

8F The Periodic Table

1. Dalton's Atomic Model

Matter	All things are made of matter.
John Dalton	(1766-1844) An English chemist.
Dalton's Atomic Theory	<ul style="list-style-type: none"> all matter is made up of atoms. atoms in an element are identical. Each element has its own type of atom. atoms cannot be destroyed or created. In compounds each atom is always joined to a fixed number of other atoms. atoms rearrange during chemical reactions to form new substances.
Atoms	Small particles that all matter is made up of.
Element	A substance made up of one kind of atom.
Compound	Contains atoms of two or more different elements chemically joined together.
Physical Properties	The properties that describe a substance on its own. (colour, strength, density, etc.)
Physical Changes	A change in which no new substances are formed.
Symbols	Letters used to represent the elements. <i>e.g. C represents Carbon</i>

2. Chemical Properties

Chemical Properties	How a substance reacts with other substances.
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Hypothesis	An idea about how something works that can be tested using experiments.
Prediction	What you think will happen in experiment and why.
Conserving Mass	The mass of the products of a reaction will be the same as the mass of the reactants.
Chemical Formulae	The combination of symbols and numbers that shows how many atoms of different element are in a particular molecule. <i>e.g. water is H₂O</i>
Ratio	Comparison of the proportion of two quantities <i>e.g. in water there are 2 hydrogens for every oxygen, the ratio is 2:1</i>

3. Mendeleev's Table

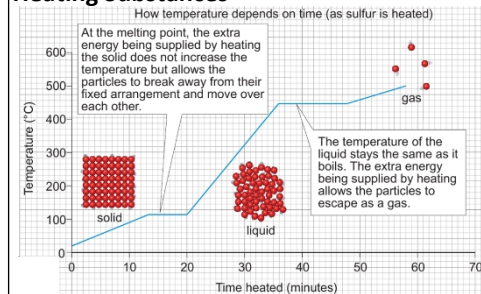
Johann Döbereiner	(1780-1849) German chemist who highlighted some groups of 3 elements had similar physical / chemical properties.
John Newlands	(1837-1898) English chemist who ordered elements by the mass of atoms and noticed every 8 th element has similar properties.
Dmitri Mendeleev	(1834-1907) Russian chemist who published the first periodic table by ordering elements by increasing masses of their atoms forming groups of similar properties.
Gaps	Mendeleev left gaps in his table for undiscovered elements and predicted their properties.

Group	A vertical column in the Periodic Table- contains elements with similar properties.
Alkali Metals	Group 1 Very reactive metals, they even react with water.
Halogens	Group 7 React with most metals to form solid compounds.
Noble Gases	Group 0 Unreactive gases

4. Physical Trends

Melting Point	When a substance changes from a solid into a liquid
Boiling Point	When a substance changes from a liquid into a gas.
Freezing Point	When a substance changes from a liquid into a solid- the same as the melting point.

Heating Substances



Periods	The horizontal rows in the Periodic table.
Transition Metals	Block of elements in the middle of the Periodic table- separates the eight main groups.
Metal Properties	High melting points, strong, flexible, malleable, shiny, good conductors.
Non-Metal Properties	Low melting points, brittle, dull, poor conductors.

5. Chemical Trends

Alkali Metals & Water	Alkali metals produce metal hydroxides and hydrogen when reacting with water. <i>(sodium + water → sodium hydroxide + hydrogen)</i>
Alkali Metals & Oxygen	Alkali metals produce metal oxides when reacting with oxygen. <i>(lithium + oxygen → lithium oxide)</i>
Reactivity	How quickly / vigorously something reacts.
Alkali Metal Reactivity	As you move down the group the reactivity increases.
Oxides	Formed when elements react with oxygen.
Oxide Trends	When we dissolve oxides in water there is a trend in their pH. Further to the left of the Periodic table oxides formed are more alkaline. Further to the right they are more acidic.

Lesson	Memorised?
1. Dalton's Atomic Model	
2. Chemical Properties	
3. Mendeleev's Table	
4. Physical Trends	
5. Chemical Trends	