

[illegible]

Need to make charges cancel out
Add up to $\sum \vec{r} = 0$
DON'T SAY "BALANCE!"
protons + electrons arranged

electrons(-) 23
 11 protons
 12 neutrons
 neutral
 (23-11)
 23

Why does magnesium hydroxide have the formula $Mg(OH)_2$?

Mg forms a Mg^{2+} ion.
Hydroxide is an OH^{-} ion.
To make the sum of the charges zero in the ion and need ion ratio

[illegible][illegible]

General Equations *

Metal + Acid $\rightarrow$ Salt + hydrogen.
 Base + Acid $\rightarrow$ water + salt.
 Carbonate + Acid $\rightarrow$ water + Carbon dioxide + salt.

MAASH
 BAWs
 CAWCS



ACIDS & the salts they make.
 Sulfuric acid H_2SO_4 makes sulfates
 Hydrochloric acid HCl makes chlorides
 Nitric acid HNO_3 makes nitrates.

is very unreactive metal - can't use it to make a salt. Use $CuCO_3$ or $Cu(OH)_2$ or CuO instead.

How to make a salt using U.I. or litmus to tell you when it's neutral.

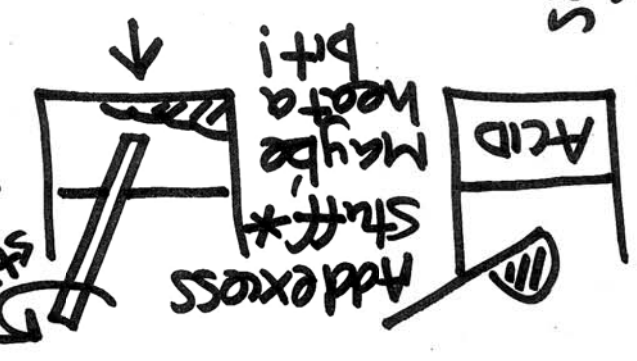
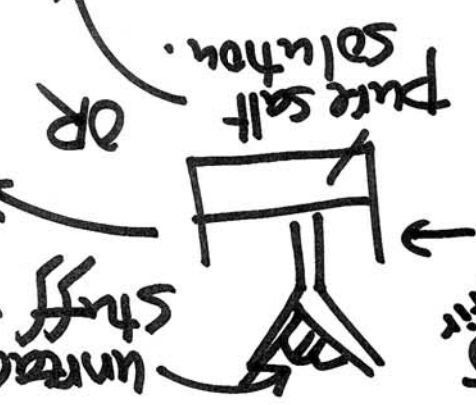
Add alkali, e.g. $NaOH$, drop by drop.
 check pH with U.I. paper.



Yellow $H^+ > OH^-$
 green $H^+ = OH^-$
 orange $H^+ < OH^-$

Neutral
 U.I. is green
 pH 7

* Metal.
 * Base - metal oxide or hydroxide.
 * carbonate.
 SOLUBLE IN WATER. BUT IT CAN'T BE...
 OR test with litmus. U.I. is green. Blue + red stays blue. Red + blue stays red.



unreacted stuff.

Pure salt solution.

OR

Acid

Maybe heat a bit!

Crystals (PURE)

OR

unreacted stuff.

OR

Acid

Maybe heat a bit!

Calicut

- Surface area.
- Concentration.
- Temperature.
- Catalysts.

PLATES

COLLISION THEORY
 Particles need to
 collide with sufficient
 energy
 Increase in rate
 Decrease in rate
 Less collisions

王

Temperature -
 Higher - particles have more energy
 Collisions - more collisions between particles
 rate - more collisions = more successful collisions
 Catalysts - inc rate AND inc success

Not just "More collisions between particles + more collisions" but "More frequent collisions"

Q

Q.

more particles
exposed at once
— more collisions/s.
— increase in rate.

If there are more acid particles/mL there will be more collisions/s with a piece of metal
- increase in rate

more concentrated

divite

more particles/mL

or particles /
unit vol
icles/mL

CONCENTRATION:

A. S.