Chemistry Matter 2 - Learning journey KS3

Organisation of the Periodic Table	Development of the Periodic Table	Properties of Metals and Non-metals	Ceramics, Composites and Polymers	Group 1	Group 7	Group 0

Key Words

Key Word	Definition
Physical Properties	Features of a substance that can be observed without changing the substance
Chemical Properties	Features of the way a substance reacts with other substances
Groups	Vertical columns of the periodic table
Periods	Rows of the periodic table
Ceramic	A substance made from clay which is shaped and heated in a kiln to become hard and brittle
Composite	Composite materials are made from two or more different types of material.
Polymer	A molecule made of thousands of similar molecules in a repeating pattern.
Inert	Unreactive
Density	The mass of a substance per unit volume
Ductile	Can be drawn into wires
Malleable	Can bend without breaking

Misconceptions

Mendeleevs periodic table is arranged by atomic weight.

Groups are vertical rows and periods are horizontal rows.

Key questions

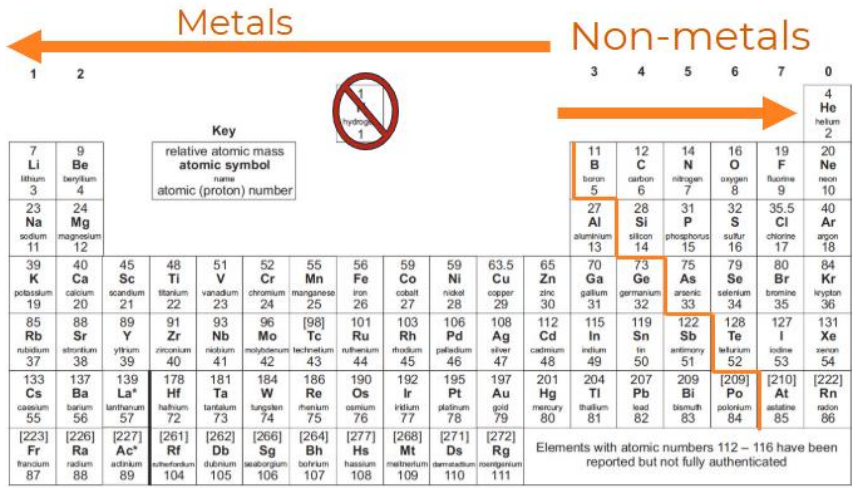
Describe how Mendeleev arranged the periodic table

Describe what happens to the reactivity as you go down group 1

Chemistry Matter 2 - Learning journey KS3

Organisation of the Periodic Table

- Metals are on the left side of the table and non-metals are on the right
- The vertical columns are called groups and the rows are called periods
- Group 1 = alkali metals, middle block = transition metals, group 7 = halogens, group 0 = noble gases.

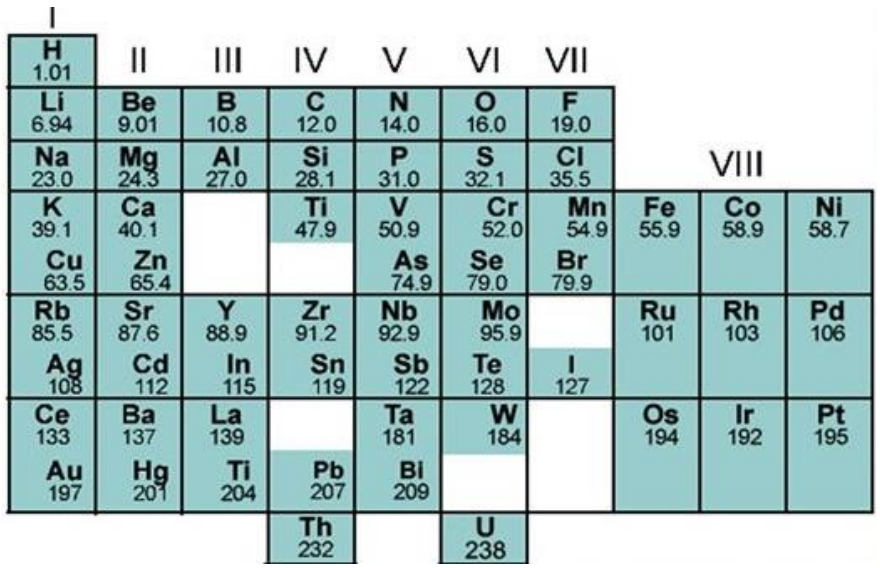


Development of the Periodic Table

Mendeleev produced the first accepted periodic table, his table:

- Was arranged by atomic weight
- Left gaps for undiscovered elements
- Swapped the order of some elements so they were placed with other elements with similar properties.

He also could predict the properties of undiscovered elements



Chemistry Matter 2- Learning journey KS3

Metals Vs Non-metal Properties

Metal properties	Non-metal properties
Malleable	Won't stretch easily
Ductile	Weak and brittle
Good conductor of heat	Poor conductors of electricity
Good conductor of electricity	Poor conductors of heat
Shiny	Dull
Solid at room temperature	Solid, liquid or gas at room temperature
Dense	Not dense
Sonorous	Not sonorous

Ceramics, Composites and Polymers

Ceramics are materials which are made from clay which harden when fired in a kiln. They make a hard and brittle product

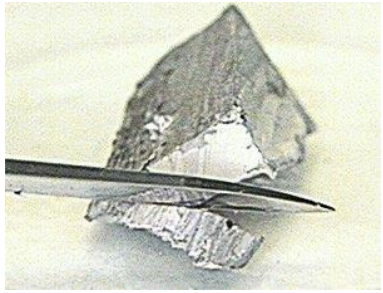
Composite materials are made from two or more different types of material. The different properties of the material make a more useful product.

Polymers are very long chain molecules made from small repeating units called monomers. Some examples are; DNA and proteins.

Group 1 – Alkali metals

Group 1 are called the alkali metals and are found on the left of the periodic table and are:

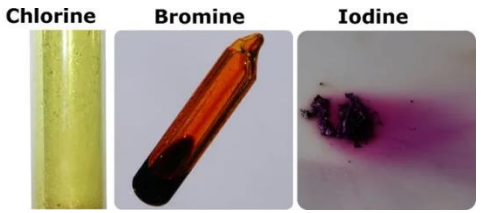
- Soft (easy to cut)
- Have low melting points
- Have low densities (can float on water



Group 7 - Halogens

Group 7 are called the halogens and are non-metals found on the right of the periodic table The first three elements are the following at room temperature:

Chlorine – pale green gas
Bromine – dark red liquid
Iodine grey solid



They also react with a metal to form a metal halide

Metal + chlorine -> metal chloride

Group 0 – Noble Gases

Group 0 – elements are non-metals found on the very right of the periodic table. They are inert (unreactive) as they have a full outer shell of electrons.