

1. **Hydrocarbons:**

Hydrocarbons are named by the number of carbons in their chain and the types of bonds they have between carbon atoms.

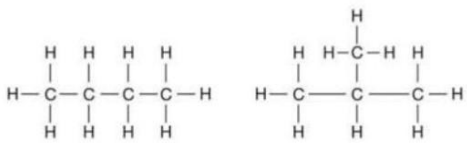
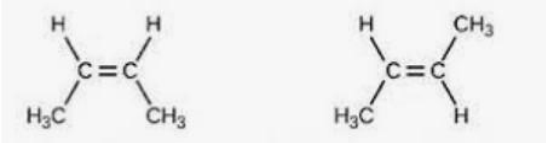
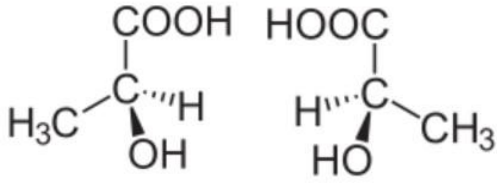
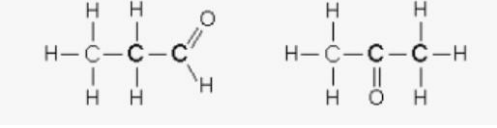
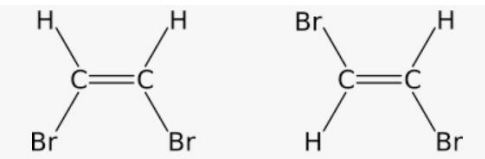
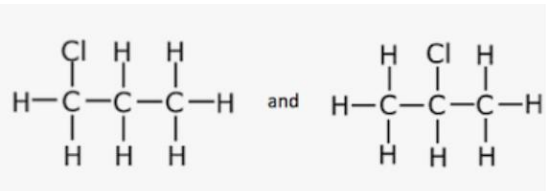
Using the Chart and formulas provided, name each of the following substances.

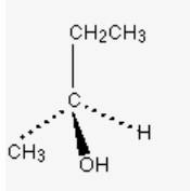
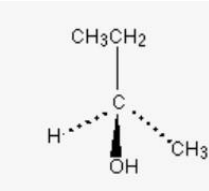
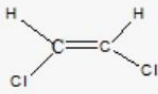
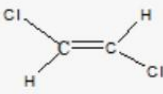
Organic Chemistry Prefixes

Prefix	Number of Carbon atoms	Formula
meth-	1	C
eth-	2	C ₂
prop-	3	C ₃
but-	4	C ₄
pent-	5	C ₅
hex-	6	C ₆
hept-	7	C ₇
oct-	8	C ₈
non-	9	C ₉
dec-	10	C ₁₀

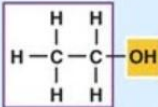
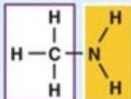
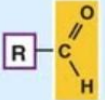
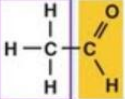
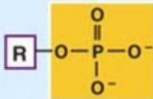
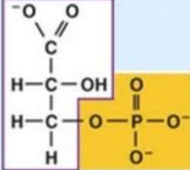
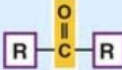
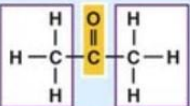
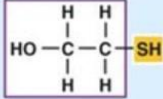
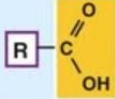
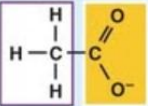
Formula	# of C's	Single Bonds (-ane) C_nH_{2n+2}	Double Bonds (-ene) C_nH_{2n}	Triple Bonds (-yne) C_nH_{2n-2}	Name
CH ₄					
C ₂ H ₄					
C ₂ H ₆					
C ₂ H ₂					
C ₃ H ₆					
C ₈ H ₁₈					
C ₆ H ₁₀					
C ₅ H ₁₀					
C ₄ H ₆					

2. **Isomers:** Label the type of isomer in the chart as either structural, geometric, or enantiomer.

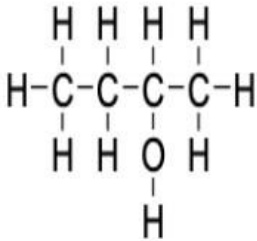
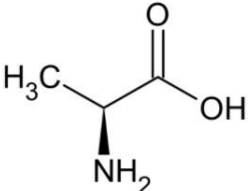
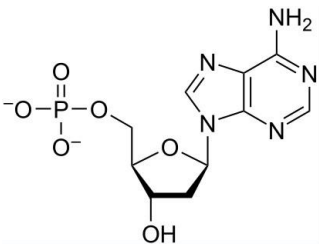
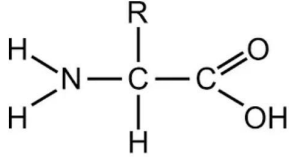
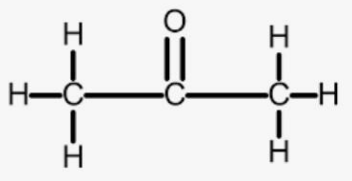
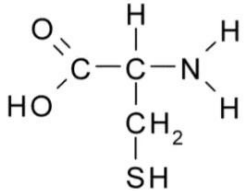
Isomer	Type
	
	
	
	
	
	
	

3. **Functional Groups:** Using the charts as a reference, circle the functional group listed for each substance below:

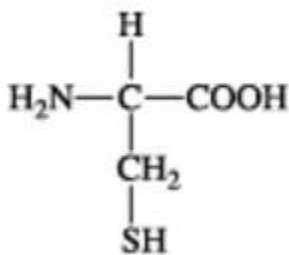
Functional group	Class of compounds and an example	Functional group	Class of compounds and an example
 Hydroxyl	Alcohols  Ethanol	 Amino	Amines  Methylamine
 Aldehyde	Aldehydes  Acetaldehyde	 Phosphate	Organic phosphates  3-Phosphoglycerate
 Keto	Ketones  Acetone	 Sulfhydryl	Thiols  Mercaptoethanol
 Carboxyl	Carboxylic acids  Acetate		

Functional Group	Substance
Sulfhydryl	$\text{H}_3\text{C}-\text{SH}$

Hydroxyl	 <chem>CCCCO</chem>
Amino	 <chem>CC(N)C(=O)O</chem>
Phosphate	 <chem>NC1=NC=NC2=C1N=CN2[C@H]3O[C@@H](COP(=O)([O-])[O-])[C@H](O)[C@H]3O</chem>
Carboxyl	 <chem>[NH3+]C(R)C(=O)[O-]</chem>
Ketone	 <chem>CC(=O)C</chem>
Sulfhydryl	 <chem>NC(CS)C(=O)O</chem>

Aldehyde	$ \begin{array}{c} \text{O} \\ \parallel \\ \text{C}-\text{H} \\ \\ \text{H}-\text{C}-\text{OH} \\ \\ \text{HO}-\text{C}-\text{H} \\ \\ \text{H}-\text{C}-\text{OH} \\ \\ \text{H}-\text{C}-\text{OH} \\ \\ \text{H} \end{array} $
Amino	$ \begin{array}{c} \text{O} \\ \parallel \\ \text{H}_2\text{N}-\text{CH}-\text{C}-\text{OH} \\ \\ \text{R} \end{array} $

4. Label as many functional groups as you can on the structural formulas below.



5. _____

