pdf](http://6sci.pbworks.com/w/file/fetch/60131845/Handout_SolubilityWorksheet.pdf)

## Work sheet on solvent and solute



Read P. 126-127



## Water In the Environment

Water is often referred to as a "universal solvent" because so many items can be dissolved in it.

Water is very important to life, half of your blood is made up of water, we drink it, clean with it and it is everywhere.

1% of the earth's water is usable "fresh" water.



Because water is a good solvent it may contain many solutes.

What items could be mixed with water?

- \* Dissolved salts
- \* Undissolved solids
- \* Dissolved solids
- \* Dissolved gases

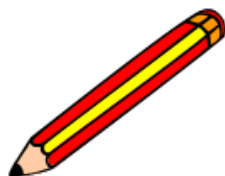
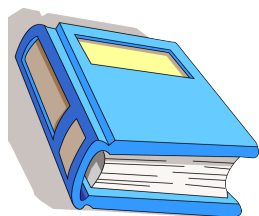


**Read P. 130 - 131**

Distillation and Particle Theory

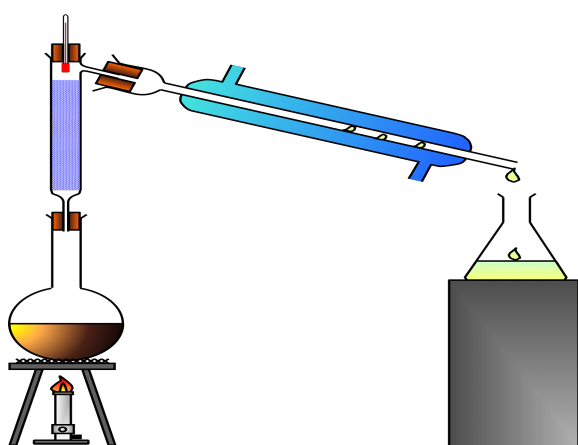
Use the glossary to find the following terms.

Distillation, Desalination, Hard Water, Soft Water, Settling.





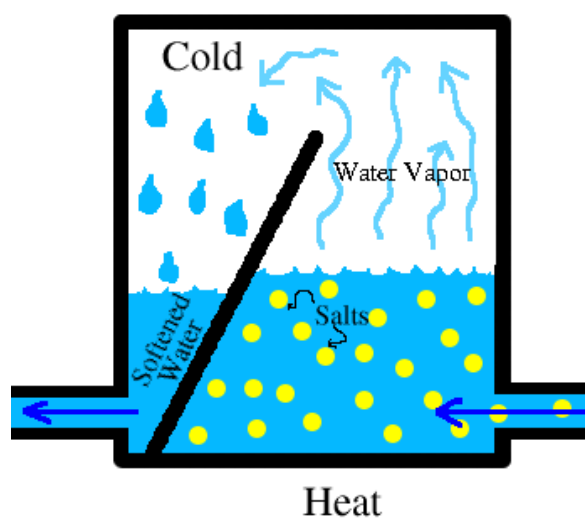
## Distillation and Particle Theory



Distillation is a method use to separate parts of a liquid solution.

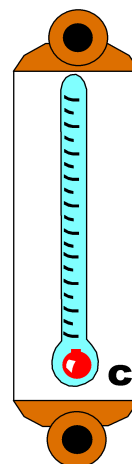
In distillation the solvent is heated to change it to a gas then condensed to a liquid again.

Condensation is the change from gas to liquid. The solutes do not change state and remain behind.



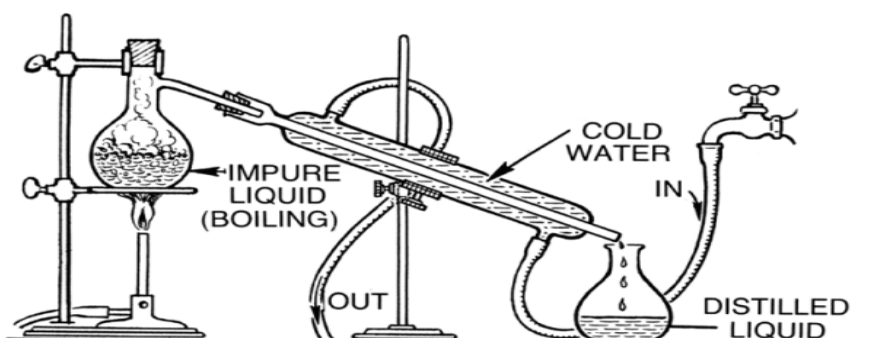
According to particle theory, solute particles and solvent particles must be attracted in order to form a solution and that particles are always moving.

Particles at a higher temperature are moving faster than those at a lower temperature.



In distillation heating causes all particles to move quickly. The water particles are moving faster than the salt and therefore escape.

Once in the tubing as a gas it cools, moves slowly and changes back to a liquid.



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# Check Your Understanding

# 1, 2, 5, 6, 7

