

Atoms, Elements & the Periodic Table

The Dalton Model of the Atom

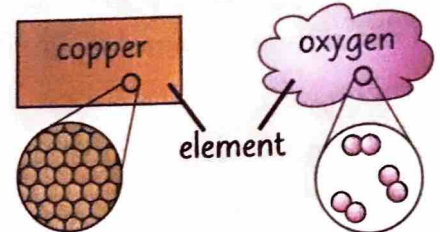
Atoms are very small particles that can't be seen directly.

Dalton (a scientist) concluded these three things about atoms:

- 1 All matter is made up of atoms.
- 2 There are different types of atom.
- 3 Each element contains a different type of atom.

Elements

ELEMENT — a substance that contains only one type of atom.



Elements have **different properties**. E.g. copper is a soft, bendy metal and oxygen is a colourless gas.

The Periodic Table

THE PERIODIC TABLE — shows all the elements that have been discovered.

Elements represented by one or two-letter symbols.

Elements with similar properties arranged into vertical columns, called **groups**.

Horizontal rows are called **periods**.

Group 0 elements are very unreactive.

	1	2											3	4	5	6	7	0	
	H		Hydrogen is sometimes put in Group 1.										B	C	N	O	F	He	
2	Li	Be																	
3	Na	Mg																	
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	
6	Cs	Ba	Lanthanides and Actinides	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	
7	Fr	Ra																	

■ reactive metals
 ■ transition metals
 ■ other metals
 ■ non-metals
 ■ noble gases

The Group 1 metals get more reactive down the group.

E.g. when added to water...

...lithium (Li) fizzes.

...rubidium (Rb) explodes.

Li
 Na
 K
 Rb

least reactive

 most reactive

The Group 7 non-metals get **less** reactive down the group.

F
 Cl
 Br
 I

most reactive

 least reactive

You can use the periodic table to predict patterns in reactions.