

The Periodic Table

Know the facts		Key words	
1	The elements in a group all react in a similar way and sometimes show a pattern in reactivity.	1	Periodic Table: shows all the elements arranged in rows and columns.
2	As you go down a group and across a period the elements show patterns in physical properties.	2	Physical properties: features of a substance that can be observed without changing the substance itself.
3	Metals are generally found on the left side of the table, non-metals on the right.	3	Chemical properties: features of the way a substance reacts with other substances.
4	Group 1 contains reactive metals called alkali metals.	4	Groups: columns of the Periodic Table.
5	Group 7 contains non-metals called halogens.	5	Periods: rows of the Periodic Table.
6	Group 0 contains unreactive gases called noble gases.	6	Noble gas: called unreactive because they rarely react.
7	All Group 1 elements react in a similar way with water and oxygen, the reactivity increases down the group.	7	Metalloid: elements near the stepped lines on the periodic table are metalloids. They have both metallic and non-metallic properties.
8	All Group 7 elements react in a similar way, the reactivity decreases as you go down the group. Halogens react to form halides.	8	Melting point: the temperature at which particle of a solid substance change state to become liquid
9	Metal oxides are basic. Those that dissolve in water form alkaline solutions.	9	Boiling point: the temperature at which a substance changes state from liquid to gas.
10	Group 1 metals react with water producing an alkali metal hydroxide and hydrogen gas	10	Density: is how much mass something has for its volume.
11	Group 1 metals react with oxygen to produce an alkali metal oxide.	11	Atomic number: is the number of protons in the nucleus. It also tells us the number of electrons in the shells.
12	The melting point of Group 7 elements increase down the group. The colours of the elements get darker too.	12	Relative Atomic Mass: is the total mass of protons and neutrons in the nucleus
13	The charge of a proton is 1+.	13	A neutron has no charge and has the mass the same as a proton.
14	The charge of an electron is 1-.	14	

Each column (going down) is called a 'Group'.

The rows (going across) are called 'Periods'.

1	2		3	4	5	6	7	0									
Li	Be		B	C	N	O	F	Ne									
Na	Mg		Al	Si	P	S	Cl	Ar									
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac															

The elements are arranged in order of increasing atomic number.

■ Metals ■ Non-metals

Making predictions using the periodic table

Groups in the periodic table contain elements with similar chemical properties. But there are usually trends in properties that allow us to make predictions. For example, in group 1 the reactivity of the metals increases as you go down the group.

Each element has its own chemical symbol, made from letters (e.g. the symbol for Hydrogen is H). Remember that you will only find elements in the periodic table and never compounds. So you won't find substances like water or copper sulfate in the periodic table.

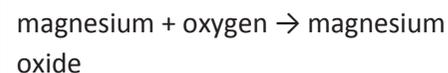
Group 0 contains non-metal elements placed in the vertical column on the far right of the periodic table. The elements in group 0 are called the noble gases. They exist as single atoms.

Metals

	Metals	Non-metals
Appearance	Shiny	Dull
State at room temperature	Solid (except mercury, which is a liquid)	About half are solids, about half are gases, and one (bromine) is a liquid
Density	High (they feel heavy for their size)	Low (they feel light for their size)
Strength	Strong	Weak
Malleable or brittle	Malleable (they bend without breaking)	Brittle (they break or shatter when hammered)
Conduction of heat	Good	Poor (they are insulators)
Conduction of electricity	Good	Poor (they are insulators, apart from graphite)

Reactions of metals

Metals react with oxygen to produce compounds called metal oxides. For example, magnesium reacts with oxygen to produce magnesium oxide. The reaction can be represented by this word equation:



Reactions of non-metals

Non-metals react with oxygen to produce non-metal oxides. For example, sulfur reacts with oxygen to produce sulfur dioxide. The reaction can be represented by this word equation:

