

Section 1- Elements and compounds

C1- Atomic Structure and the Periodic Table

Section 2- Mixtures

Key Words
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Word Definition

1a Element A group of **atoms** that all have same number of protons. E.g Gold

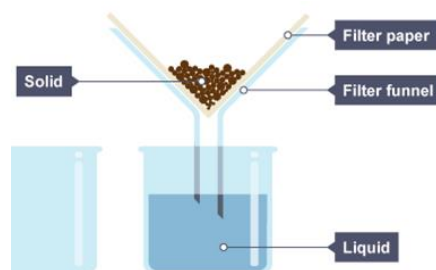
1b Symbol Each element has its own symbol found in the periodic table- the first letter is capital and all others are lower case. E.g. Co

1c Compound Two or more elements **chemically bonded**. E.g. CO₂

1d Chemical formula Tells us how many atoms of different elements are in a chemical. E.g. 2CaCO₃

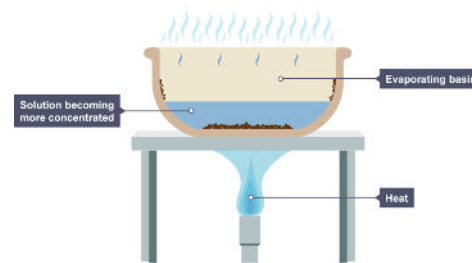
1e Word equation Shows the full names of **reactants** and **products** in a chemical reaction. E.g Magnesium + Oxygen → Magnesium Oxide

1f Symbol equation Shows the chemical **formulae** of **reactants** and **products** in a chemical reaction. E.g. Mg + O₂ → MgO

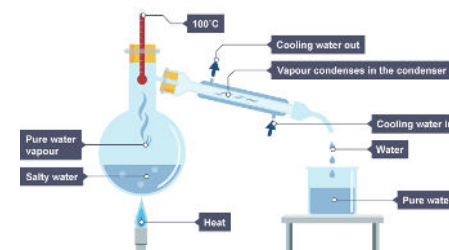


2b- Filtration

[AQA C1- atomic structure and the periodic table.](#)



2h- Crystallisation



2i- Simple distillation

Word Definition

2a Mixture Two or more elements or compounds that are not **chemically bonded**.

2b Filtration Separates an insoluble solid from a liquid. E.g. separating sand from water.

2c Solute A chemical that **dissolves** in a liquid.

2d Solvent The liquid a solute **dissolves** in. E.g. water is the solvent in coffee.

2e Solution A mixture formed by a solute and a solvent.

2f Insoluble Does not **dissolve** in a specific solvent. E.g. Sand is insoluble in water.

2g Soluble Does **dissolve** in a specific solvent. E.g. sugar is soluble in water.

2h Crystallisation The process of producing crystals from a solution by evaporating the solvent.

2i Simple distillation The process of separating a solvent from a solution as the solute has a higher boiling point than the solvent.

2j Chromatography Used to separate mixtures of soluble substances. Often coloured substances such as food colourings, inks or plant pigments.

Section 3- Atomic Structure

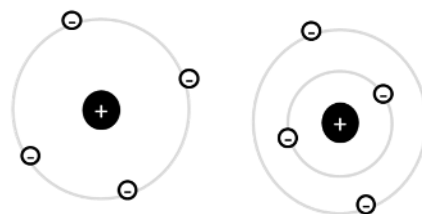
Word		Definition
3a	Structure of an atom	Positive nucleus containing protons and neutrons surrounded by negative electrons.
3b	Proton	Charge of +1 and a relative mass of 1. This tells us what element an atom is.
3c	Neutron	Charge of 0 and a relative mass of 1.
3d	Electron	Charge of -1 and a very small mass compared to neutrons and protons.
3e	Electron shells	Where the electrons are found. 2 on the 1 st shell, 8 on the 2 nd and 3 rd .
3f	Radius of an atom	1×10^{-10} metres or 0.1 nm.
3g	Radius of the nucleus	Less than 1/10,000 of the radius of an atom (about 1×10^{-14} m).
3h	Atomic number	The number of protons in an atom. It also tells us how many electrons in an atom.
3i	Atomic mass	The number of protons and neutrons in an atom.
3j	Isotope	Atoms of the same element with different numbers of neutrons.
3k	Ion	Atoms that have gained or lost electrons so have a Charge .

C1- Atomic Structure and the Periodic Table



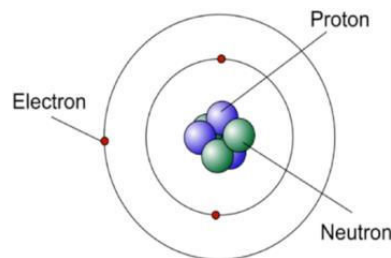
4a- Dalton model of the atom

4c- Plum pudding model of the atom



4f- Nuclear model of the atom

4h- Electron shell model of the atom



3a- Current model of the atom

Section 4- Development of the model of the atom

Word		Definition
4a	Dalton model	Atoms are tiny spheres that cannot be divided.
4b	JJ Thompson discovery (1897)	The electron which led to the development of the plum pudding model.
4c	Plum pudding model	Atoms are balls of positive charge with negative electrons embedded in it.
4d	Ernest Rutherford discovery (1909)	The proton due to the alpha particle scattering experiment. This led to the development of the nuclear model.
4e	Alpha particle scattering experiment	Rutherford fired positive alpha particles at gold leaf some alpha particles were deflected off the positive nucleus.
4f	Nuclear model	Atoms have a positive nucleus and are surrounded by electrons.
4g	Niels Bohr discovery (1913)	Discovered that electrons orbit the nucleus.
4h	Electron shell model	Atoms contain a positive nucleus surrounded by electrons on shells.
4i	James Chadwick discovery (1932)	Discovered that the nucleus contains neutral neutrons as well as positive protons.

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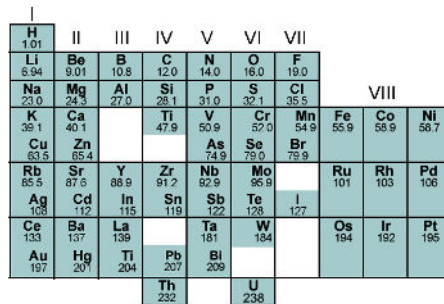


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Section 5- The Periodic Table

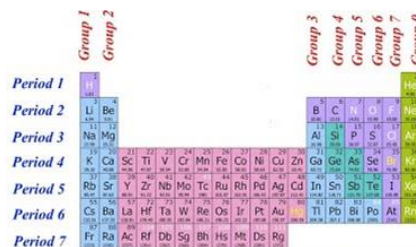
5a	Early periodic tables	Ordered by atomic mass (3i) with groups not having similar properties.
5b	Mendeleev's periodic table	Ordered by atomic mass (3i) but left gaps for undiscovered elements. Changed the order of some elements so groups had similar properties.
5c	Modern periodic table	Ordered by atomic number (3h) not atomic mass (3i).
5d	Groups	Columns- elements in the same group have similar properties.
5e	Groups and electron arrangement	Group number = number of electrons on outer shell.
5f	Period	Rows in the periodic table
5g	Periods and electron arrangement	Period number = number of electron shells.
5h	Metals	Found on the left bottom side of the periodic table.
5i	Non-metals	Found on the right top side of the periodic table.

C1- Atomic Structure and the Periodic Table



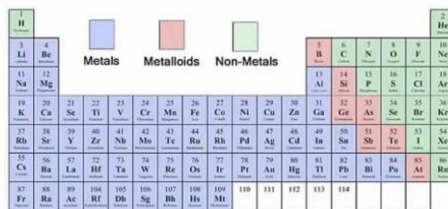
This is a reproduction of Mendeleev's periodic table. Elements are arranged in rows and columns based on increasing atomic mass. Gaps are left for elements that were not yet discovered at the time. The table is labeled with Roman numerals I through VIII at the top, and the elements are color-coded by groups.

5b- Mendeleev's periodic table



This is a modern periodic table. Elements are arranged in rows (periods) and columns (groups) based on increasing atomic number. The groups are labeled with Roman numerals I through VIII at the top, and the periods are labeled with Roman numerals I through VII on the left. The elements are color-coded by groups.

5c, 5d, 5f- Groups and periods



This is a modern periodic table. Elements are arranged in rows and columns based on increasing atomic number. The table is divided into three main regions: Metals (left), Metalloids (middle), and Non-Metals (right). The elements are color-coded by groups.

5c, 5h, 5i- Metals and non-metals

Section 6- Properties of groups

6a	Group 8/0	AKA the noble gases and are unreactive as they have a full outer shell of electrons. Boiling point increases down the group
6c	Group 1	AKA the alkali metals. Are very reactive as they have one electron on their outer shell. Reactivity increases as you go down.
6h	Group 7	AKA the halogens. Melting and boiling point increase down the group. Group 7 elements are less reactive as you go down the group.
6j	When will a displacement reaction occur?	When a more reactive halogen takes the place of a less reactive halogen.

Section 7- Comparing transition metals (TM) and Group 1 (G1) elements (TRIPLE ONLY)

	Word	Definition
7a	Transition metals	Have a higher melting point and are denser, stronger, harder and less reactive than group 1 metals.
7a	3 properties of transition metals	Different <u>C</u> harges, <u>C</u> oloured compounds, <u>C</u> atalysts. (The 3 <u>C</u> s)
7b	Ions	Transition metals can form ions with different charge. E.g. Fe ²⁺ and Fe ³⁺

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