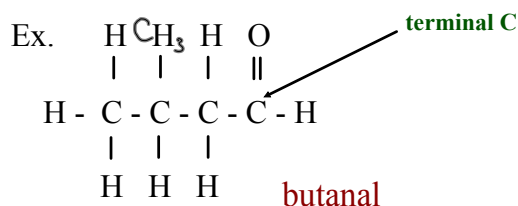
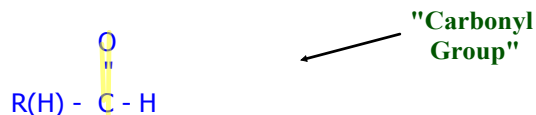
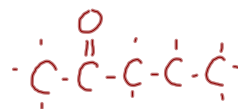
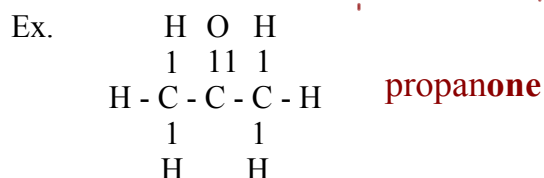
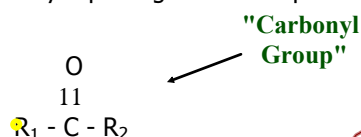


Aldehydes and Ketones

- Aldehydes - contain a **carbonyl group** on a terminal carbon
 - are named by replacing the "e" in alkane with al
 - begin numbering at the end beginning with the aldehyde functional group

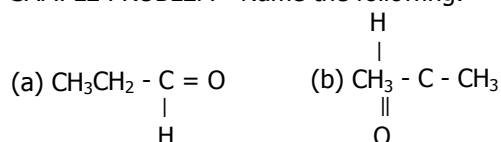


- Ketones - have a **carbonyl** on any carbon but the end carbon
 - are named by replacing "e" on the parent alkane with -one.



Aldehydes and ketones with the same number of carbons are isomers

SAMPLE PROBLEM - Name the following:



Draw the condensed structural formula for:
 (c) butanone (d) pentanal

DIAGNOSTIC TEST - Fehling's Solution
 aldehyde + fehling's --> red precipitate
 ketone + fehling's --> N.R.

Carboxylic Acids

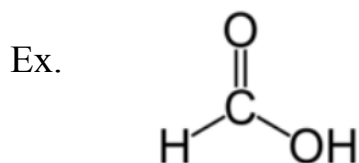
Carboxylic Acid - contain a $\text{C}=\text{O}$ and a $\text{C}-\text{OH}$ functional group together (**carboxyl group**)



- small carboxylic acids mix with water but large carboxylic acids do
- give a positive litmus test (blue to red).

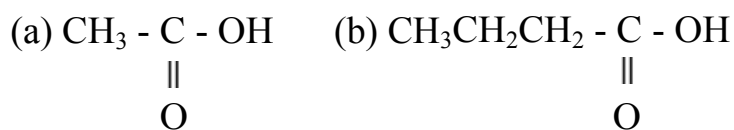
Naming

- carboxylic acids are named by replacing the "e" in the alkane name by oic and adding acid.
- compounds with more than one carboxyl group are usually identified with a common name.



methanoic acid

SAMPLE PROBLEM - Name the following:



(c) propanoic acid (d) pentanoic acid

Reactions

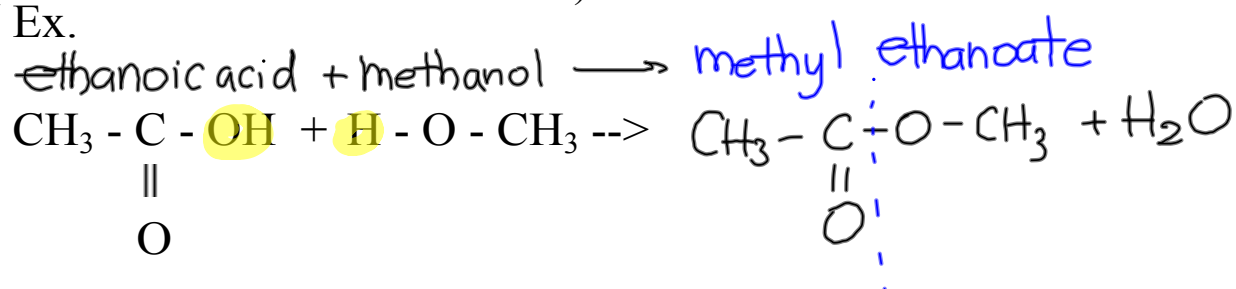
Condensation Reaction:

a carboxylic acid combines with another compound to produce an organic compound and a second product (such as water)

A condensation reaction between a carboxylic acid and an alcohol is called esterification.

(formation of an ester and water)

Ex.

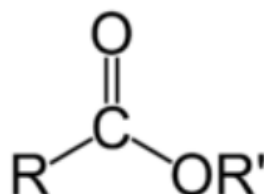


Uses of Carboxylic Acids

Carboxylic acids are found in foods (vinegar), sting/poison treatment, and are used in the preparation of many other chemicals.

Esters

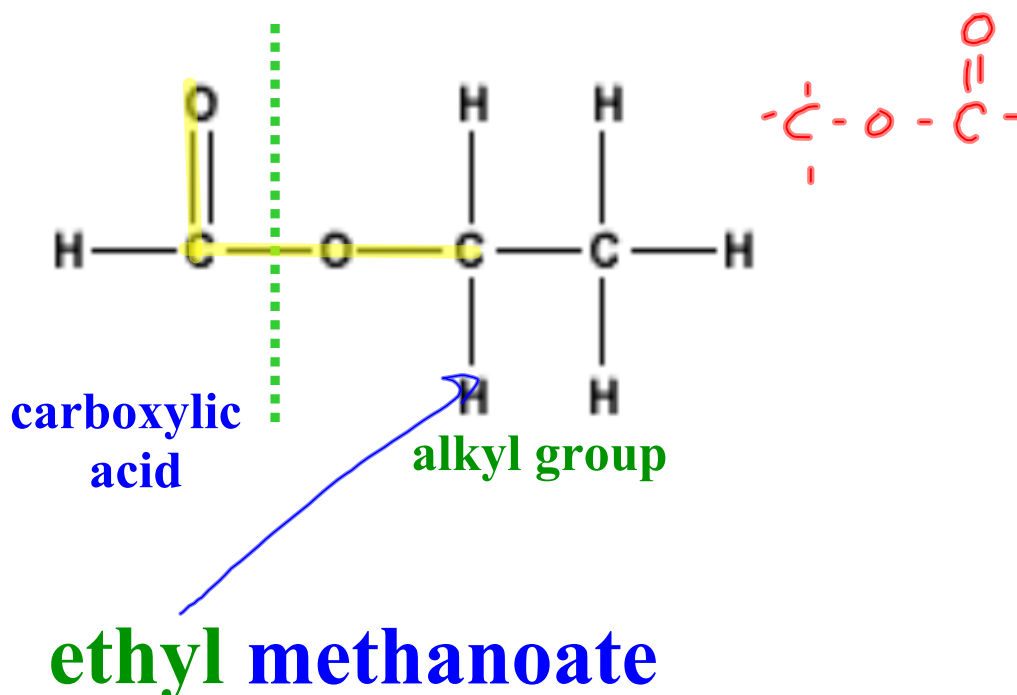
General Formula for ester:



-the functional group is similar to the carboxylic acid functional group but with the H of the carboxyl group replaced with a hydrocarbon branch (R)

Naming esters - two parts

- I. name the alkyl group in the alcohol used in the esterification.
- II. name of the acid but change the " oic acid " to oate.

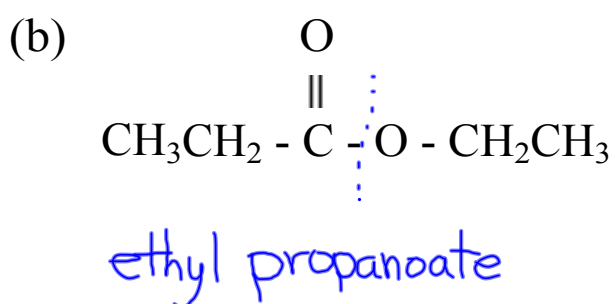
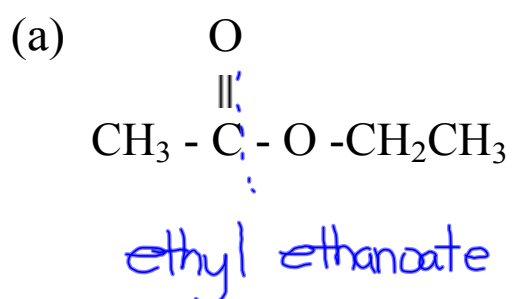


Uses of Esters

Esters are often used as adhesives, perfumes, flavourings and painkillers.

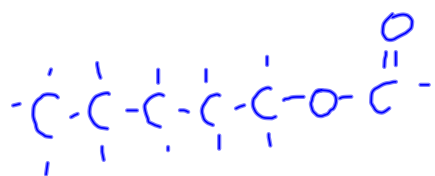
Esters

Name the following

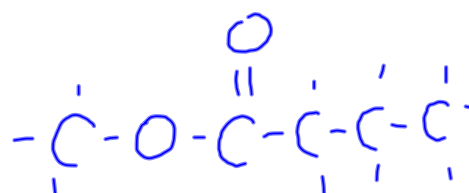


Draw condensed structural diagrams for the following.

(c) pentyl methanoate



(d) methyl butanoate



Worksheet 48