

Simple Organic Nomenclature

Name _____

Better
Key [thanks]
Rohan

homologous series	functional group	prefix / suffix (* = usual use)	example
alkenes		suffix -ene	 <i>ethene</i>
alcohols		suffix* -ol prefix hydroxy-	 <i>1-propanol</i>
haloalkanes		prefix chloro- bromo- iodo-	 <i>1-chloropropane</i>
aldehydes		suffix -al	 <i>ethanal</i>
ketones		suffix* -one prefix oxo-	 <i>propanone</i>
carboxylic acids		suffix -oic acid	 <i>ethanoic acid</i>
recognize amines		suffix* -amine prefix amino-	 <i>1-aminopropane</i>
recognize esters		suffix -oate	 <i>methyl ethanoate</i>

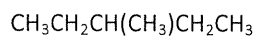
name & draw

~~recognize~~
~~recognize~~

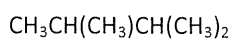
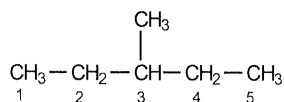
recognize

- The name is based around the name of the longest carbon chain (which contains the functional group):
1 C = meth, 2C = eth, 3C = prop, 4C = but, 5C = pent, 6C = hex, 7C = hept, 8C = oct, etc.
- The functional is indicated by a prefix or suffix. e.g. *chloroethane*
- The position of the functional group is given by a number, counting from the end that gives the functional group the lowest number (for aldehydes, carboxylic acids & nitriles, the functional group is position 1). e.g. *butanal*.
- Where there are two or more of the same groups, *di-*, *tri-* or *tetra* are used.
- If there is more than one functional group, numbers are separated by commas and the groups are listed in alphabetical order (ignoring *di*, *tri*, etc.). e.g. *3-bromo-1-chlorobutane*, *2,2-dibromo-1-chlorobutane*.
- Where there are two functional groups, both with suffixes, the preference for the one to have the suffix is
carboxylic acid > aldehyde > ketone > alcohol. e.g. *2-hydroxypropanoic acid*, *2-aminopropanoic acid*.
- The suffix for alkenes can go in front of other suffixes, e.g. *2-chlorobut-3-enal*.
- If a number is not necessary (i.e. the group could only be in one place) then no number should be given.
- Numbers are separated by commas and word and numbers by dashes, e.g. *1-chloro-2,3-dimethylbutane*.

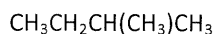
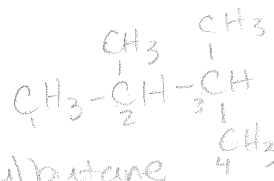
Alkanes



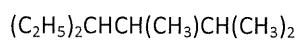
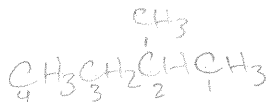
3-methylpentane



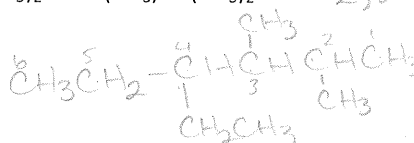
2,3-dimethylbutane



2-methylbutane

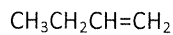


2,3-dimethyl-4-ethylhexane

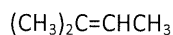
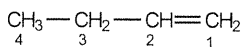


Alkenes

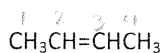
These have the ending **-ene**. If necessary the number of the position of the double bond added between the name stem and the -ene ending:



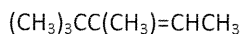
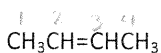
but-1-ene



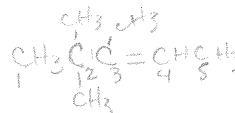
2-methylbut-2-ene



but-2-ene

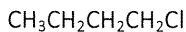


2,2,3-trimethylpent-2-ene

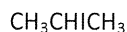
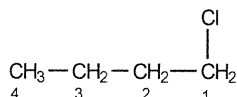


Haloalkanes

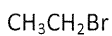
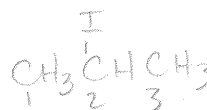
Regard the halogen as a substituent on the C chain and use the suffix **-fluoro**, **-chloro**, **-bromo**, or **-iodo**, and give the position number if necessary:



1-chlorobutane

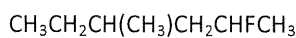


2-chloropropane

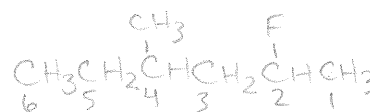


2-bromoethane

1-bromoethane

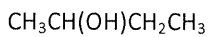


2-fluoro-4-methylhexane

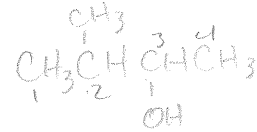
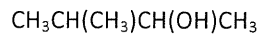
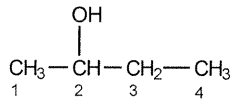


Alcohols

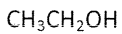
These have the ending **-ol** in place of the last **-e**, and if necessary the position number for the OH group is added between the name stem and the **-ol** (if there are two functional groups, it can begin with **hydroxy-**):



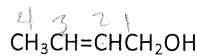
butan-2-ol



~~2-methylbutan-3-ol~~
2-methylbutan-3-ol



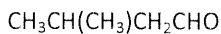
ethanol



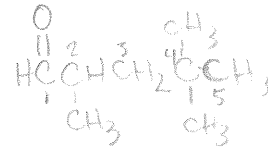
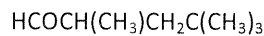
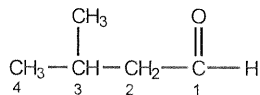
but-2-en-1-ol

Aldehydes

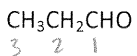
These have the ending **-al** in place of the last **-e**, but no number is necessary for the aldehyde group as it must always be at the end of the chain:



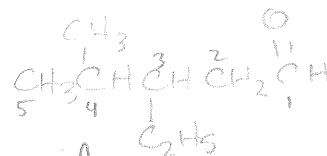
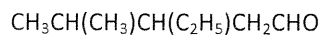
3-methylbutanal



2,4,4-trimethylpentanal



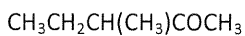
propanal



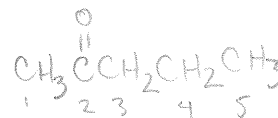
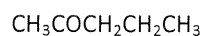
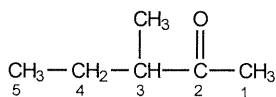
3-ethyl-4-methylpentanal

Ketones

These have the ending **-one** in place of the last **-e**, with a position number if necessary between the stem and the **-one** suffix. The functional group can go at the beginning if there is another functional group as **oxo-**.



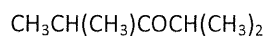
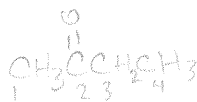
3-methylpentan-2-one



pentan-2-one



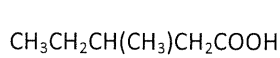
butanone



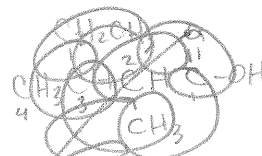
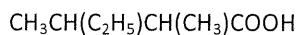
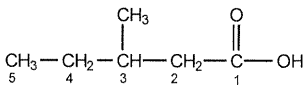
2,4-dimethylpentan-3-one

Carboxylic acids

These have the ending **-oic acid** in place of the last -e, but no number is necessary for the acid group as it must always be at the end of the chain:

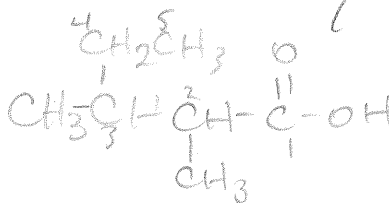


3-methylpentanoic acid



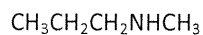
2-methyl-3-ethylbutanoic acid

2,3-dimethylpentanoic acid ←

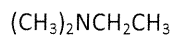
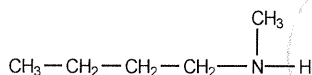


Amines

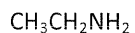
These end in **-amine**, but it can go at the beginning if there is another functional group as **amino-**.



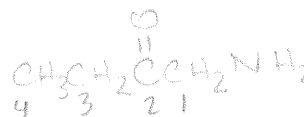
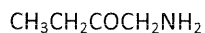
methylbutylamine



dimethyl ethylamine



ethylamine



1-aminobutan-2-one

On the back page draw the structure of each of the following organic compounds.

1) 2-methylpentane

8) butanone

2) 2,3-dimethylhexane

9) butanoic acid

3) pent-2-ene

10) 2,2-dimethylbutanoic acid

4) 3-methylbut-1-ene

11) dipropylamine

5) 1-chloro-2,2-dimethylbutane

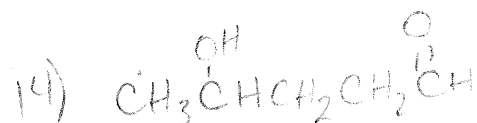
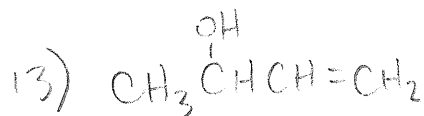
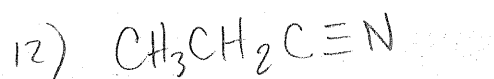
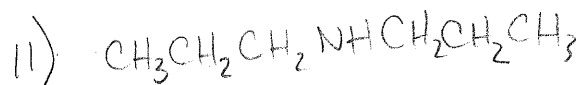
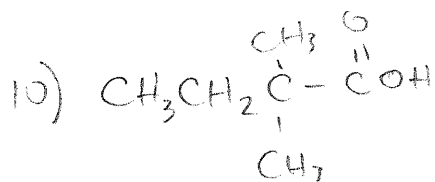
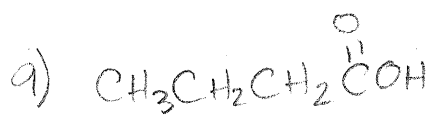
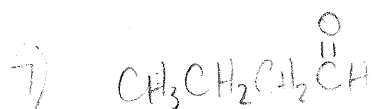
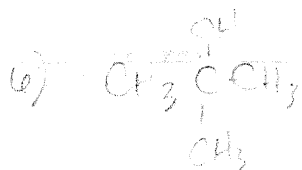
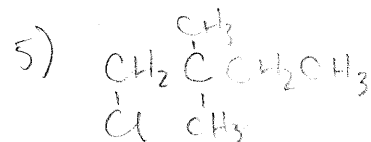
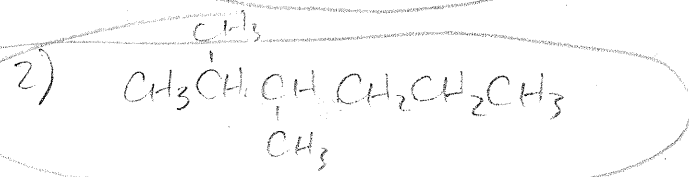
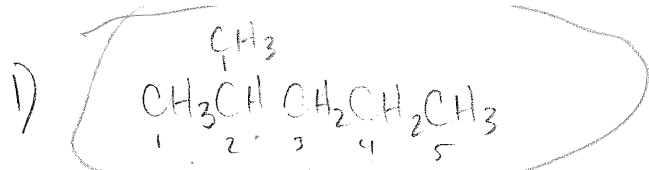
12) propanenitrile

6) 2-methylpropan-2-ol

13) 3-hydroxybut-1-ene

7) butanal

14) 4-hydroxypentanal



Name the following organic compounds.

