Chemistry Topic 4: Chemical changes

1.Keywords	
Metal oxide	A compound formed when a metal ionically bonds to oxygen
Reactivity series	The order of elements in terms of their reactivity
Acid	A substance that releases H^+ ions and has a pH below 7
Base	A substance that neutralises an Acid and has a pH above 7
Alkali	A type of soluble base. A metal hydroxide. Releases OH^- ions
Neutralisation	When an acid reacts with a base to produce a salt and water
Carbonates	Ionic compounds containing Carbon and oxygen
Salt	Ionic compound formed when acid and base react
Soluble	A substance that dissolves
Insoluble	A substance that does not dissolve
Indicator	A substance that changes colour when pH changes
Electrolysis	Splitting up an ionic substance using electricity
Molten	Heated to a liquid
Solution	Dissolved in water

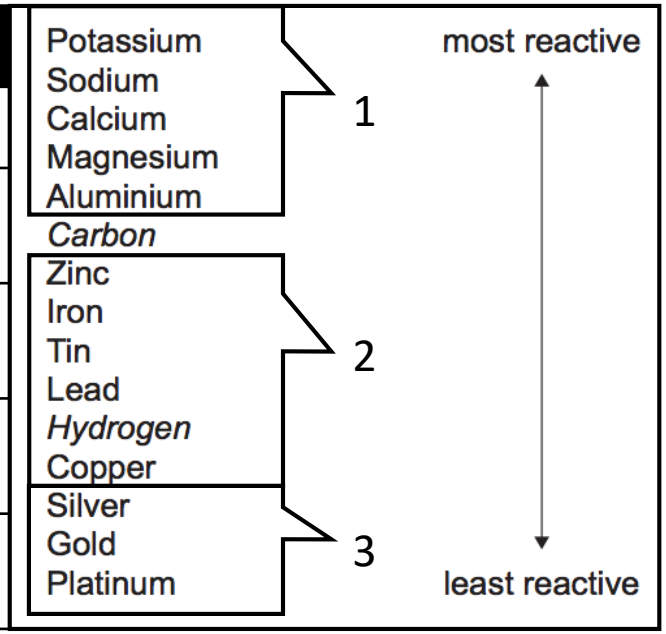
2. REDOX

Change	**In terms of oxygen**	**In terms of hydrogen**	**In terms of electrons (HT ONLY)**
Oxidation	Gaining oxygen	Losing hydrogen	Loss of electrons (OIL)
Reduction	Losing oxygen	Gaining hydrogen	Gain of electrons (RIG)

3. The reactivity series

	Category	Extracted by
1	Highly reactive metals	Electrolysis
2	Base metals	Smelting: heating with carbon
3	Native metals	Found as nuggets of pure metal

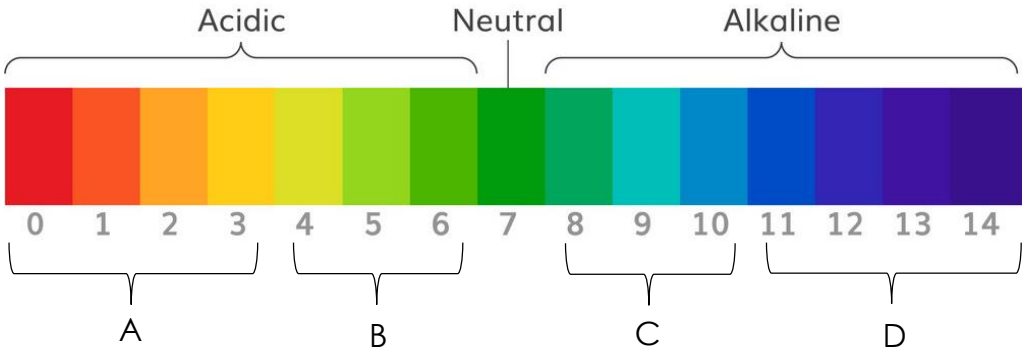
NOTE: Hydrogen is not a metal and used to extract some other metals not on this list



4. Naming salts

Acid used	Second part of salt's name
Hydrochloric acid	chloride
Sulfuric acid	sulfate
Nitric acid	nitrate

5. pH scale



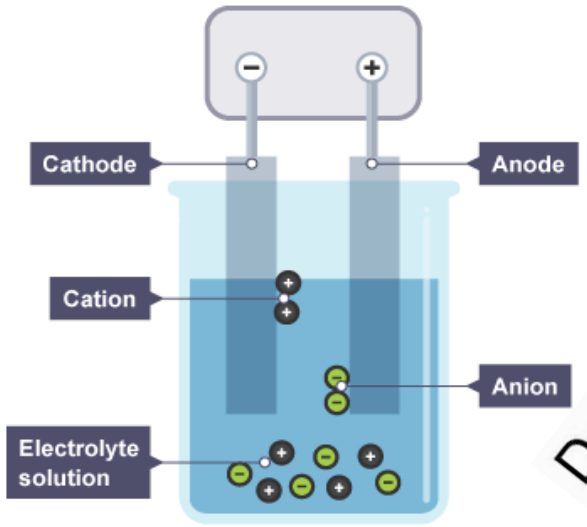
	Name	Level of ionisation in water
A	Strong acid	Fully
B	Weak acid	Partially
C	Weak base	Partially
D	Strong base	Fully

6. Equation for all neutralisations

$$H^+_{(aq)} + OH^-_{(aq)} \rightarrow H_2O_{(l)}$$

7. Electrolysis

1	Cathode	The negative electrode
2	Anode	The positive electrode
3	Positive ion (cation)	Move to cathode
4	Negative ion (anion)	Move to anode
5	Electrolyte solution	The ions that are being electrolysed



Don't PANIC - Positive is Anode, Negative Is Cathode.

8. Electrolysis of aqueous solutions

Place in reactivity series	Product of electrolysis
Metal more reactive than hydrogen	Hydrogen is produced at the cathode
If the negative ion is not a halide ion (group 7)	Oxygen is produced at the anode