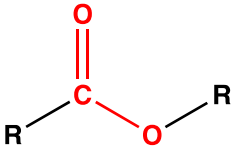


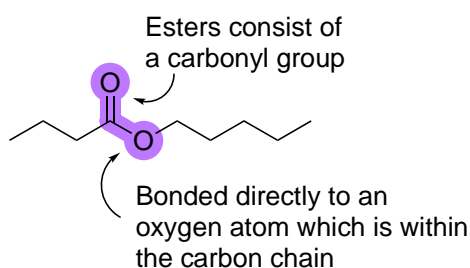
Esters

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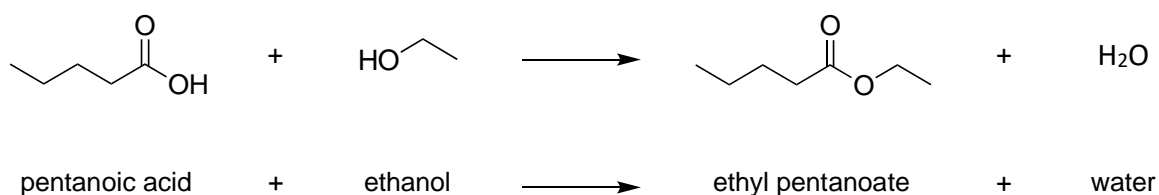
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Summary

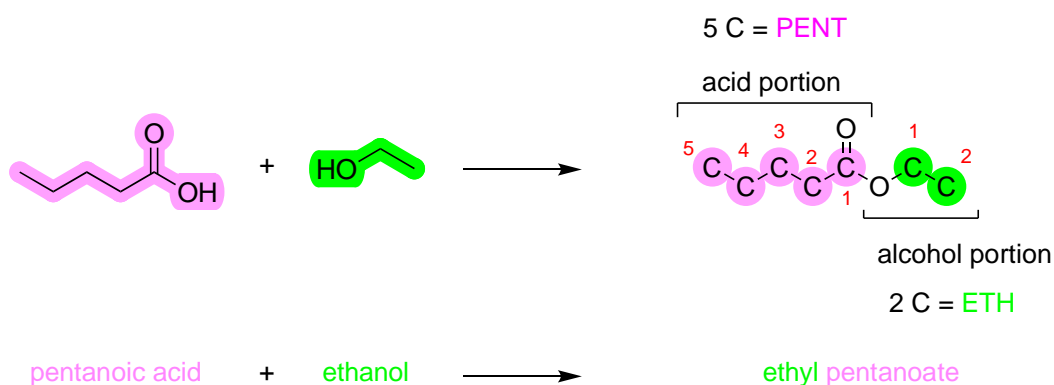
Functional group	General formula	Structure/example	Prefix	Suffix
<i>Ester</i>	-COOR		-oxycarbonyl-	-oate



Esters are formed by the combination of a carboxylic acids and an alcohol:



Thus we refer to the acid and alcohol portion of esters:



STEP 1: Identify the parent hydrocarbon chain

- 1.1 It should have the functional group with the highest priority. *The carboxylic acid portion of the ester is the functional group with the highest priority*
- 1.2 It should have the maximum length

STEP 2: Count the number of carbons in the parent hydrocarbon chain and identify the appropriate prefix. If the parent chain is an alkane, add the -an suffix.

STEP 3: Identify the functional group with the highest priority and its suffix.

- 3.1 *Remove the 'e' from the name of the original carboxylic acid and replace the ending with -oate*

STEP 4: Identify side chains. Count the number of carbons and identify the appropriate prefix.

- 4.1 *The alcohol portion of the ester is considered a side chain*
- 4.2 Other side chains should also be identified

STEP 5: Identify any remaining functional groups (including double and triple bonds)

STEP 6: Number the parent hydrocarbon chain from the end that produces the lowest set of locants for, in order of precedence, functional groups, double and triple bonds and side chains

STEP 7: Numbers indicating the locant of the functional group are placed directly before the functional group portion of the name.

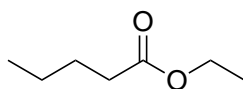
- 7.1 Names are listed alphabetically
- 7.2 If there is more than one of the same functional group, the prefix di- (2), tri- (3), tetra- (4) are used. These are not considered for alphabetical listing
- 7.3 If the functional group is in a position where no alternative position is possible, no number is required (e.g. ethan-1-ol should be written as ethanol)

STEP 8: Write the complete name

- 8.1 Commas are written between numbers
- 8.2 Hyphens are written between numbers and letters
- 8.3 Successive words are combined into one word
- 8.4 *For esters, the alcohol portion of the name is written first and the acid portion is written second. The two name portions are separated by a space.*

Worked Examples

Ethyl pentanoate

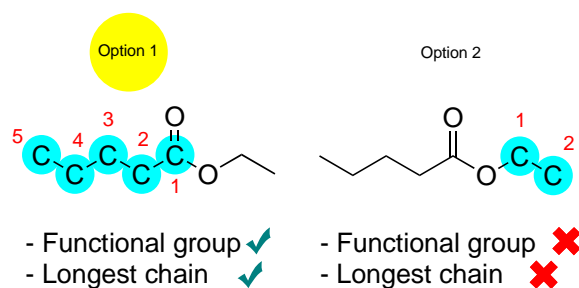


STEP 1: Identify the parent hydrocarbon chain

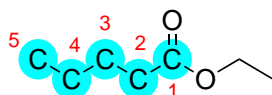
1.1 It should have the functional group with the highest priority

1.2 It should have the maximum length

The carboxylic acid portion of the ester is the functional group with the highest priority.



STEP 2: Count the number of carbons in the parent hydrocarbon chain and identify the appropriate prefix. If the parent chain is an alkane, add the -an suffix.

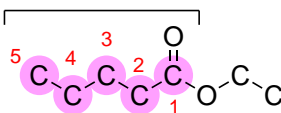


5 C = PENT
ALKANE = -AN-

STEP 3: Identify the functional group with the highest priority and its suffix

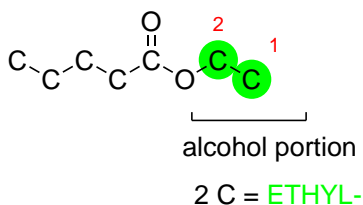
*Remove the 'e' from the name of the original carboxylic acid and replace the ending with
-oate*

acid portion = **-oate**



STEP 4: Identify side chains. Count the number of carbons and identify the appropriate prefix.

The alcohol portion of the ester is considered a side chain.



STEP 5: Identify any remaining functional groups (including double and triple bonds) and their suffixes

None

STEP 6: Number the parent hydrocarbon chain from the end that produces the lowest set of locants for, in order of precedence, functional groups, double and triple bonds and side chains

Not required

STEP 7: Numbers indicating the locant of the functional group are placed directly before the functional group portion of the name.

Not required

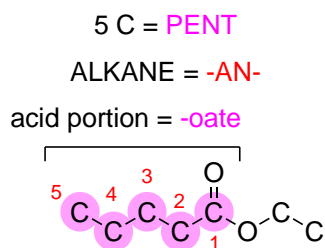
STEP 8: Write the complete name

8.1 Commas are written between numbers

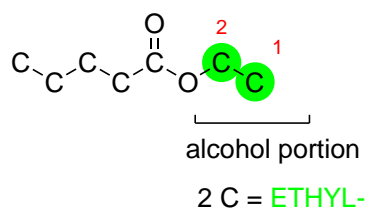
8.2 Hyphens are written between numbers and letters

8.3 Successive words are combined into one word

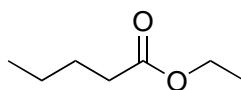
8.4 *For esters, the alcohol portion of the name is written first and the acid portion is written second. The two name portions are separated by a space.*



Steps 1,2,3



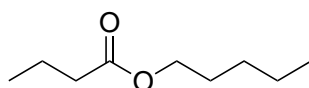
Step 4



ethyl pentanoate

Step 8

Pentyl butanoate

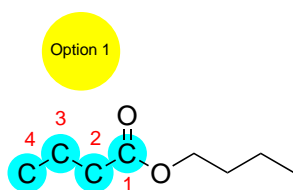


STEP 1: Identify the parent hydrocarbon chain

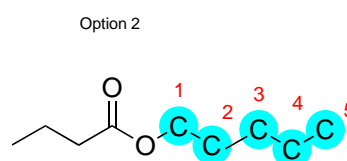
1.1 It should have the functional group with the highest priority

1.2 It should have the maximum length

The carboxylic acid portion of the ester is the functional group with the highest priority.

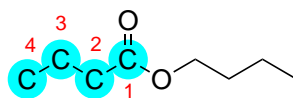


- Functional group ✓
- Longest chain ✗



- Functional group ✗
- Longest chain ✓

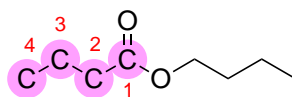
STEP 2: Count the number of carbons in the parent hydrocarbon chain and identify the appropriate prefix. If the parent chain is an alkane, add the -an suffix.



4 C = BUT-

ALKANE = -AN-

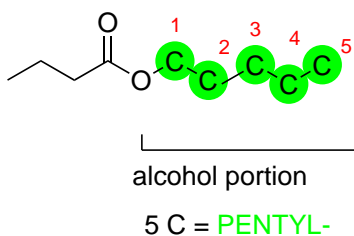
STEP 3: Identify the functional group with the highest priority and its suffix



acid portion = -oate

STEP 4: Identify side chains. Count the number of carbons and identify the appropriate prefix.

The alcohol portion of the ester is considered a side chain.



STEP 5: Identify any remaining functional groups (including double and triple bonds) and their suffixes

None

STEP 6: Number the parent hydrocarbon chain from the end that produces the lowest set of locants for, in order of precedence, functional groups, double and triple bonds and side chains

Not required

STEP 7: Numbers indicating the locant of the functional group are placed directly before the functional group portion of the name.

Not required

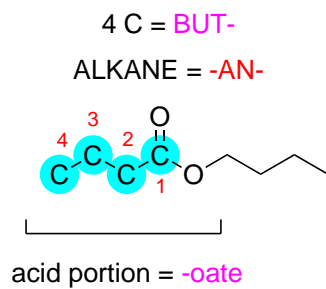
STEP 8: Write the complete name

8.1 Commas are written between numbers

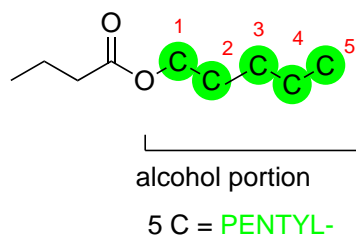
8.2 Hyphens are written between numbers and letters

8.3 Successive words are combined into one word

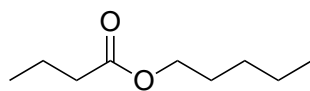
8.4 *For esters, the alcohol portion of the name is written first and the acid portion is written second. The two name portions are separated by a space.*



Steps 1,2,3



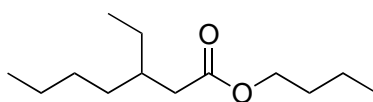
Step 4



pentyl butanoate

Step 8

Butyl 3-ethylheptanoate

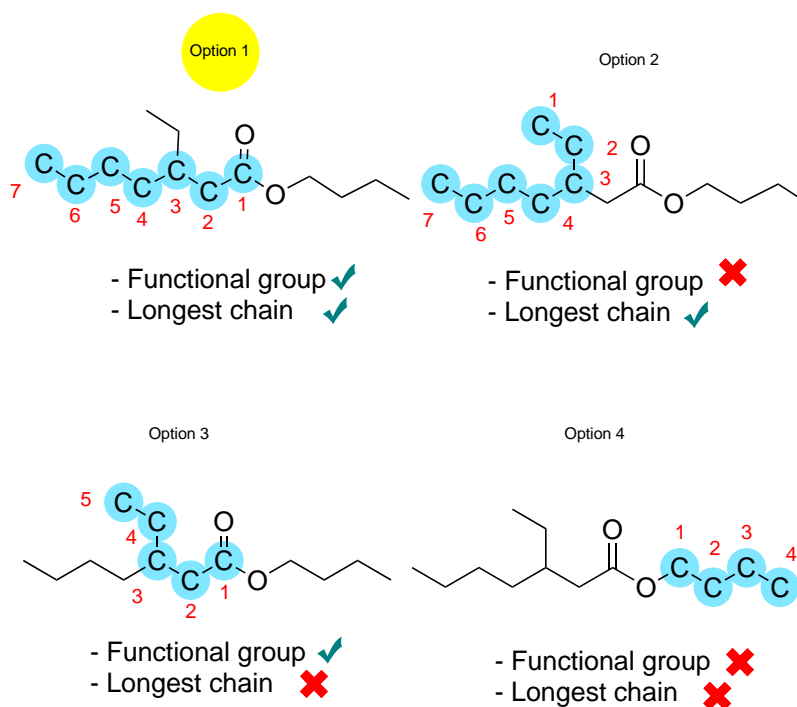


STEP 1: Identify the parent hydrocarbon chain

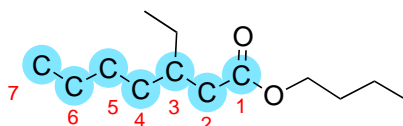
1.1 It should have the functional group with the highest priority

1.2 It should have the maximum length

The carboxylic acid portion of the ester is the functional group with the highest priority.

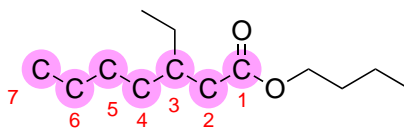


STEP 2: Count the number of carbons in the parent hydrocarbon chain and identify the appropriate prefix. If the parent chain is an alkane, add the -an suffix.



7 C = HEPT-
ALKANE = -AN-

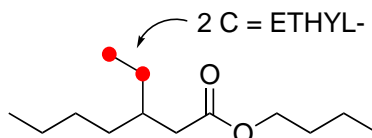
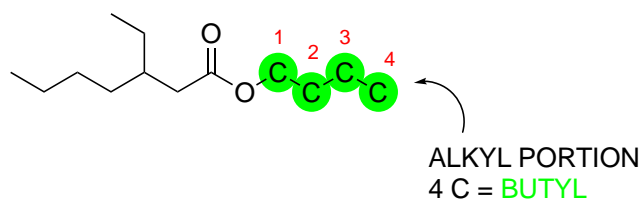
STEP 3: Identify the functional group with the highest priority and its suffix



ESTER = **-OATE**

STEP 4: Identify side chains. Count the number of carbons and identify the appropriate prefix.

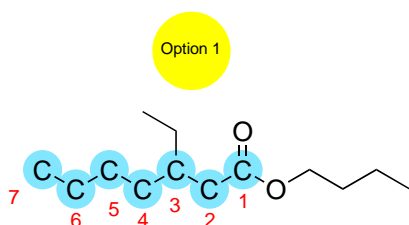
The alcohol portion of the ester is considered a side chain.



STEP 5: Identify any remaining functional groups (including double and triple bonds) and their suffixes

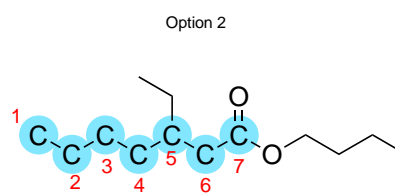
None

STEP 6: Number the parent hydrocarbon chain from the end that produces the lowest set of locants for, in order of precedence, functional groups, double and triple bonds and side chains



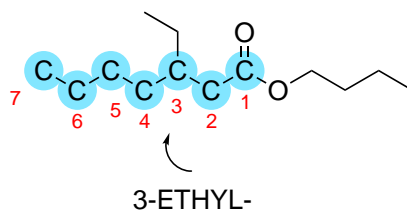
Ethyl = 3

Lowest locants possible



Ethyl = 5

STEP 7: Numbers indicating the locant of the functional group are placed directly before the functional group portion of the name.



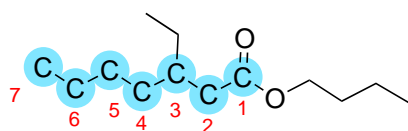
STEP 8: Write the complete name

8.1 Commas are written between numbers

8.2 Hyphens are written between numbers and letters

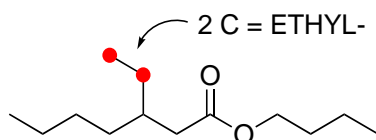
8.3 Successive words are combined into one word

8.4 *For esters, the alcohol portion of the name is written first and the acid portion is written second. The two name portions are separated by a space.*

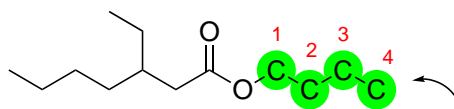


7 C = **HEPT-**
 ALKANE = **-AN-**
 ESTER = **-OATE**

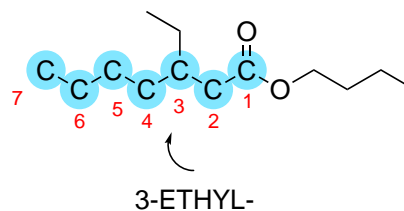
Steps 1,2,3



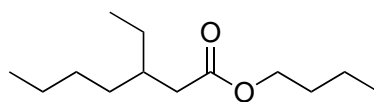
Step 4



Step 4



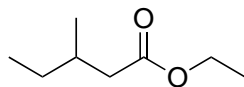
Step 6



butyl 3-ethylheptanoate

Step 8

Ethyl 3-methylpentanoate

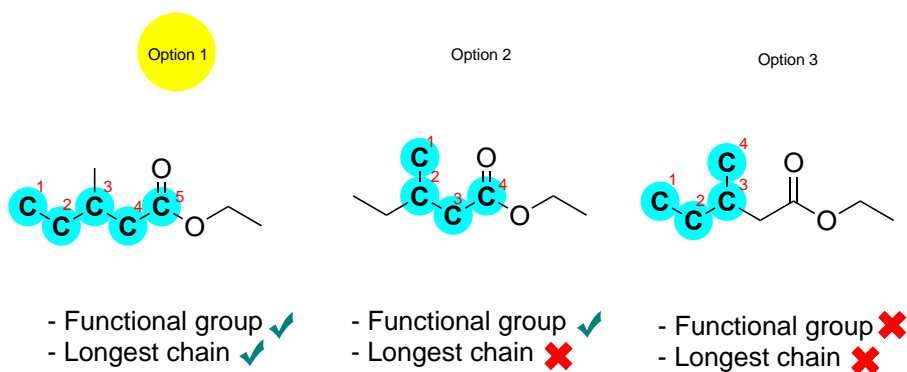


STEP 1: Identify the parent hydrocarbon chain

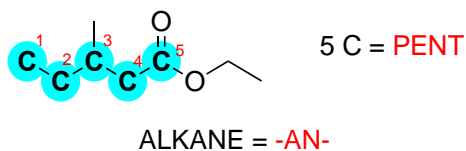
1.1 It should have the functional group with the highest priority

1.2 It should have the maximum length

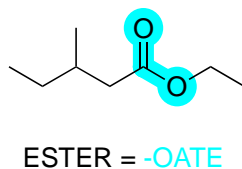
The carboxylic acid portion of the ester is the functional group with the highest priority.



STEP 2: Count the number of carbons in the parent hydrocarbon chain and identify the appropriate prefix. If the parent chain is an alkane, add the -an suffix.

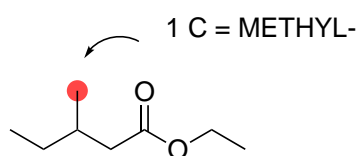
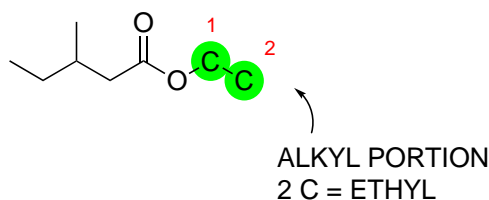


STEP 3: Identify the functional group with the highest priority, its locant and its suffix



STEP 4: Identify side chains. Count the number of carbons and identify the appropriate prefix.

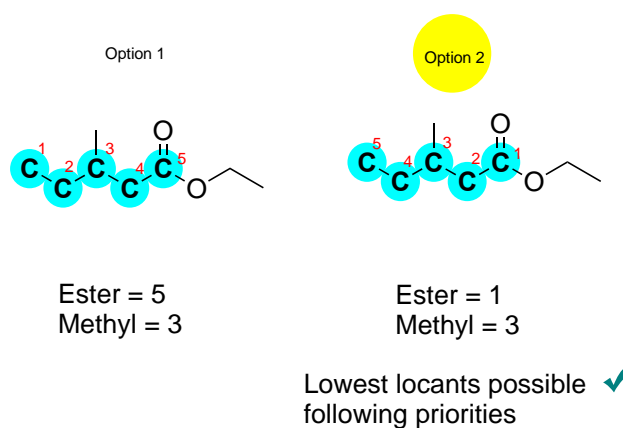
The alcohol portion of the ester is considered a side chain.



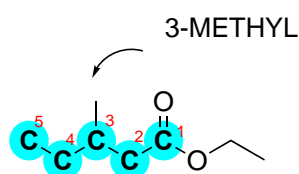
STEP 5: Identify any remaining functional groups (including double and triple bonds) and their suffixes

None

STEP 6: Number the parent hydrocarbon chain from the end that produces the lowest set of locants for, in order of precedence, functional groups, double and triple bonds and side chains



STEP 7: Numbers indicating the locant of the functional group are placed directly before the functional group portion of the name.



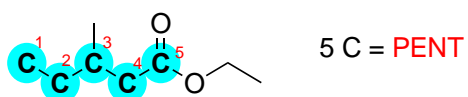
STEP 8: Write the complete name

8.1 Commas are written between numbers

8.2 Hyphens are written between numbers and letters

8.3 Successive words are combined into one word

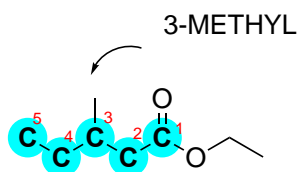
8.4 *For esters, the alcohol portion of the name is written first and the acid portion is written second. The two name portions are separated by a space.*



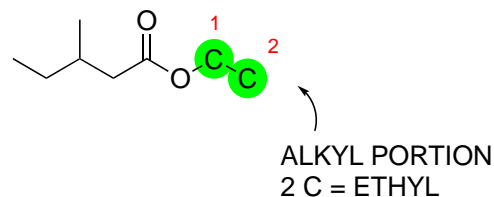
ALKANE = -AN-

ESTER = -OATE

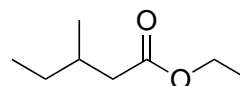
Steps 1,2,3



Steps 4,6,7



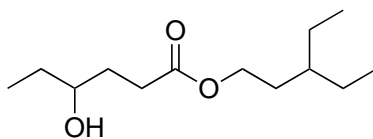
Step 4



ethyl 3-methylpentanoate

Step 8

3-ethylpentyl 4-hydroxyhexanoate

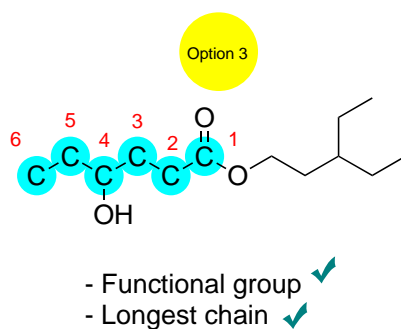
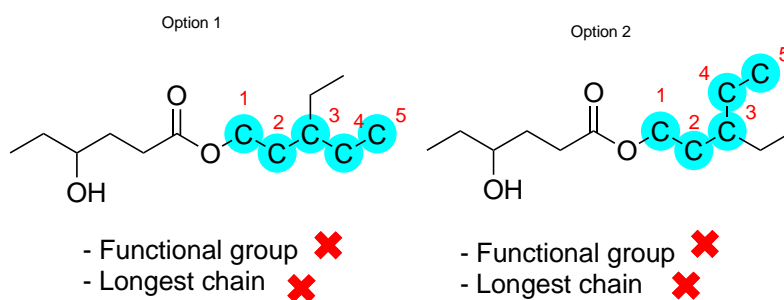


STEP 1: Identify the parent hydrocarbon chain

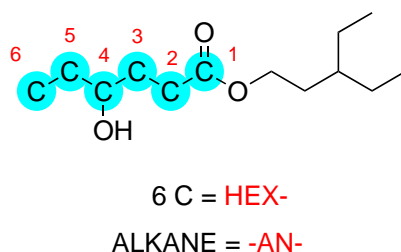
1.1 It should have the functional group with the highest priority

1.2 It should have the maximum length

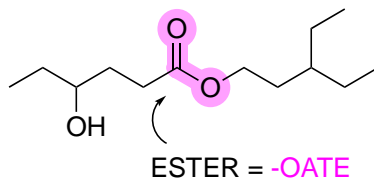
The carboxylic acid portion of the ester is the functional group with the highest priority.



STEP 2: Count the number of carbons in the parent hydrocarbon chain and identify the appropriate prefix. If the parent chain is an alkane, add the -an suffix

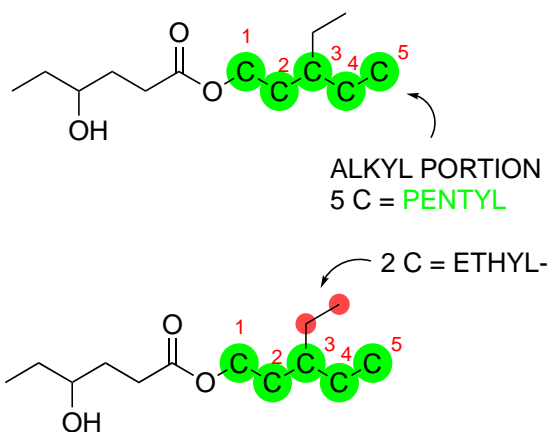


STEP 3: Identify the functional group with the highest priority and its suffix

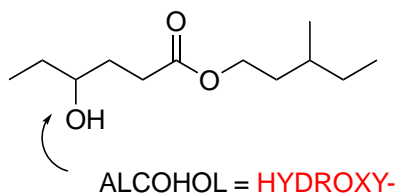


STEP 4: Identify side chains. Count the number of carbons and identify the appropriate prefix.

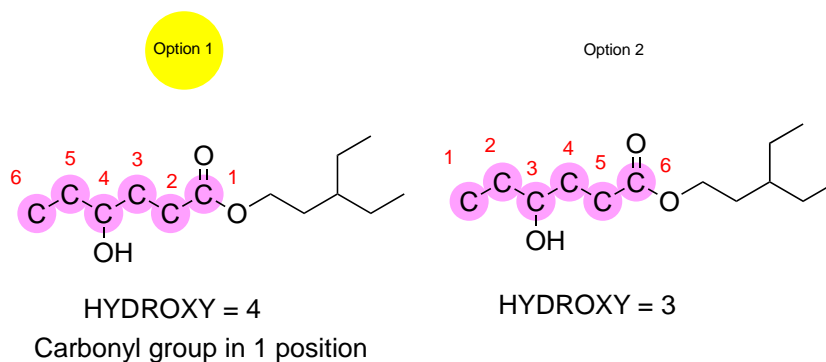
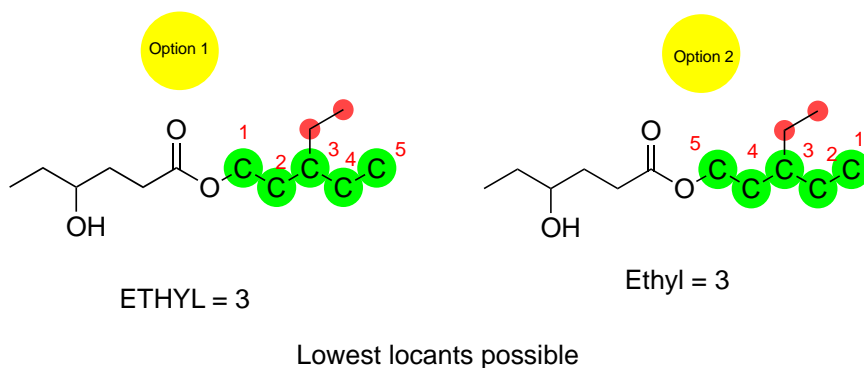
The alcohol portion of the ester is considered a side chain.



STEP 5: Identify any remaining functional groups (including double and triple bonds) and their suffixes



STEP 6: Number the parent hydrocarbon chain from the end that produces the lowest set of locants for, in order of precedence, functional groups, double and triple bonds and side chains

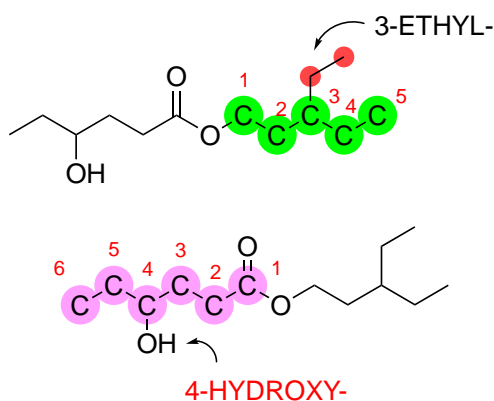


STEP 7: Numbers indicating the locant of the functional group are placed directly before the functional group portion of the name.

7.1 Names are listed alphabetically

7.2 If there is more than one of the same functional group, the prefix di- (2), tri- (3), tetra- (4) are used. These are not considered for alphabetical listing

7.3 If the functional group is in a position where no alternative position is possible, no number is required (e.g. ethan-1-ol should be written as ethanol)



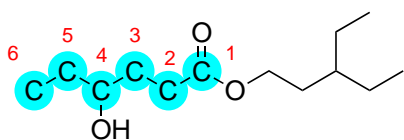
STEP 8: Write the complete name

8.1 Commas are written between numbers

8.2 Hyphens are written between numbers and letters

8.3 Successive words are combined into one word

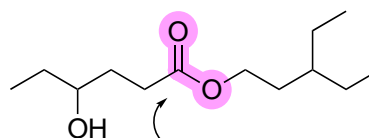
8.4 *For esters, the alcohol portion of the name is written first and the acid portion is written second. The two name portions are separated by a space.*



6 C = **HEX-**

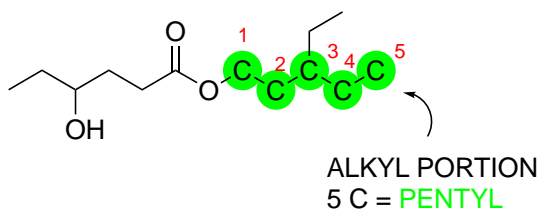
ALKANE = **-AN-**

Steps 1,2



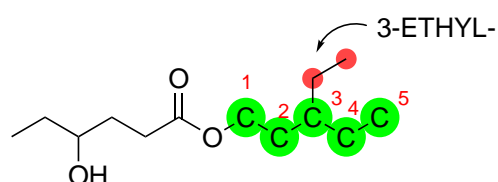
ESTER = **-OATE**

Step 3

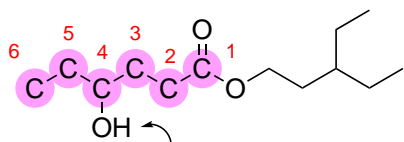


ALKYL PORTION
5 C = **PENTYL**

Step 4

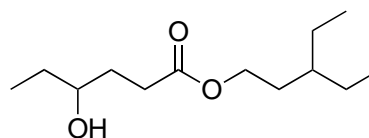


Step 4,6,7



4-HYDROXY-

Step 5,6,7



3-ethyl**pentyl** 4-**hydroxyhexanoate**

Step 8