Chemistry 20	Unit 3
Lesson 11 - Neutralizations and Indicators	84 mins

Neutralization Reactions

• Acids and bases react to form water and a neutral ionic compound (A SALT) (NOT just NaCl) • Neutralizations are used in titrations (a chemistry lab technique) to determine a quantity of an unknown acid by neutralizing it with a base.	$HCl_{(aq)} + NaOH_{(aq)} \rightarrow 2H_2O_{(l)} + NaCl_{(aq)}$ Acid Base Water Salt The Salt is generally produced by the "spectator" ions that are produced by the Acids and Bases producing H_3O^+ and OH^- in water. - Na and Cl in this case are the spectators

There are other theories that do an even BETTER job of explaining observations of acids and bases and even are able to explain the existence or SUPER acids and bases… but that is for another day.

Indicators (Pg. 10 in Data Book)

Litmus Litmus is made from lichens. Comes in two veriatries - Red and Blue Indicator Solutions Made from weak acids and their salt base pairs to make a weak buffer that just so happens to change colour at a very specific pH. Generally organic molecules that don't take part in the MAIN reaction… important to keep that in mind in a laboratory so that you still get the products you want.	Red litmus turns blue in a base Blue Litmus turns red in an acid. Buffer - resists pH change, used to change pH slower generally - pH buffer in your duodenum changes the pH in your stomach (1.5-3.5) to (7-8) Example: Separate samples of a solution of unknown pH cause the following acid base indicator colours. - Orange IV - Yellow (>2.8) - Bromothymol blue - blue (>7.6) - Phenolphthalein - colourless (<9.4) What is the solution pH? (7.6-9.4)

Titration Demo