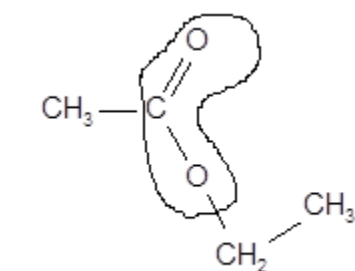
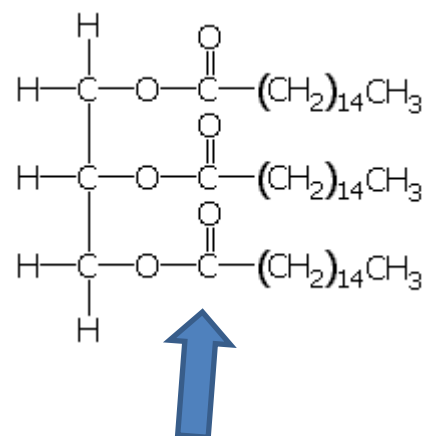
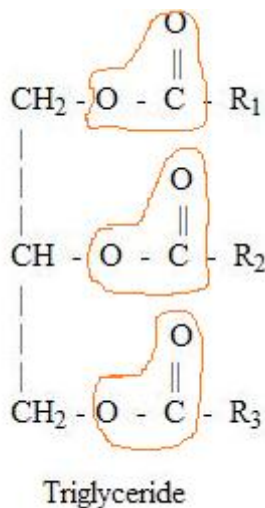


Ester Functional Group

Identify the ester functional group - look for a $\begin{array}{c} \text{O} \\ || \\ - \text{C} - \text{O} - \end{array}$ group in the molecule



and

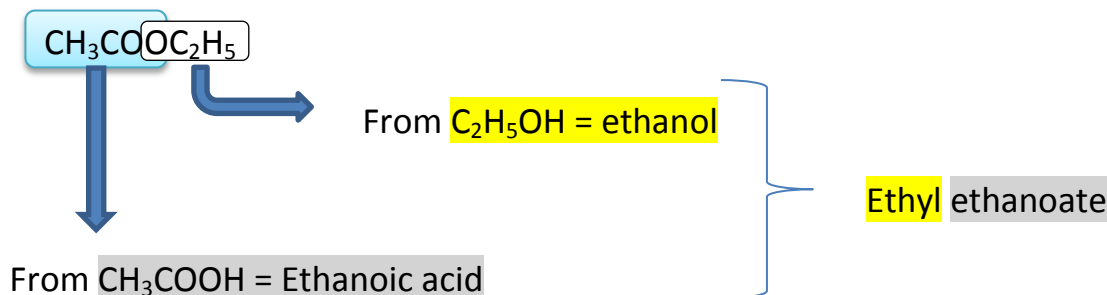


Both of these molecules are also called triesters as they each contain 3 ester functional groups in the molecule.

How to name an ester – look for the organic acid and alcohol used during the esterification reaction.

Look at the following examples to see how it is done.

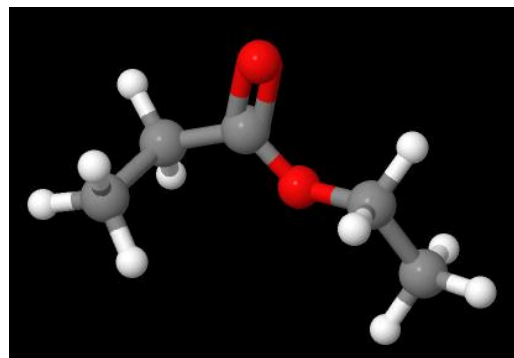
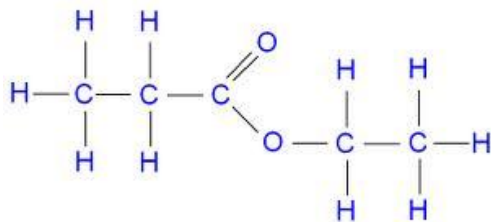
Example 1 $\text{CH}_3\text{COOC}_2\text{H}_5$ (hint – draw the structure if you find it difficult to spot what you are looking for)



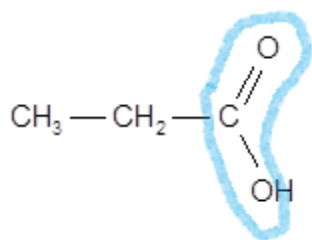
The **first part** of an ester's name is always based on the **alcohol part**.

The **second part** is based on the **carboxylic acid**.

Example 2



Look for the part of the molecule that contains the atoms COO ie

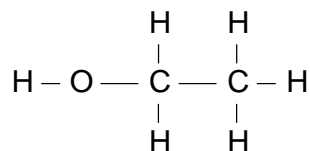


Here we see that **propanoic acid** was used – the ester is called something propanoate.

Now look at the other half of the molecule – reading from right to left we can see

$\text{CH}_3\text{CH}_2\text{O}-$ this must be the alcohol part and the alcohol must have been **ethanol**

($\text{C}_2\text{H}_5\text{OH}$)

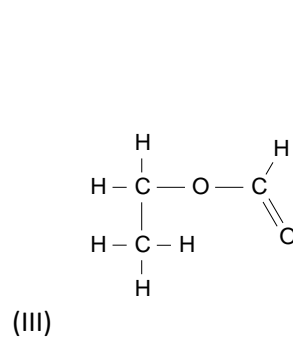
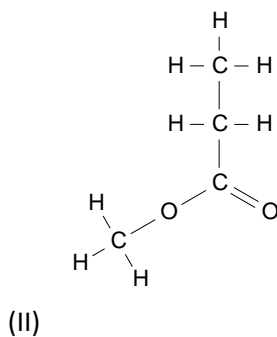
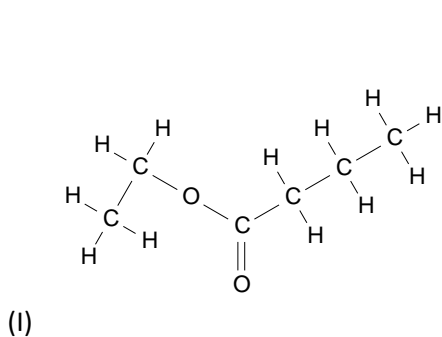


So the name of this ester is **ethyl propanoate**.

Esters problem sheet

Skills – ester structure and nomenclature

- 1) For each of the following esters give
- its correct IUPAC name
 - the IUPAC names of the organic reactants needed to make it.



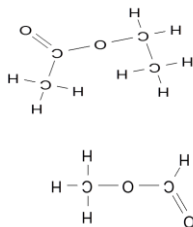
- 2) Name and give the structural formula of the ester that can be made from the following organic reactants:-
- Methanol and methanoic acid
 - Ethanol and Ethanoic acid
 - Butan-1-ol and methanoic acid
 - Ethanol and hexanoic acid

(iii) methyl propanoate from methanol and propanoic acid

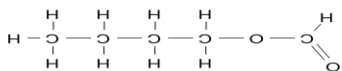
Answers 1(i) ethyl butanoate from ethanol and butanoic acid

(iii) ethyl methanoate from ethanol and methanoic acid

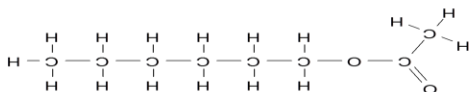
2(a) methyl methanoate



2(b) ethyl ethanoate



2(c) butyl methanoate



2(d) ethyl hexanoate