

Year 7 (metals and non metals)

Lesson sequence

Uses of metals and non metals
 Reaction with acids
 Reactivity series
 Reactions with water
 oxidation

Assessment

End topic test
 Reactions of water—
 planning exercise

metal	Shiny, good conductors of electricity and heat, malleable and ductile, and usually solid at room temperature.
Non metal	Dull, poor conductors of electricity and heat, brittle and usually solid or gaseous at room temperature.
Displacement:	Reaction where a more reactive metal takes the place of a less reactive metal in a compound.
Oxidation	Reaction in which a substance combines with oxygen.
Reactivity:	The tendency of a substance to undergo a chemical reaction.
Salt	A substance made during a reaction with an acid.
General equation	A equation that shows the products formed when certain types of substances are reacted.
Test for hydrogen	Add a lit splint to the gas. If the gas is hydrogen it will burn with a squeaky pop

Metal and no metal facts

- Iron, nickel and cobalt are magnetic elements.
- Mercury is a metal that is liquid at room temperature.
- Bromine is a non-metal that is liquid at room temperature.
- Metals are found on the left of the periodic table. The non metals are on the right.

Key

relative atomic mass
atomic symbol
name
atomic (proton) number

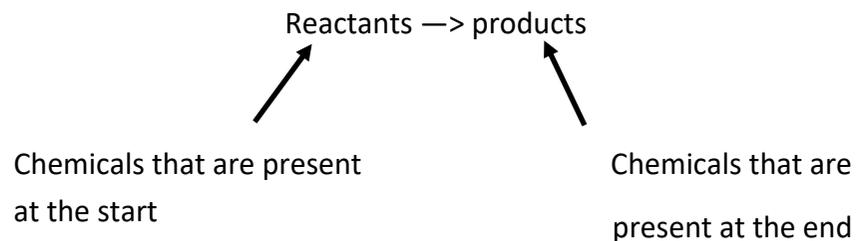
7 Li lithium 3	9 Be beryllium 4											4 He helium 2					
23 Na sodium 11	24 Mg magnesium 12											11 B boron 5	12 C carbon 6	14 N nitrogen 7	16 O oxygen 8	19 F fluorine 9	20 Ne neon 10
39 K potassium 19	40 Ca calcium 20	45 Sc scandium 21	48 Ti titanium 22	51 V vanadium 23	52 Cr chromium 24	55 Mn manganese 25	56 Fe iron 26	59 Co cobalt 27	59 Ni nickel 28	63.5 Cu copper 29	65 Zn zinc 30	70 Ga gallium 31	73 Ge germanium 32	75 As arsenic 33	79 Se selenium 34	80 Br bromine 35	84 Kr krypton 36
85 Rb rubidium 37	88 Sr strontium 38	89 Y yttrium 39	91 Zr zirconium 40	93 Nb niobium 41	96 Mo molybdenum 42	[98] Tc technetium 43	101 Ru ruthenium 44	103 Rh rhodium 45	106 Pd palladium 46	108 Ag silver 47	112 Cd cadmium 48	115 In indium 49	119 Sn tin 50	122 Sb antimony 51	128 Te tellurium 52	127 I iodine 53	131 Xe xenon 54
133 Cs caesium 55	137 Ba barium 56	139 La* lanthanum 57	178 Hf hafnium 72	181 Ta tantalum 73	184 W tungsten 74	186 Re rhenium 75	190 Os osmium 76	192 Ir iridium 77	195 Pt platinum 78	197 Au gold 79	201 Hg mercury 80	204 Tl thallium 81	207 Pb lead 82	209 Bi bismuth 83	[209] Po polonium 84	[210] At astatine 85	[222] Rn radon 86
[223] Fr francium 87	[226] Ra radium 88	[227] Ac* actinium 89	[261] Rf rutherfordium 104	[262] Db dubnium 105	[266] Sg seaborgium 106	[264] Bh bohrium 107	[277] Hs hassium 108	[268] Mt meitnerium 109	[271] Ds darmstadtium 110	[272] Rg rogersium 111	[285] Cn copernicium 112	[286] Nh nihonium 113	[289] Fl flerovium 114	[289] Mc moscovium 115	[293] Lv livermorium 116	[294] Ts tennessium 117	[294] Og oganeson 118

Non metals

Metals

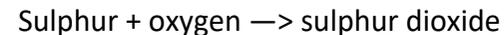
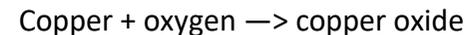
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Chemical reactions can be shown by a chemical equation.



When elements react with oxygen it is called oxidation.

The product of oxidation are called oxides.

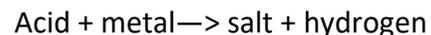


Non metals form substances that are acidic.

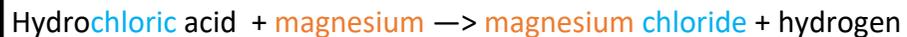
Metals form compounds that are bases.

Some metals will react with acids to make a salt and hydrogen gas.

The general equation for this reaction is



Eg



Naming the salt

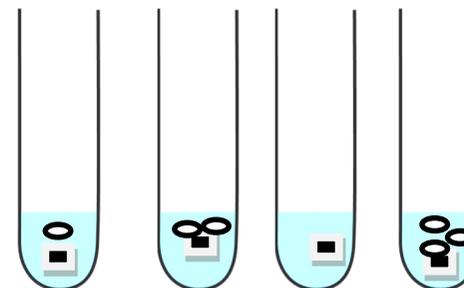
The first name comes from the metal

The second name comes from the acid

acid	Salt second name
Hydrochloric acid	chloride
Sulphuric acid	sulphate
Nitric acid	sulphate

Not all metals react the same. Some metals react much quicker and more violently than others. We say these metals are more reactive

You can compare the reactivity of a metal by reacting it with water or acid.



The more reactive metal will give out more hydrogen bubbles more quickly and will cause a greater temperature rise