Topic:	OXYGENATED COMPOUNDS
Objective:	**FK_05_01**

Given some organic compounds
the student must be capable of doing the following:

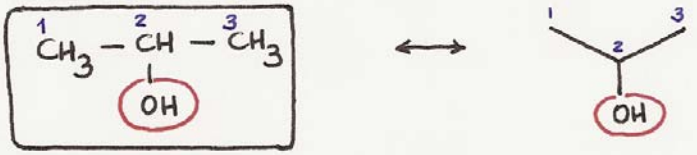
- **write the formulas**
- **write the names**

ALCOHOLS (R-OH)

↳ Alcohols are hydrocarbon derivatives in which one or more hydrogens of a parent hydrocarbon have been replaced by an ALCOHOL functional group, OH.

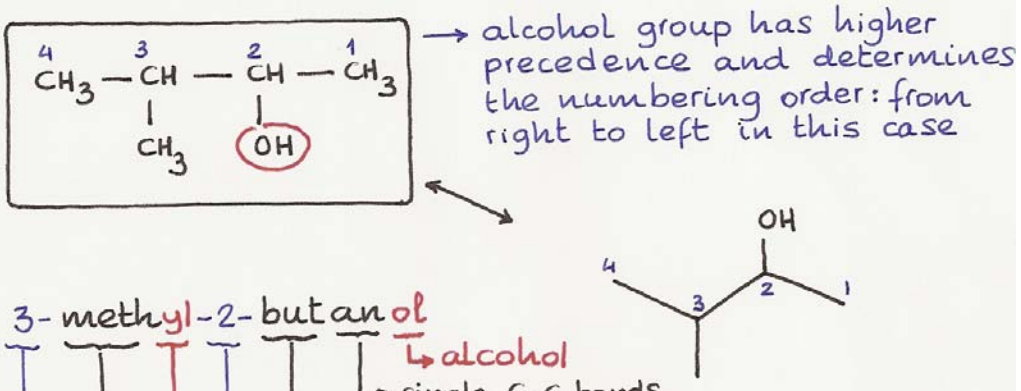
↳ The name of the alcohol ends in -ol (changing the last letter in the name of the alkane to "ol")

↳ EXAMPLES:



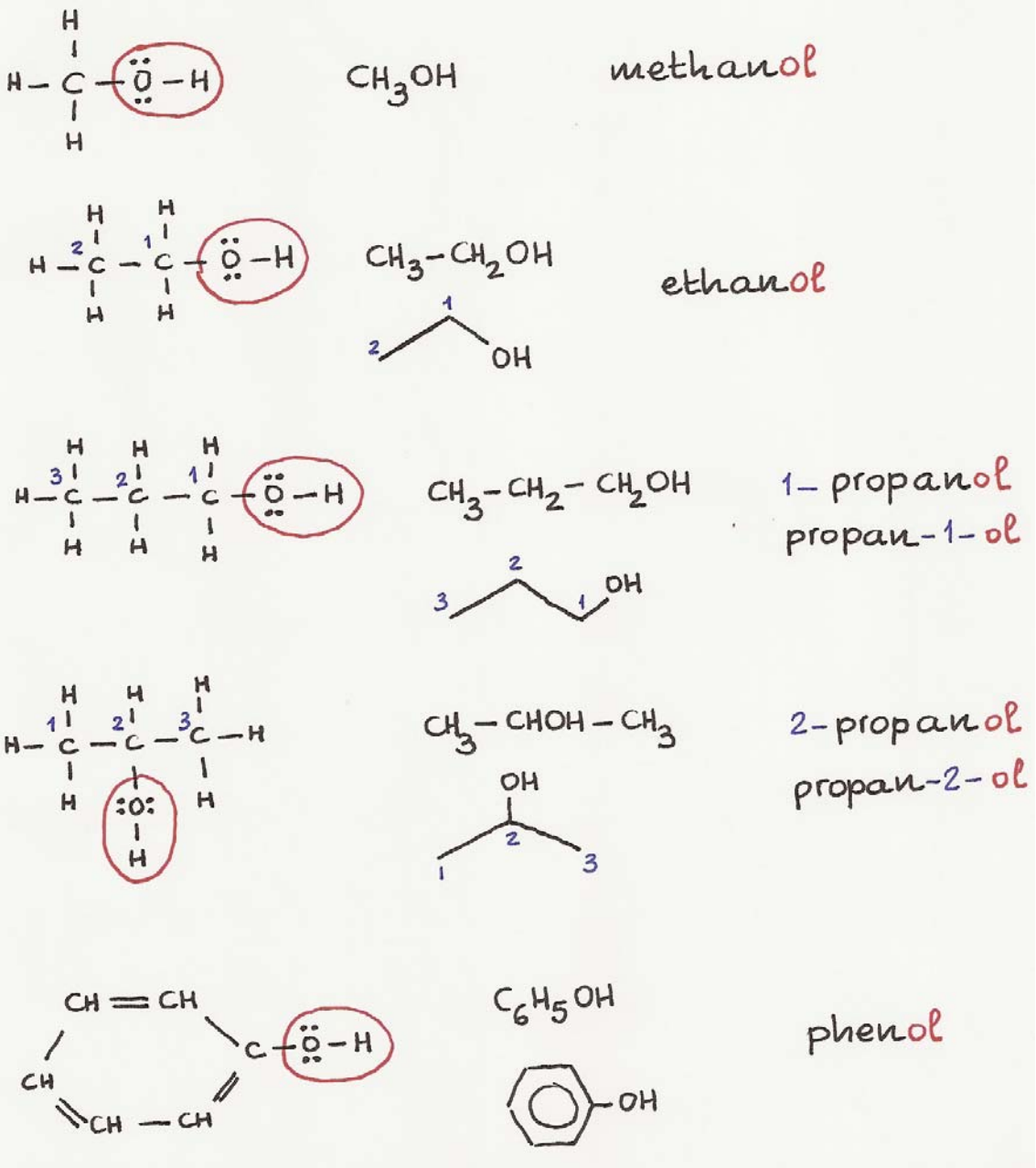
2- propan ol ⟷ propan-2-ol

- ol → alcohol
- an → single C-C bonds
- prop → chain of 3 carbons
- 2- → location of the alcohol group: carbon #2



3- methyl -2- but an ol

- ol → alcohol
- an → single C-C bonds
- but → chain of 4 carbons
- 2- → location of the alcohol group
- methyl → branch
- methyl → one carbon
- 3- → location of the branch: carbon #3

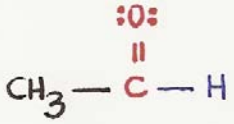

CH3OH
methanol
CH3–CH2OH
ethanol
OH
CH3–CH2–CH2OH
1– propanol
propan–1– ol
OH
CH3–CHOH–CH3
2–propanol
propan–2–ol
OH
C6H5OH
phenol
OH

ALDEHYDES ($R-\overset{\overset{:O:}{\|}}{C}-H$) and KETONES ($R-\overset{\overset{:O:}{\|}}{C}-R'$)

↳ The $\boxed{C=\ddot{O}:}$ group is called a carbonyl group.

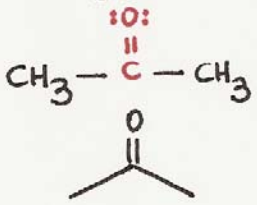
↳ In aldehydes the carbonyl group has at least one hydrogen atom attached, as in the following examples:

Methanal
Formaldehyde

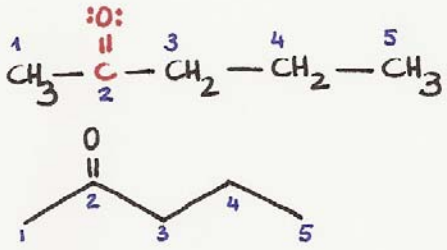


Ethanal
Acetaldehyde

↳ In ketones the carbonyl group occurs at the interior of a carbon chain and is therefore flanked by carbon atoms:



Propanone
Acetone

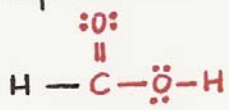


2-Pentanone

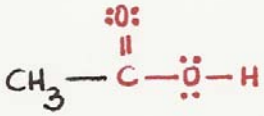
CARBOXYLIC ACIDS (R–C(=O)–OH)

↳ They contain the carboxyl functional group, which is often written as -COOH or $-CO_2H$.

↳ EXAMPLES:



Methanoic acid
Formic acid

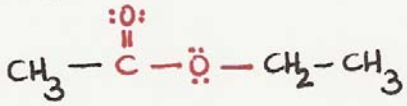


Ethanoic acid
Acetic acid

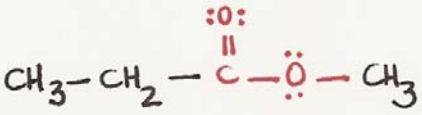
ESTERS (R–C(=O)–O–R')

↳ Esters are compounds in which the H atom of a carboxylic acid is replaced by a hydrocarbon group

↳ EXAMPLES:



Ethyl acetate



Methyl propionate
Methyl propanoate (IUPAC)