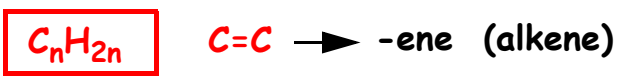
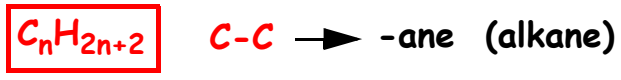
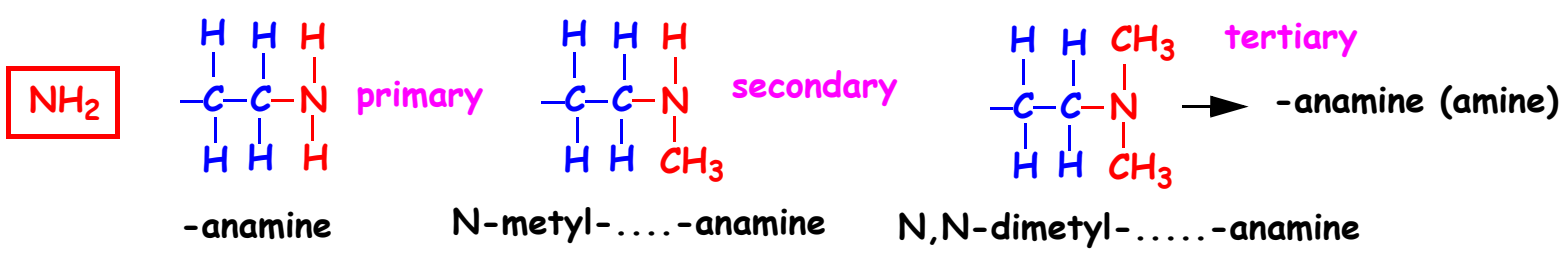
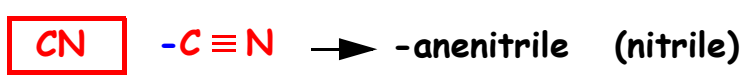


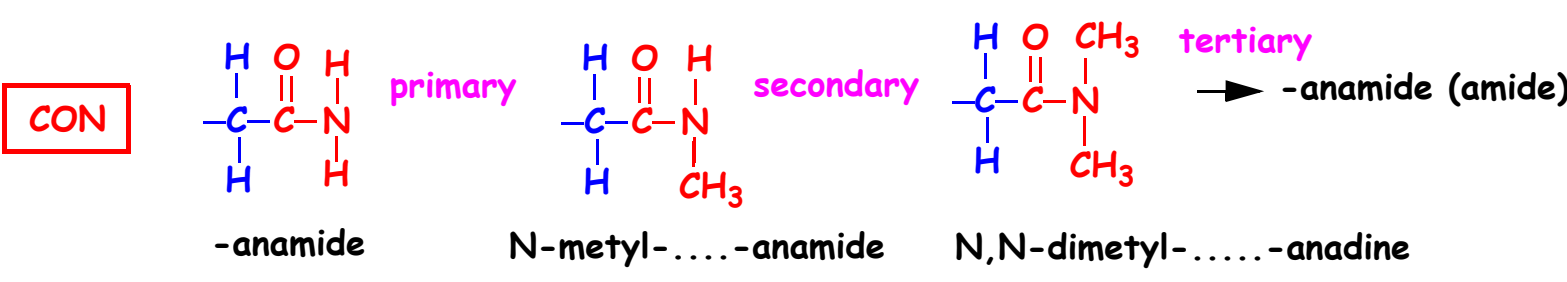
C_nH_{2n}	→	-ene (alkene)
C_nH_{2n+2}	→	-ane (alkane)
CN	→	-anenitrile (nitrile)
NH ₂	→	-anamine (amine)
CON	→	-anamide (amide)
OH	→	-anol (alcohol)
CHO	→	-anal (aldehyd)
COC	→	-anone (ketone)
COOH	→	-anoic acid (carboxylic acid)
COOC	→	-anoate (ester)



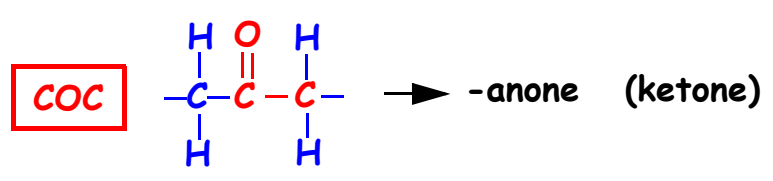
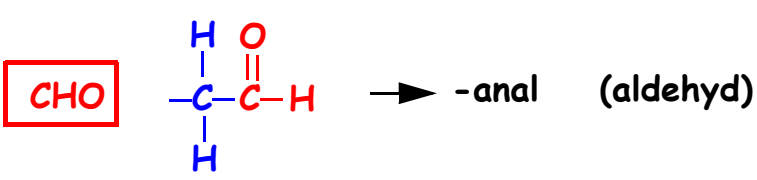
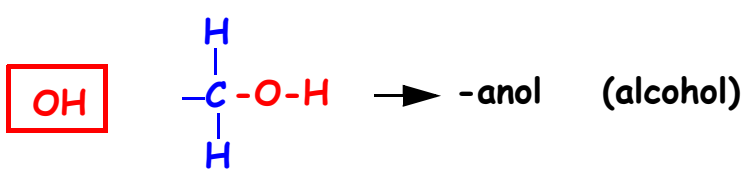
Does it have one N ?



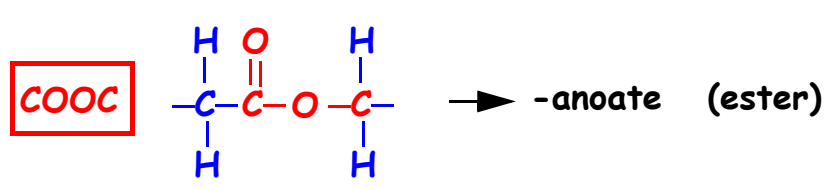
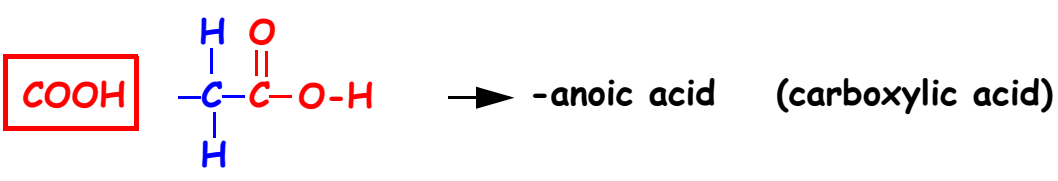
Does it have one N and one O ?



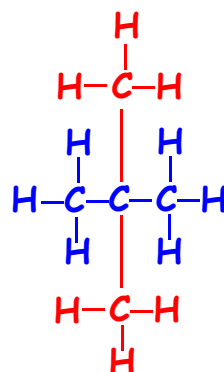
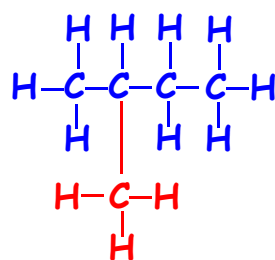
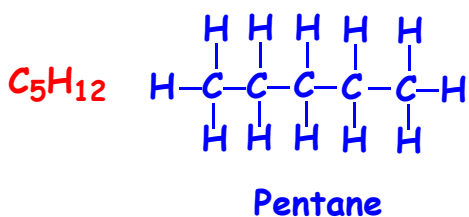
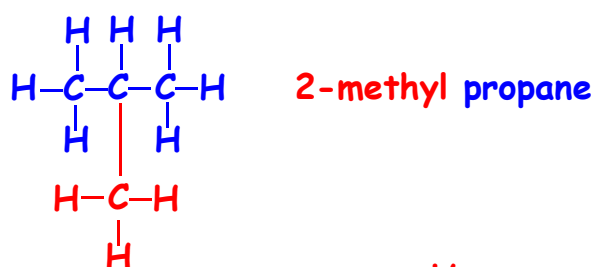
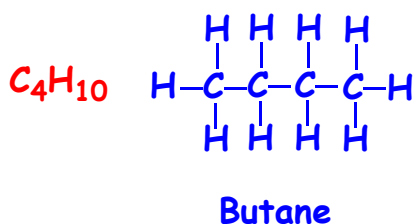
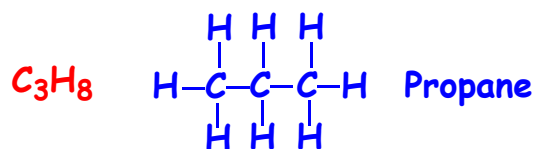
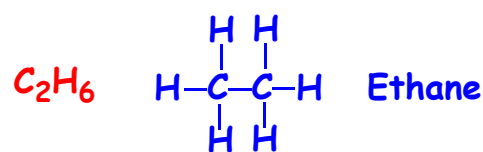
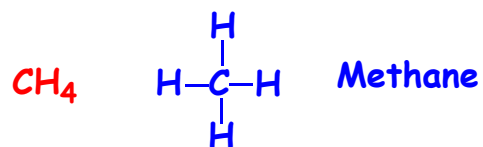
Does it have one O ?



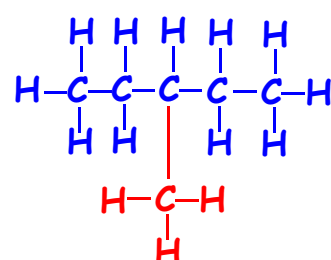
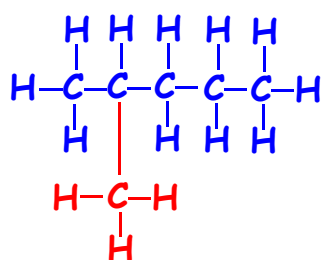
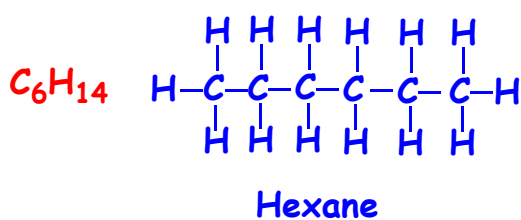
Does it have two O ?



Alkanes: Only C-C and C-H bonds

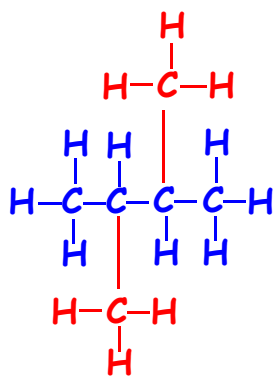
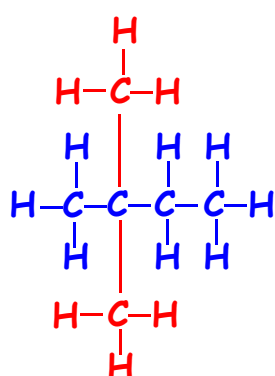


2-methyl butane 2,2-dimethyl propane



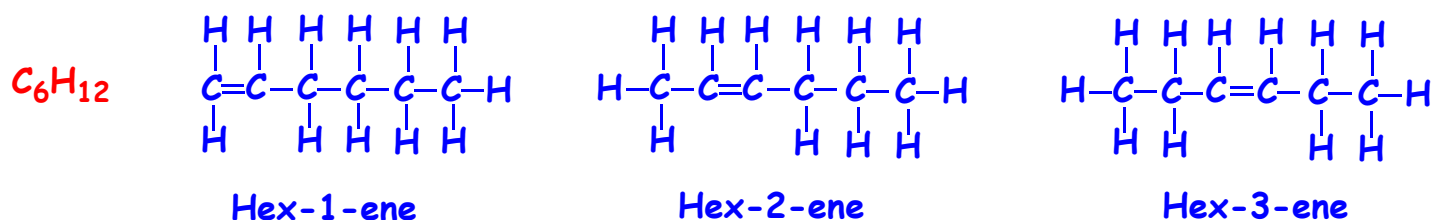
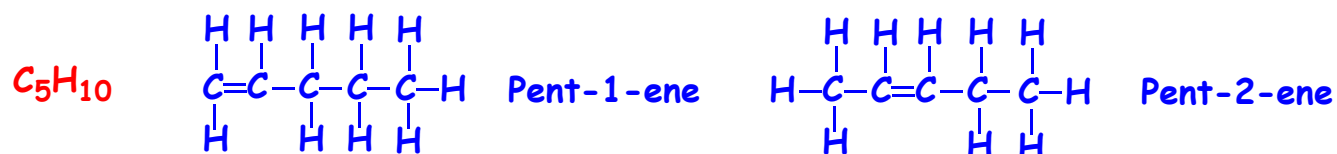
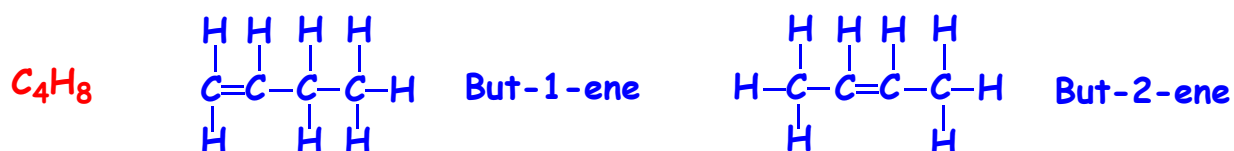
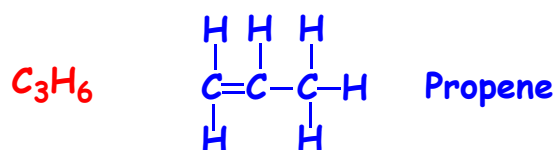
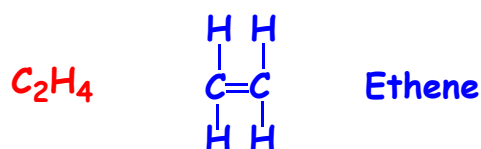
2-methyl pentane

3-methyl pentane

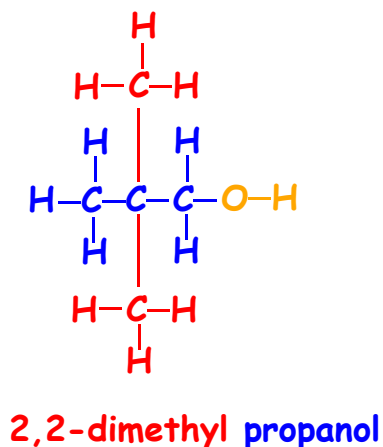
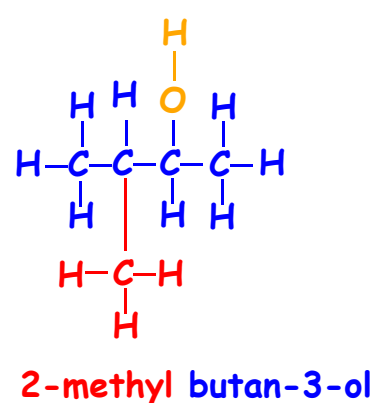
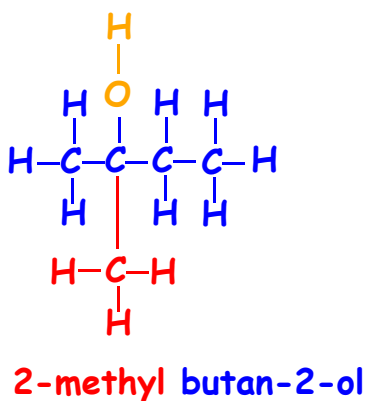
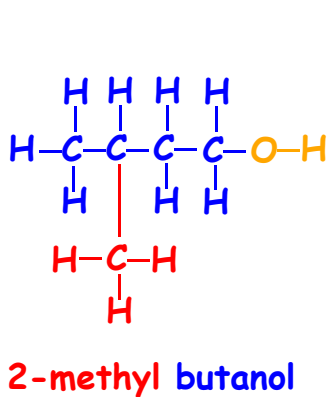
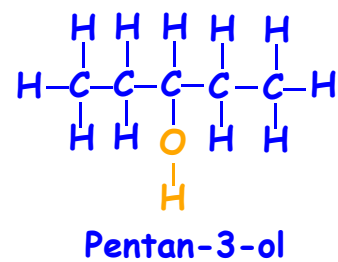
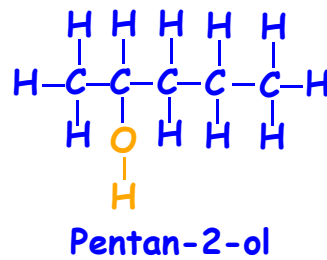
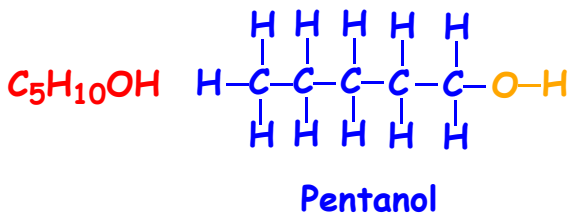
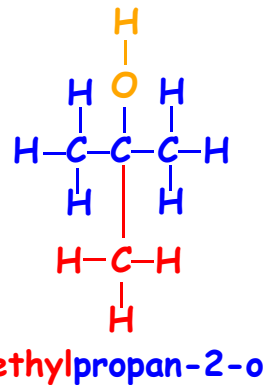
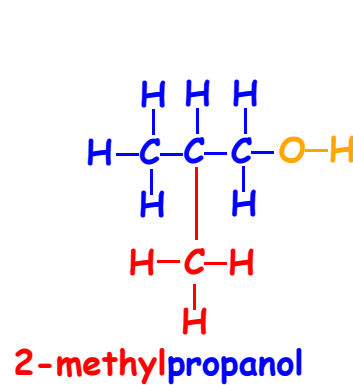
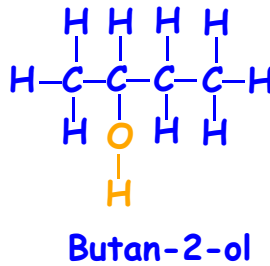
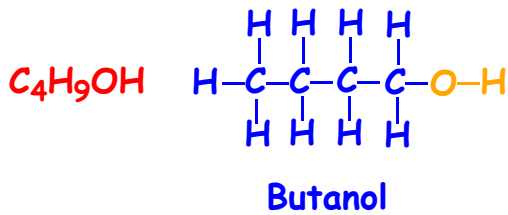
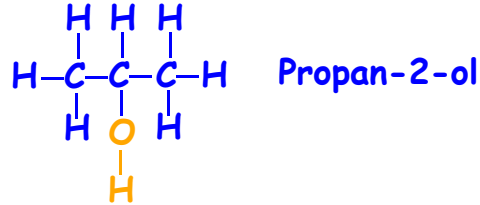
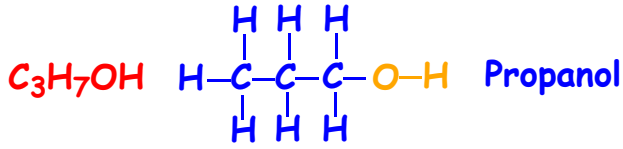
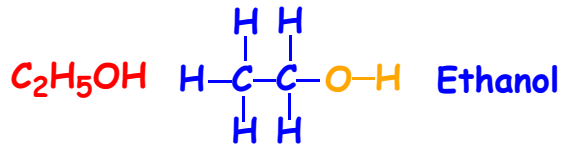
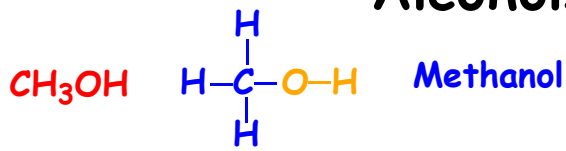


2,2-dimethyl butane 2,3-dimethyl butane

Straight chained Alkenes: have one C=C bounds



Alcohols: One -OH group



Classes of compound:

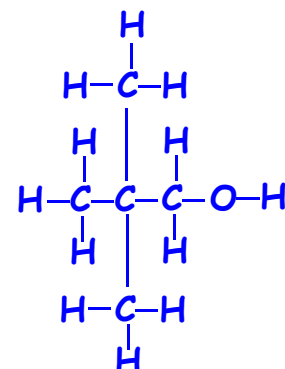
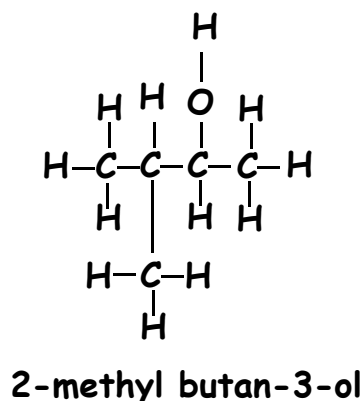
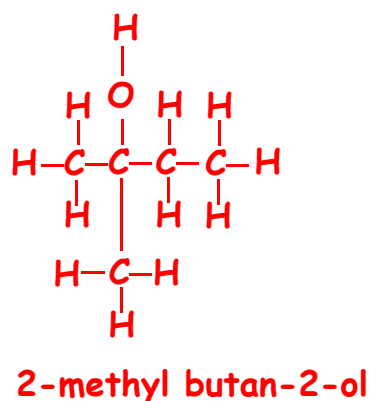
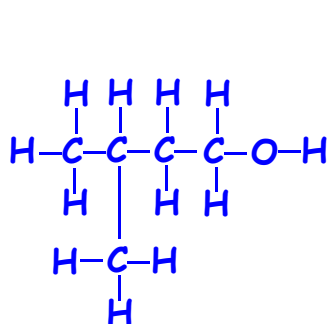
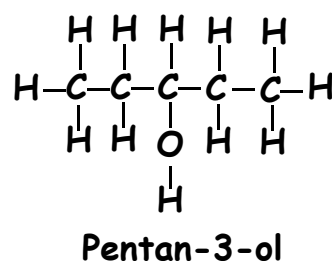
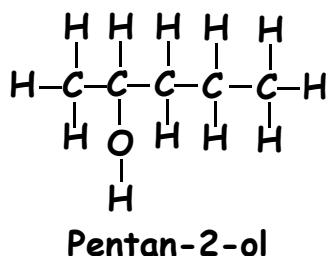
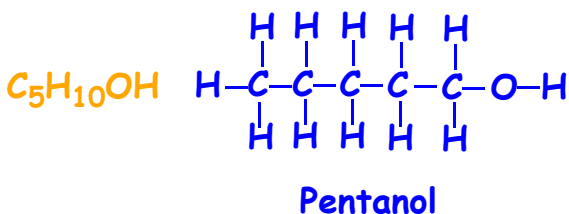
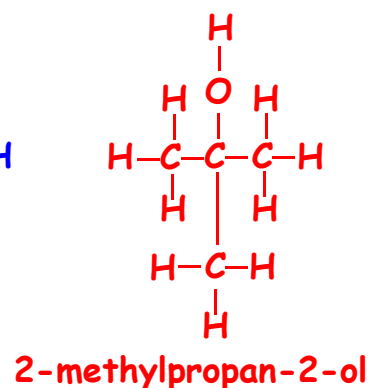
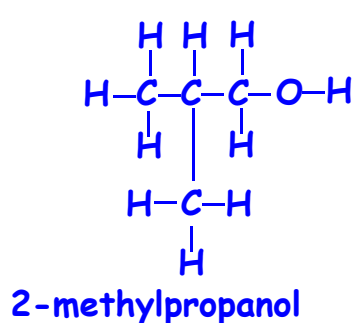
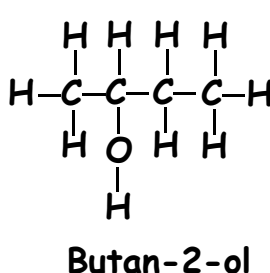
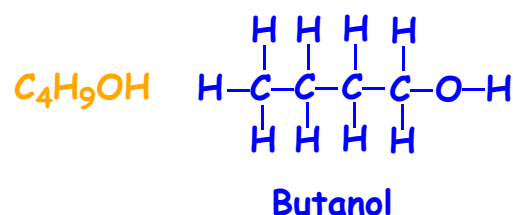
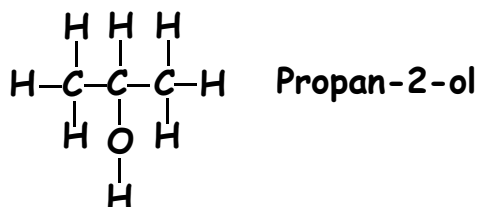
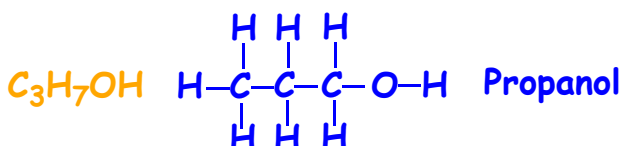
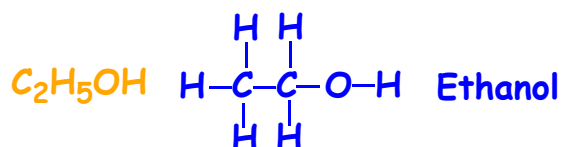
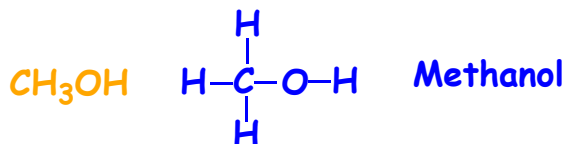
Primary molecules: The carbon atom attached to the functional group (OH) have at least two H attached to it.

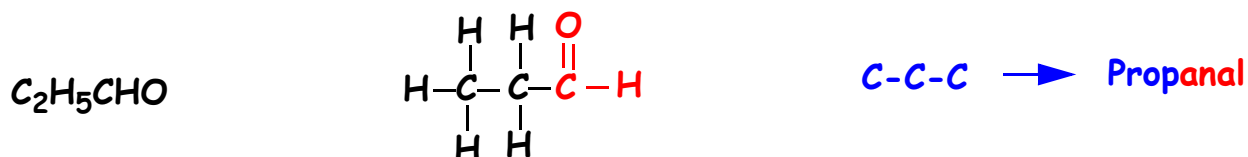
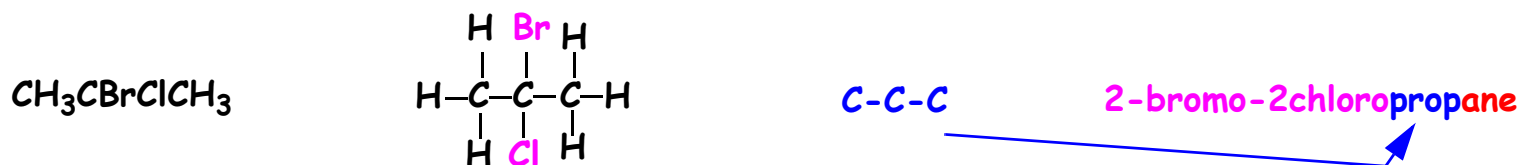
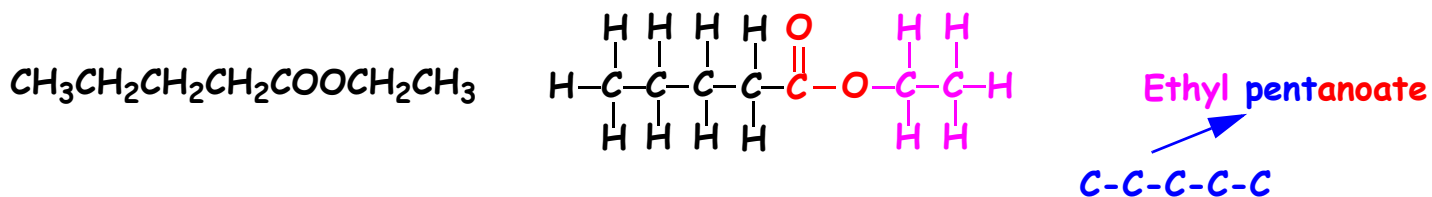
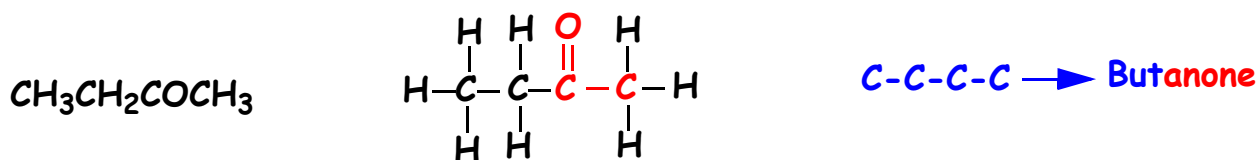
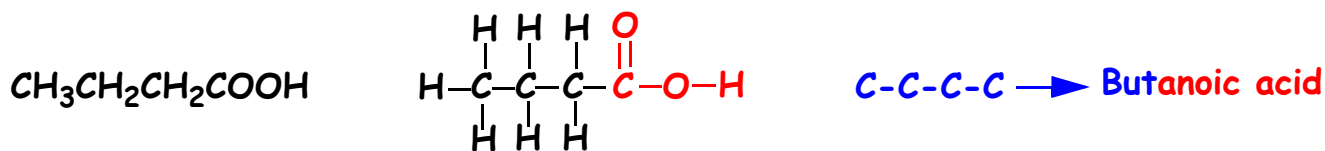
Secondary molecules: The carbon atom attached to the functional group (OH) have two CH_3+CH_2 plus one H attached to it.

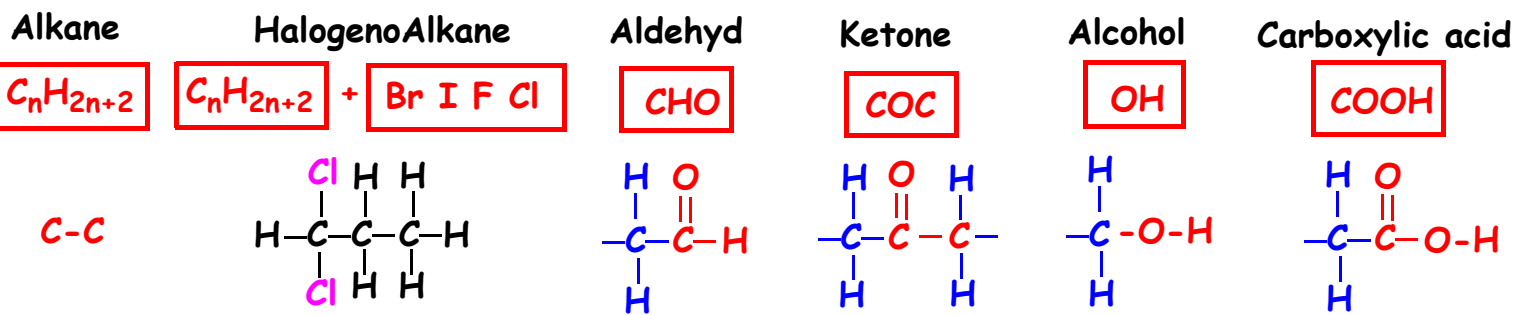
Tertiary molecules: The carbon atom attached to the functional group (OH) have three CH_3+CH_2 and no H attached to it.

Special Rule:

If the functional group is NH_2 then it is the number of H connected to the N that counts and not the number of H connected to the C.







van der Waals \rightarrow dipole-dipole interactions \rightarrow hydrogen bonding

Increasing strength of intermolecular forces \longrightarrow

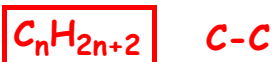
Increasing boiling point \longrightarrow

NOT SOLUBLE
IN WATER

SOMEWHAT SOLUBLE
IN WATER

SOLUBLE IN WATER

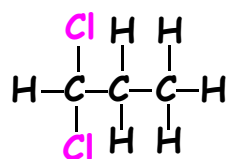
Alkene



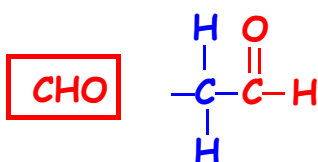
Alkane



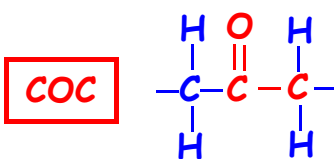
HalogenoAlkane



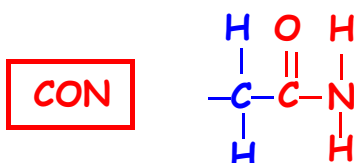
Aldehyde



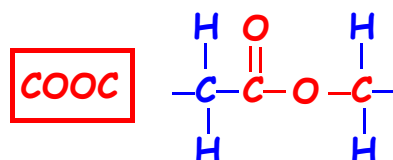
Ketone



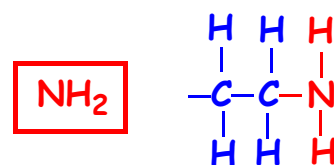
Amide



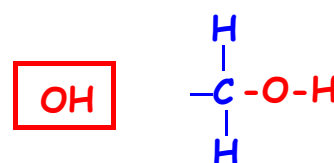
Ester



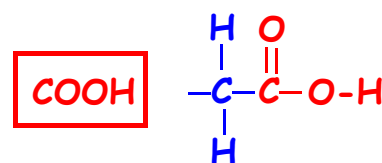
Amine

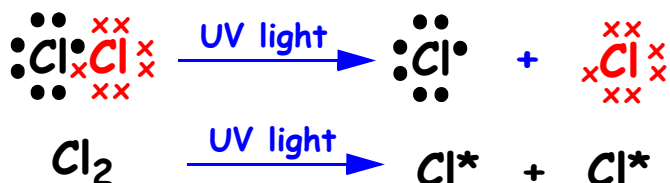


Alcohol



Carboxylic acid





1. Initiation

UV light provides energy so that the covalent bond can be broken by homolytic fission.



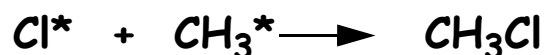
2. Propagation

The reaction both use and produce free radicals.



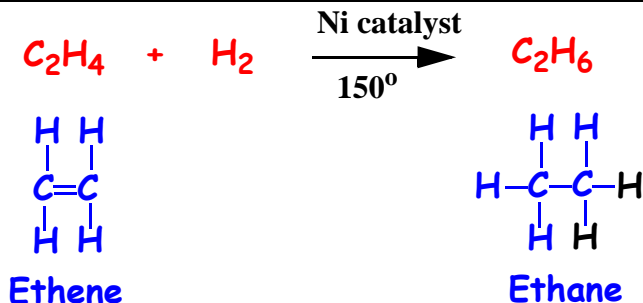
3. Termination

The reaction remove free radicals by having them reacting with each other.



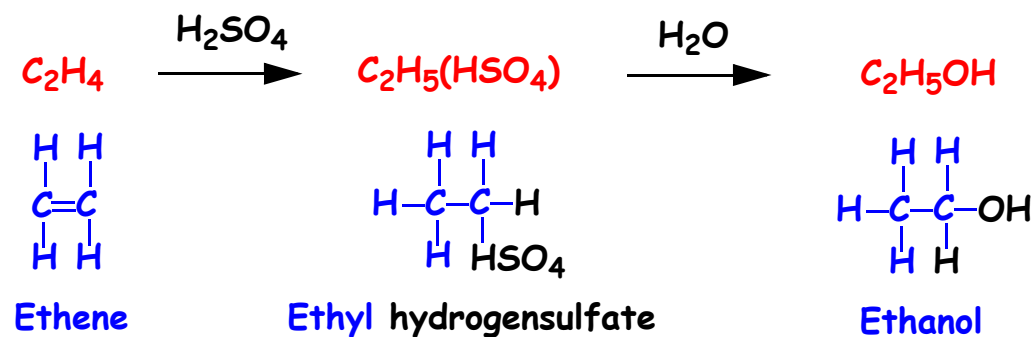
HYDROGENATION

Addition of hydrogen
to make alkane

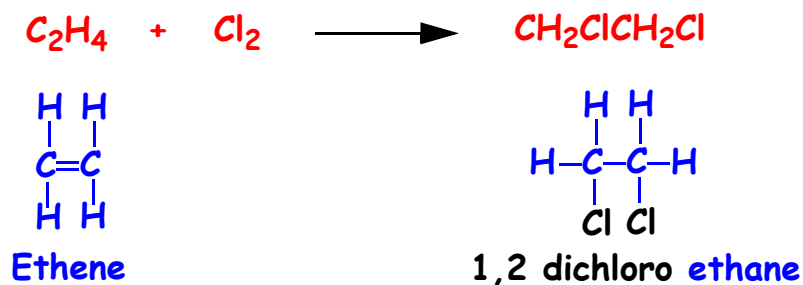


HYDRATION

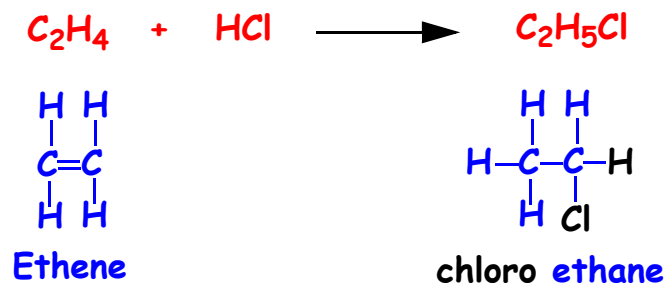
Addition of water
to make alcohol



Addition of halogen
(Cl₂, Br₂, F₂, I₂)
to make
dihalogeno alkanes

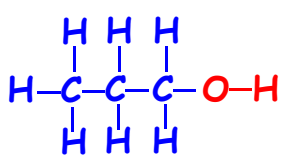


Addition of halides
(HCl, HBr, HI, HF)
to make
halogeno alkanes

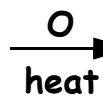


Oxidation of alcohols

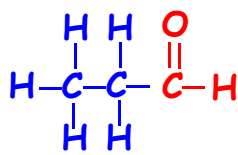
Primary alcohols



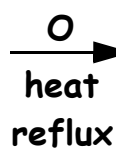
Propanol



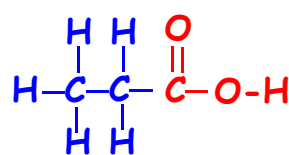
Aldehyde



Propanal

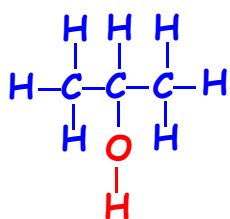


Carboxylic acid

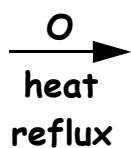


Propanoic acid

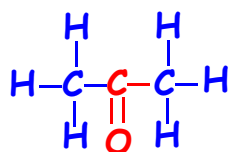
Secondary alcohols



Propan-2-ol

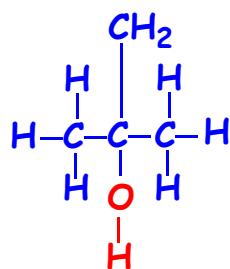


Ketone

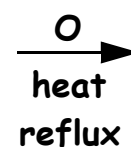


Propanone

Tertiary alcohols



Propan-2-ol



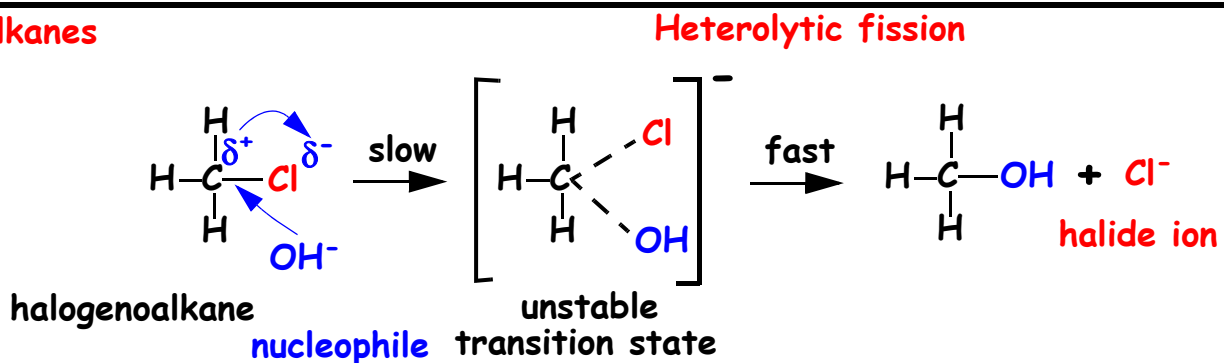
DOES NOT WORK !

Reactions with halogenoalkanes

Primary Halogenoalkanes

Substitution
Nucleophilic
Bimolecular

S_N2 mechanism



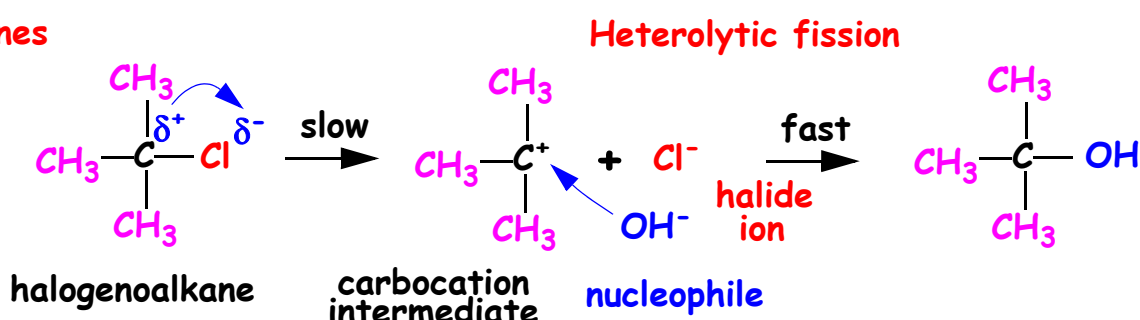
Secondary Halogenoalkanes

Mixture of S_N1 and S_N2 mechanism

Tertiary Halogenoalkanes

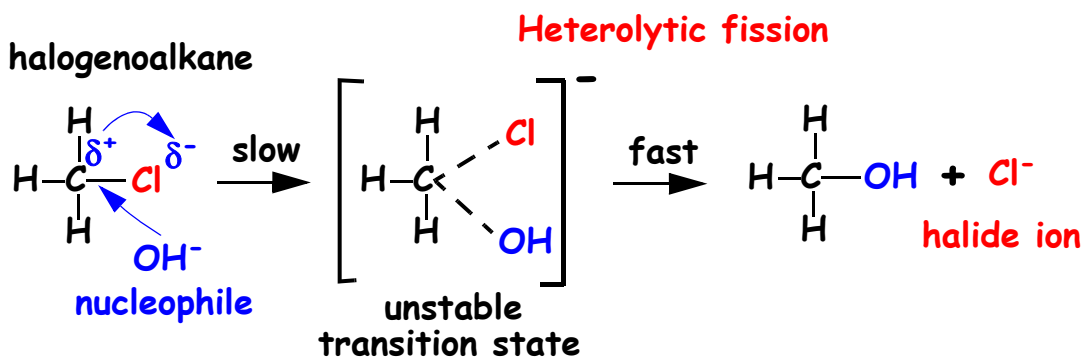
Substitution
Nucleophilic
Unimolecular

S_N1 mechanism



Bimolecular:

The slow part of the reaction depends on the concentration of the **halogenoalkane** and the **nucleophile**



Unimolecular:

The slow part of the reaction depends on the concentration of the **halogenoalkane**

