In context

Subject area: Organic chemistry | **Level: 14–16 years (Higher)**

Topic: Carboxylic acids | **Source: rsc.li/3o4cneK**

A flavour chemist wishes to make various flavourings for a new range of ice-creams.

She knows that the flavour or smell of an ester can be deduced if the original alcohol and carboxylic acid that make the ester are known.

Source: Envato Elements

How are esters named?

The first part of the ester name comes from the name of the alcohol. The second part of the name comes from the name of the carboxylic acid.

So, if the alcohol is methanol and the carboxylic acid is propanoic acid, the ester will be called:

methyl propanoate

From the alcohol – methanol

From the carboxylic acid – propanoic acid

1. **The table shows the alcohol being used (vertically) and the carboxylic acid being used (horizontally).**

   The fruity flavours are written into each box.
   Complete the table by writing the name of the ester in each box.
   One has been completed for you.

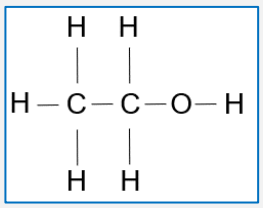
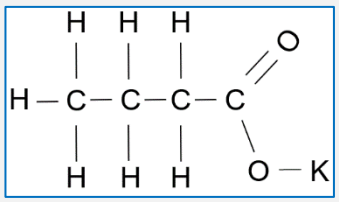
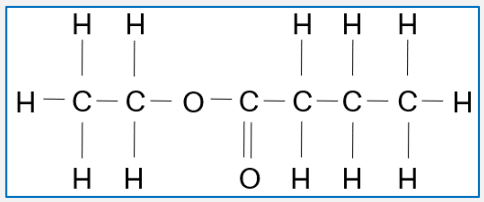
	Propanoic acid	**Butanoic acid**	**Pentanoic acid**
Methanol	Apple Methyl propanoate	Raspberry ***Answer:*** *Methyl butanoate.*	Mixed fruit ***Answer:*** *Methyl pentanoate.*
Ethanol	Pear ***Answer:*** *Ethyl propanoate.*	Cherry ***Answer****: Ethyl butanoate.*	Apple ***Answer:*** *Ethyl pentanoate*

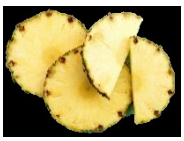
Butan-1-ol	Pear ***Answer:*** *Butyl propanoate.*	Pineapple ***Answer:*** *Butyl butanoate.*	Peach ***Answer:*** *Butyl pentanoate.*

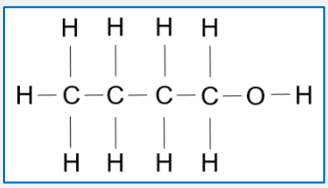
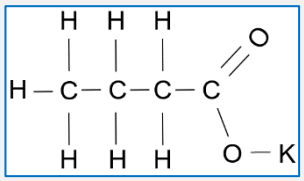
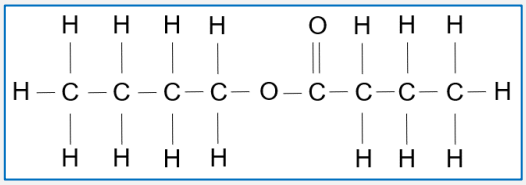
2. **Draw the structure of the alcohol, carboxylic acid and ester needed to make the following flavours.**

   Make sure you draw all of the chemical bonds in the molecule.

a) Cherry 

Structure of alcohol	Structure of carboxylic acid	Structure of ester
		

b) Pineapple 

Structure of alcohol	Structure of carboxylic acid	Structure of ester
		

c) Peach

Structure of alcohol	Structure of carboxylic acid	Structure of ester