

Physical and Chemical Properties



THE EARTH IS ONE LARGE MIXTURE OF MOLECULES IN GASES, LIQUIDS AND SOLIDS.

Properties of Matter- Words to Know...

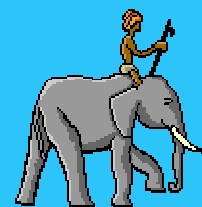


Matter

Anything that has mass and takes up space!

Mass

- A measure of how much matter is in an object.



Weight

- A measure of the force of gravity on an object.



Volume

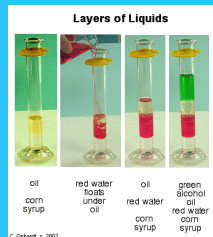
- The amount of space that matter occupies.



Density

- The measurement of how much mass of a substance is contained in a given volume.

- Mass/Volume
- I ♥ Density



States of Matter

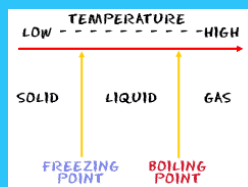
- There are different "states" of matter. No, not like Texas, Oklahoma, New Mexico. States of matter are also known as phases (a **physical state** of matter). Elements and compounds can move from one phase to another phase when special physical forces are present.

- Solid
- Liquid
- Gas



Freezing point

- The temperature at which a liquid changes into a solid.



Boiling point

- The boiling point of an element or compound means the temperature at which the liquid form of an element or compound is at equilibrium with the gaseous form.
- the boiling point of water is 100 degrees Celsius.



Melting point

- The temperatures at which the solid form of the element or compound is at equilibrium with the liquid form.
- Basically the range at which the solid changes its state into a liquid.



- The melting point of water is 0 degrees Celsius


Compound

- A substance made of two or more elements chemically combined in a set ratio.


- Water and salt are 2 examples of compounds.



**All substances have properties...
Including people!**




Example:
People can be identified by their ...



| | | | |
|---------------------------|------------|--------|---------------|
| Face (shape, expressions) | Voice | Height | Finger prints |
| Eye color | Hair color | Teeth | DNA |

What are properties?

- Matter has observable and measurable qualities.
- We can use general properties to identify substances.
- Two basic types of properties of matter: **Physical** properties and **Chemical** properties:




Physical Properties

- Physical properties are used to identify, describe and classify matter.
 - Characteristic of a substance that can be observed (using your senses) **without changing** the substance into something else.

| | | |
|----------|---------|-------------|
| Hardness | Texture | Color |
| Odor | Taste | Temperature |

More EXAMPLES - Physical


- size, shape, freezing point, boiling point, melting point, magnetism, viscosity, density, luster and many more.
 - Viscosity** - The resistance of a liquid to flowing.
 - Examples:
 - Low viscosity-water, rubbing alcohol
 - High viscosity-honey



Chemical Properties

- Chemical properties are characteristics involved when a substance interacts with another substance to **change** its chemical make-up.

| | | |
|---------------------------------|-----------------------|----------------------|
| Flammability | Rusting | Creating gas bubbles |
| Creating a new chemical product | Reactivity with water | pH |



Alike? Different?

- Draw a double bubble map in your notes to compare and contrast physical and chemical properties.

