Unit 1 - From Structures to Properties

- Matter
- Bonding and forces of attraction
- How forces influence a compound's properties?

Why does NaCl have a high melting point?

Unit 2 - Chemical Changes and Stoichiometry

- How do chemicals react?
- Amounts of substances in chemical reactions

How much sodium is needed to produce 15.0 g of sodium chloride?

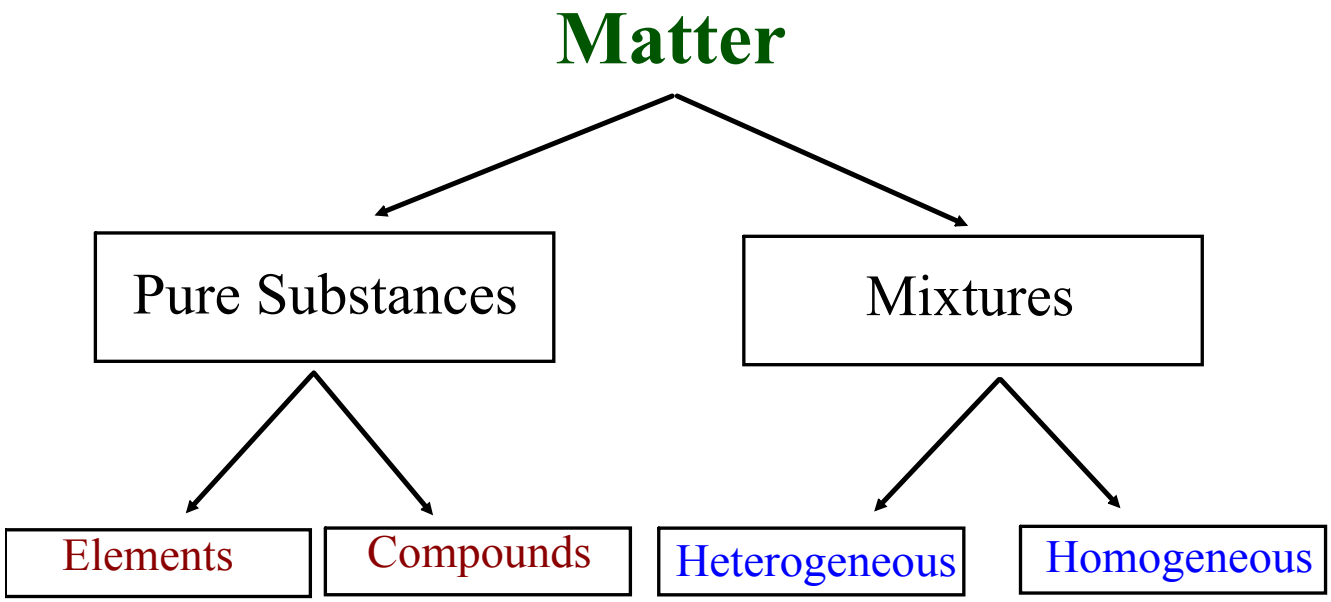
Section 1 - Matter

- Types of matter
- Physical and Chemical Properties
- Periodic Table
- Periodic Law

Chapter 2, 6.1, 6.2

- Isotopes
- Ions
- Bohr - Rutherford Model
- Quantum Mechanical Model

Chapter 4, 5.1, 5.2, 6.3, 7.1


Matter
Pure Substances
Mixtures
Elements
Compounds
Heterogeneous
Homogeneous

Types of Matter

Pure Substances - matter whose composition is constant and uniform
Ex. gold

Mixtures - impure substances
- matter whose composition varies.

Heterogeneous Mixtures - are non-uniform and may have **more than one phase.**
Ex. cornflakes and milk

Homogeneous Mixtures - are uniform and consist of **one phase**
Ex. salt water (solutions)

Atom - **the smallest particle** into which an element can be separated
- basic building blocks of matter

Elements - a substance made up of only **one type of atom**
- cannot be separated into simpler substances by chemical or physical means

Ex. C, O_2, S_8

Compounds - substances containing **atoms of more than one element** chemically combined in a definite fixed ratio
- can be separated into simpler substances by chemical means

Ex. H_2O, CO_2, $C_6H_{12}O_6$

Molecule - a distinct particle made up of **two or more atoms.**
Ex. H_2O (one molecule of water has two hydrogen atoms and one oxygen atom)

does not have to be two different elements

Ex. H_2, O_2, N_2, H_2O

It may be easier to think of it this way...

A molecule is formed when two or more atoms join together chemically.

A compound is a molecule that contains at least two different elements.

All compounds are molecules but not all molecules are compounds.

Chemical Formula - a group of symbols representing the number and type of atoms and ions in a chemical substance.