H_2O / H^+ → Warm with dilute sulfuric acid	<u>Hydration</u> Addition of H_2O to an alkene – converts alkene to alcohol	**Conc H_2SO_4** → heat	<u>Dehydration of an alcohol</u> Convert an alcohol to an alkene
Dil NaOH → heat	<u>Alkaline hydrolysis of ester</u> Convert an ester into alcohol & sodium salt of carboxylic acid	**Dil H^+** → heat	<u>Acid hydrolysis of ester</u> Convert an ester into alcohol & carboxylic acid
$Cr_2O_7^{2-} / H^+$ and heat → (orange)	<u>Oxidising agent</u> Converts primary alcohol to carboxylic acid Colour change orange to green Cr^{3+} ion	conc. H_2SO_4 and heat ⇌	<u>Esterification</u> Preparation of esters from primary alcohol & carboxylic acid The conc. H_2SO_4 acts as catalyst & dehydrating agent
MnO_4^- / H^+ → and heat (purple)	<u>Oxidising agent</u> Converts primary alcohols to carboxylic acids Colour change purple to colourless	**MnO_4^- / H^+** → (purple)	<u>Used as a test for unsaturation</u> (C=C or C≡C) Decolourised (purple to colourless)
Br_2 water → (orange)	<u>Used as a test for unsaturation</u> (C=C or C≡C) Decolourised rapidly (orange to colourless)	**H_2 / Pt** →	<u>Converts alkenes to alkanes</u> Adds H_2 across a C=C double bond making unsaturated molecule saturated

Na_2CO_3 →	<u>As a test for acidity</u> Bubbles of gas when added to a carboxylic acid ($NaHCO_3$ would do the same)	Compound has a characteristic **fruity smell** and is insoluble in water	It's probably an ester.
Br_2 → uv and/or heat	Compound is an alkane, slowly decolourises bromine (undergoing substitution reaction)	Compound has a **sharp often unpleasant smell**	It's a carboxylic acid. Ethanoic has a vinegar smell. Butanoic acid has a rancid butter/stale baby vomit smell,
wet blue litmus paper or UI paper (or solutions)	<u>As a test for acidity</u> Litmus turns red or UI turns orange, it's a carboxylic acid	**Mg** →	<u>As a test for acidity</u> If magnesium metal reacts with it and makes bubbles of H_2, it's a carboxylic acid
reagent	The chemicals used to bring about the reaction	**reaction conditions**	Things needed for the reaction to occur, like heat or presence of uv light, or addition of a catalyst
organic product	Things based on a C skeleton, not little molecules like H_2O, HCl, HBr etc		

This is still a “work in progress” and therefore extra “cards” are provided for you to add any additional information you find useful. Come back from time to time and check for updates/additional materials.

Cut the cards so you have a strip of front and backs, fold and glue.

Front: “H_2O/H^+” are the reagents, “warming” is the reaction conditions:

Back: Hydration is the reaction that these reagents bring about

$\xrightarrow{H_2O / H^+}$ Warm with dilute sulfuric acid	Hydration Addition of H_2O to an alkene – converts alkene to alcohol