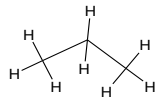
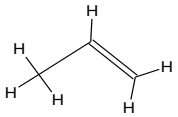
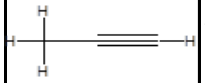
Functional Group	Molecular Formula		IUPAC name	general name/ Structure	Characteristics
Alkanes	CH4		methane		all single bonds (sigma)
	C2H6	CH3CH3	ethane		sp3 hybridized
CnH2n+2	C3H8	CH3CH2CH3	propane		109 angle
	C4H10	CH3CH2CH2CH3	butane		tetrahedral
	C5H12		pentane		

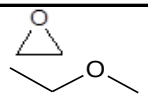
Alkenes	C2H4	CH2=CH2	ethene		at least one double bond (1 pi and 1 sigma bond)
double bond	C3H6	CH3CH=CH2	propene		sp2 hybridized
CnH2n+2	C4H8	CH3CH2CH=CH2	butene		120 angle
	C5H10	CH3CH2CH2CH=CH2	pentene		trigonal planar

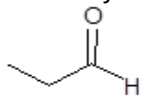
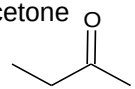
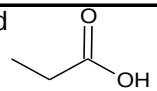
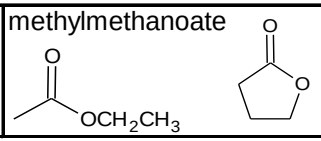
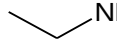
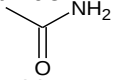
Alkynes	C2H2	CH≡CH	ethyne	acetylene	one triple bond (2 pi and 1 sigma)
triple bond	C3H4	CH3C≡CH	propyne		sp hybridized
CnH2n-2	C4H6	CH3CH2C≡CH	butyne		180 angle
	C5H8	CH3CH2CH2C≡CH	pentyne		linear

Cycloalkanes	C3H6		cyclopropane		all single bonds
single bond	C4H8		cyclobutane		angle varies with ring size
CnH2n	C5H10		cyclopentane		sp3 hybridized

Aromatic	C6H6		benzene		alternate double bonds
double bond					all sp2 hybridized Cs
					resonance stablized
					chemistry different than cycloalkanes and alkenes

Alcohols	CH3OH		methanol	methyl alcohol	hydrogen bond because of OH
ROH		CH3CH2OH	ethanol	ethyl alcohol	generally soluble in water
CnH2n+2O	C3H7OH	CH3CH2CH2OH	propanol	propyl alcohol	all liquids or solids
	C4H9OH	CH3CH2CH2CH2OH	butanol	etc	
	C5H11OH		pentanol		

Ethers	CH3OCH3		dimethylether		O is in the center
ROR	C2H5OC2H5	CH3CH2OCH2CH3	diethylether		no H bond
	C3H7OC3H7				low bpts

Aldehydes RCHO CnH2nO	HCHO CH3CHO C2H5CHO C3H7CHO C4H9CHO	 CH3CH2CHO CH3CH2CH2CHO 	methanal propanal butanal pentanal	formaldehyde acetaldehyde  	 C in CHO is sp2 hybridized all liquids or solids high bpts and mpts
Ketones RCOR CnH2nO	CH3COCH3 C2H5COCH3		pentanone ethylmethylketone	acetone 	C in CO is sp2 hybridized all liquids or solids relatively high bpts and mpts
Carboxylic acids RCOOH	HCOOH CH3COOH C2H5COOH	 CH3CH2COOH	methanoic acid ethanoic acid propanoic acid 	formic acid acetic acid propionic acid	have H bonding high bpts and mpts soluble in water
Carboxylic esters RCOOR	HCOOCH3 CH3COOCH3 CH3COOC2H5	 CH2COOCH2CH3	methylmethanoate 	methylformate methylacetate ethylethanoate	have polar covalent bonding all liquids or solids relatively high bpts and mpts not so soluble in water
Amines R1R2R3N		CH3NH2, primary, 1o (CH3)2NH, secondary, 2o (CH3)3N, tertiary, 3o	methyl amine dimethyl amine trimthyl amine		1o and 2o have H bonding high bpts and mpts 1o and 2o soluble in water
Amides RCONR1R2		HCONH2 HCONHCH3 HCON(CH3)2 CH3CONH2	methanamide N-methylmethanamide N,N-dimethylmethanamide ethanamide	formamide  acetamide	NH have H bonding high bpts and mpts generally soluble in water