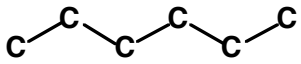
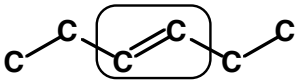
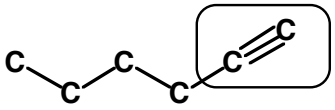
Twelve To Remember: The Functional Groups



0. Alkane
-all single bonds
-no heteroatoms

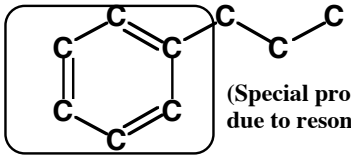


1. Alkene
-C=C double bond



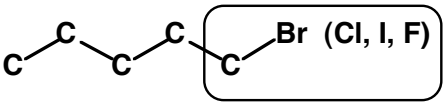
2. Alkyne
-triple bond

Tip: A-E-I
so alkane, alkene, alkyne

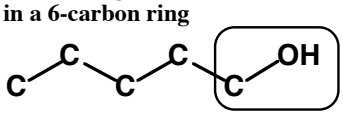


(Special properties due to resonance)

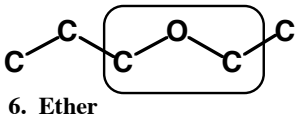
3. Arene
-alternating double bonds in a 6-carbon ring



4. Haloalkane

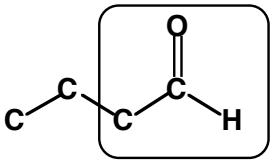


5. Alcohol
-oxygen
-OH
-single bonds

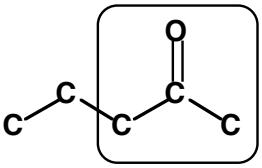


6. Ether
-oxygen
-no OH
-single bonds

Alcohols and Ethers Can be Seen as H_2O Derivatives: Oxygen Molecules With Single Bonds Only
Tip: A before E

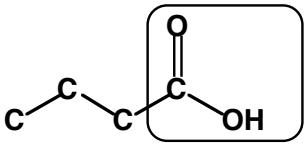


7. Aldehyde
-oxygen
-C=O double bond
-one H connected to C=O

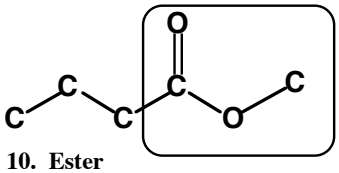


8. Ketone
-oxygen
-C=O double bond
-two C's connected to C=O

Aldehydes and Ketones Have C=O (Carbonyl) Double Bonds
Tip: A before kEy; Aldehyde has less C's attached to C=O

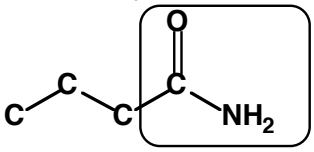


9. (Carboxylic) Acid
-2 oxygens
-C=O double bond, with O-H directly attached

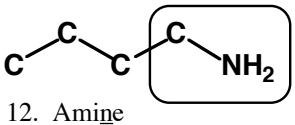


10. Ester
-2 oxygens
-C=O double bond, with O-C directly attached

A(cid) before E(ster)



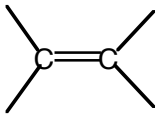
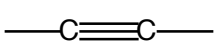
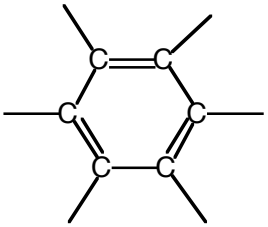
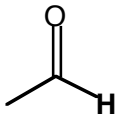
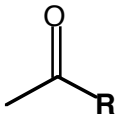
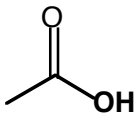
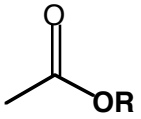
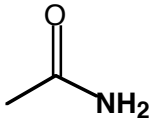
11. Amide
-one nitrogen, one C=O
-C=O double bond, with N directly attached
-"D" for C=O double bond



12. Amine
-one nitrogen, no C=O
-"N" for No C=O double bond

N compounds

The Functional Groups, R-Z

Functional Group Z	Name	Suffix (or Prefix) Used in Systematic Name
-R	Alkane	-ane
	Alkene	-ene
	Alkyne	-yne
	Arene	not responsible
-X (Cl, Br, I, or F)	Haloalkane	halo-
-OH	Alcohol	-ol
-OR	Ether	not responsible
	Aldehyde	-al
	Ketone	-one
	Carboxylic Acid	-oic acid
	Ester	-oate
	Amide	-amide
$-NH_2$	Amine	amino-

Nomenclature Review

methan-	1C
ethan-	2C
propan-	3C
butan-	4C
pentan-	5C
hexan-	6C
heptan-	7C
octan-	8C
nonan-	9C
decan-	10C