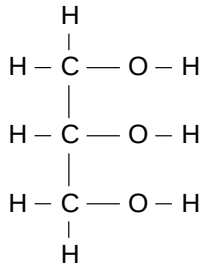
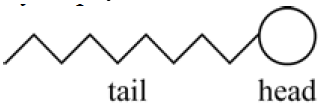
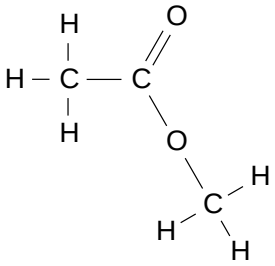
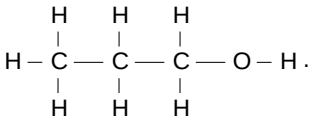
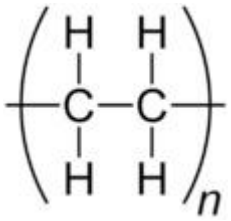
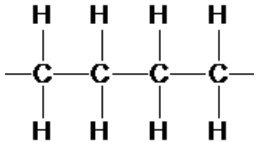
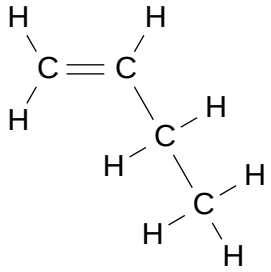
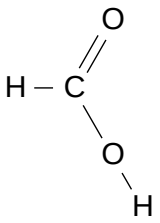
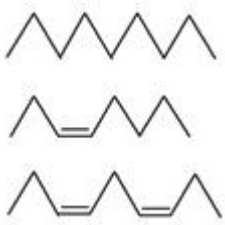
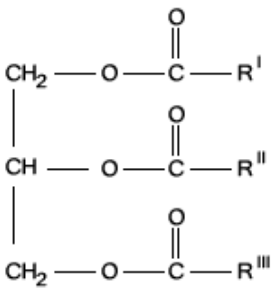
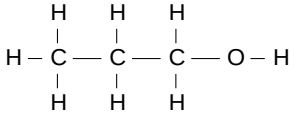
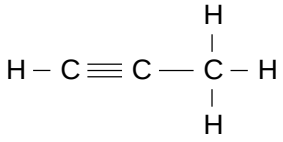
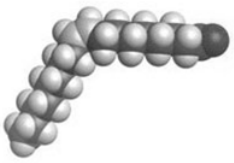
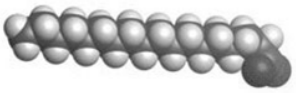
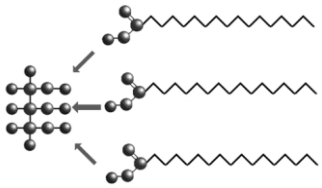
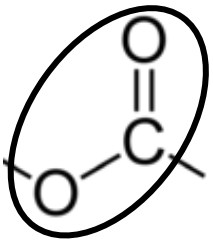
separate dirt from fibres and suspends it in water so it can be washed away	hydrophilic polar end of soap / detergent dissolves in water, non-polar hydrocarbon chain dissolves in oil forming a 'bridge'	make the water droplet collapse so it wets more fabric	water wets the fibres by altering the surface tension
emulsifiers	**how soaps enable dirt to be washed away with water**	**surfactants**	**how soaps act as surfactants**
hydrophilic polar head and hydrophobic tail	spherical particles with a hydrophobic interior and a hydrophilic exterior	micelles pick up the soil, are repelled from each other due to the charges and then washed away by the water	water containing dissolved calcium, or magnesium ions which react with sodium stearate to produce a white or grey scum
structure of a soap/detergent molecule	**micelle**	**how micelles remove dirt/soil from washing**	**hard water**
esters (triesters) of glycerol and fatty acids	propan-1,2,3-triol		a _____ fatty acid with more than one C=C double bond.
fats / oils (lipids)	**systematic name for glycerol**	**glycerol / propan-1,2,3-triol**	**poly unsaturated**
a _____ fatty acid is one which has only single C-C bonds	a _____ fatty acid has at least one C=C double bond	use Br_2 water; if the oil is unsaturated Br_2 water decolourises. If saturated the orange Br_2 water remains orange	using I_2 solution; the more iodine added until the solution stays orange-brown, the more unsaturated the fatty acid is
saturated	**unsaturated**	**qualitative test for fat/oil – is it saturated or not?**	**quantitative test for how unsaturated a fat/oil is**

_____ are named to indicate both the carboxylic acid and the alcohol that it is made from	ester made from methanol and ethanoic acid	ester made from methanoic acid and ethanol	used as a catalyst when producing esters
how esters are names	**methyl ethanoate**	**ethyl methanoate**	**conc. sulfuric acid**
conc. sulfuric acid also acts as a dehydrating agent which increases the _____of ester made	used when making an ester to neutralise excess acid and remove the sharp smell of the carboxylic acid	method of heating when preparing an ester (using a flask & condenser) – condenses the vaporised reactants and products	_____ magnesium sulfate* added to remove water in ester preparation (*other solids may be used)
yield / amount	**sodium carbonate solution**	**heating under reflux**	**anhydrous**
method used to separate / purify the made ester from its reactants & side products	solvents for non-polar molecules, flavourings, perfumes	in alkanes as C ___ there are stronger forces <u>between</u> molecules and so it requires ____heat to break (to melt or vaporise them)	process that turns ethane monomers into poly(ethene) polymer
distillation	**example uses of esters**	**increases more**	**polymerisation / addition polymerisation**
$C_3H_8 + 3½O_2 \rightarrow 3CO + 4H_2O$ produces soot, dirty flame, toxic CO, cooler burning temperature, & orange flame	$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$ clean burning, higher burning temperature, blue flame, releases max. amount of energy	poly(ethene) type with branches on polymer chains that push chains apart, giving a lower m.pt due to the weak bonds between the chains	poly(ethene) type with no branches on polymer chains, giving more bonds between chains to form stronger polymer with a higher m.pt.
incomplete combustion (limited O_2)	**complete combustion (plentiful O_2)**	**LDPE**	**HDPE**

ethene monomers (with C=C) becomes a less reactive polymer (with C-C) as a result of the ____ reaction	Soap molecule  Tail is hydro____ & the head is hydro___		
polymerisation	**phobic (hating) philic (loving)**	**methyl ethanoate (ester)**	**propan-1-ol / 1-propanol (alcohol)**
 is polyethene where n is	 section of ____ (showing 2 repeating units)	C_4H_6 is the molecular formula for butane, butane or butyne?	C_nH_{2n+2} is the general formula for…
a large number (or repeating units)	**polyethene / poly(ethene)**	**butyne**	**alkanes**
C_nH_{2n} is the general formula for…	C_nH_{2n-2} is the general formula for…		
alkenes	**alkynes**	**1-butene / but-1-ene (alkene)**	**methanoic acid (carboxylic acid)**
			
unsaturated monounsaturated polyunsaturated	**triglyceride / fat with 3 different fatty acids (R', R' and R''')**	**propanol (alcohol)**	**propyne (alkyne)**

 unsaturated cis or trans?	 unsaturated cis or trans?	 saturated or unsaturated?	 this reaction shows…
trans	**cis**	**saturated**	**how a triglyceride forms (from glycerol & 3 fatty acids)**
most _____fats raise "bad" cholesterol levels which increases the risk of coronary heart disease due to hardening of arteries	glycerol + 3 fatty acids → _____ + _____	 is the ….	linoleic fatty acid has the notation 18:2 This means
trans unsaturated (or saturated)	**triglyceride + $3H_3O$**	**ester functional group**	**18 C atoms 2 C=C double bonds**
triglycerides contain a lot of energy per gram; excess triglycerides are <u>stored as fat</u>, which can lead to …	most trans fats are not natural & act like _____ fat due to packing; can increase bad cholesterol and decrease good cholesterol.	excess fats / oils (especially saturated and trans unsaturated) can clog arteries and lead to …	the more _____ the fat, the lower its melting point (as the molecules can't pack well together)
obesity	**saturated**	**heart disease / heart attacks**	**(cis) unsaturated / bent**
C=C has no free rotation making for a "kinked shape" molecule – the molecules can't pack together well, results in …	C1 – meth, C2 – eth C3 – prop, C4 – but C5 – pent, C6 – hex C7 – hept, C8 – oct Names are based upon the ….	$CH_3(CH_2)_4CH_3$	all hydrocarbons are nonpolar/polar & water is nonpolar/polar so hydrocarbon + water forms 2 ____ layers
lower melting point / weaker inter-molecular forces	**longest C chain**	**hexane**	**non polar polar immiscible**

This is not a comprehensive set of flashcards for this topic but cover many of the main points.

You should also make sure you know about the distillation of crude oil.