

# Chemistry 101 Notes

**Chemistry**-the study of composition, structure, and properties of matter

Mass	Matter	Weight
a measure of the amount of matter an item has	material that makes up any physical object	gravitational pull on matter

## Types of Chemistry

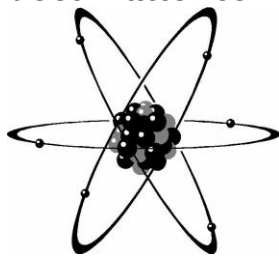
- Organic chemistry- study of carbon-containing compounds.
- Inorganic chemistry- study of non-organic substances.
- Physical chemistry- study of properties and changes to energy.
- Analytical chemistry- identification of the components and composition of materials.
- Biochemistry- substances occurring in living things.
- Theoretical chemistry- use of mathematics to understand principles.

## Types of Research

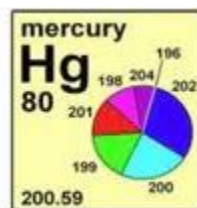
Basic Research → increase knowledge.

Applied Research → solve a problem.

## What does matter compose?

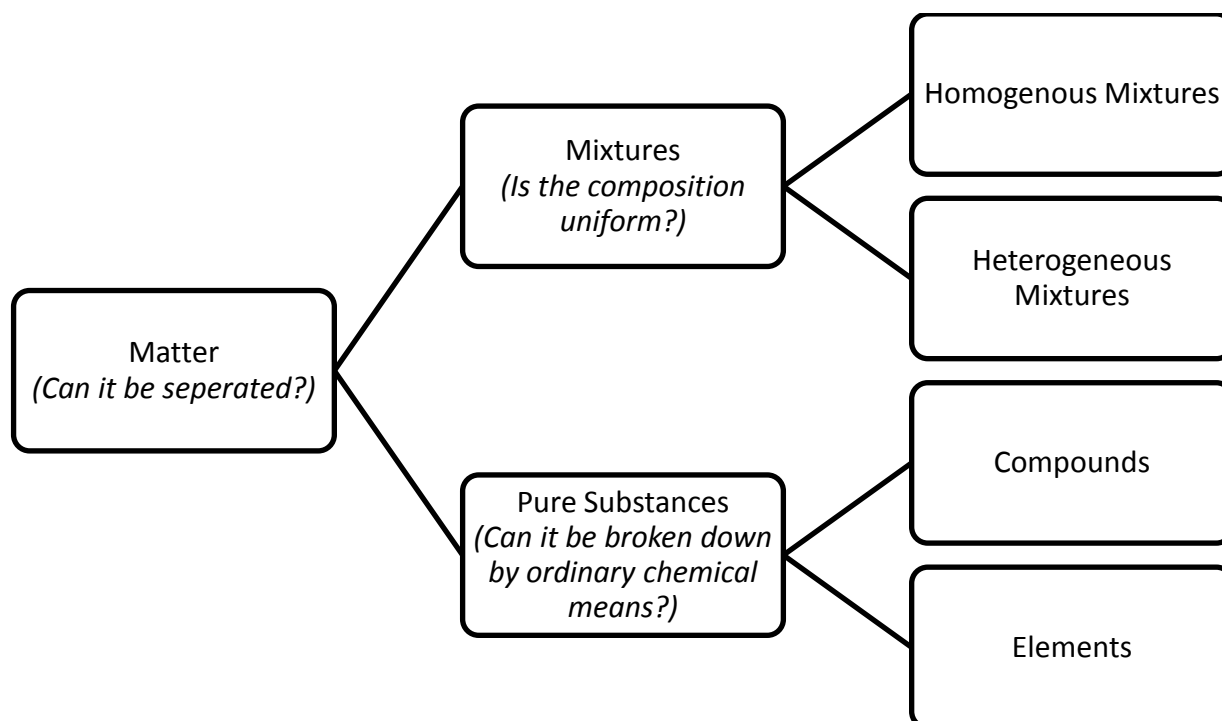


Atom- is a basic unit of matter that consists of a dense central nucleus surrounded by a cloud of negatively charged electrons.



Element- chemical element is pure chemical substance consisting of a single type of atom

## Classification of Matter:



# Chemistry 101 Notes

## Properties and Changes in Matter:

Term	Extensive Properties:	Intensive Properties:
<b>Definition</b>	depend on the amount of matter that is present.	do not depend on the amount of matter present.
<b>Example</b>	mass, volume, and the amount of energy in a substance.	melting point, boiling point, density, and ability to conduct electricity and to transfer energy as heat.

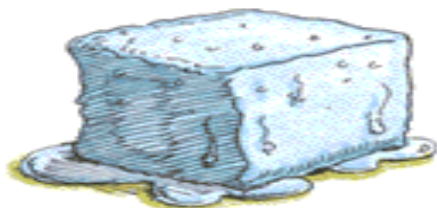
## Physical Properties and Physical Changes:

**Physical Property:**  
is a characteristic that can be observed/measured w/o changing the identity of the substance.

**Physical Change:**  
a change in a substance that doesn't involve a change in the identity of the substance

**Change of State:**  
is a physical change of a substance from one state to another.

## Types of State



SOLID

Definite volume and shape



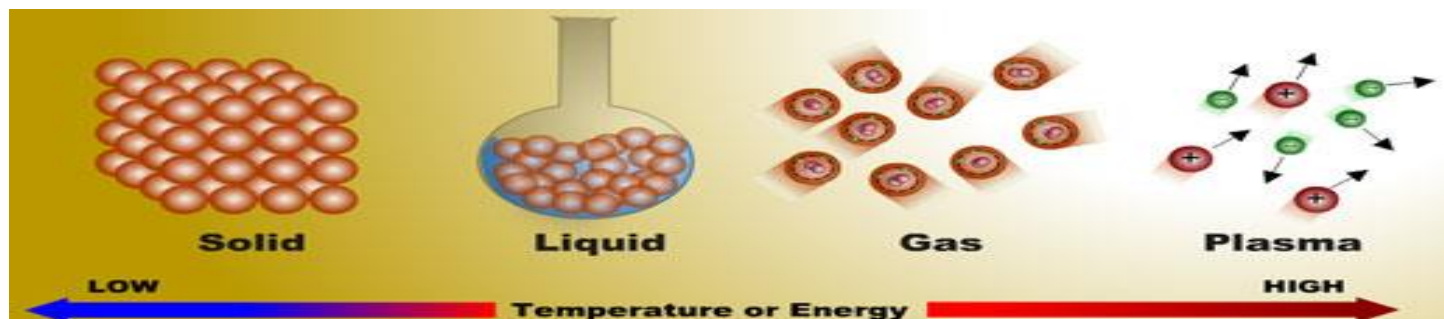
LIQUID

Definite volume but not a definite shape



GAS

Neither definite volume or shape



**Plasma:** high-temperature physical state of matter in which atoms lose most of their electrons, particles that make up atoms.

# Chemistry 101 Notes

## Chemical Properties and Chemical Change:

- Chemical Property: relates to a substance's ability to undergo changes that transform it into different substances.
- Chemical Change/Reaction: a change in which one or more substances are converted into different substances.
- Reactants: substances that react in a chemical change
- Products: substances that are formed by the chemical change.