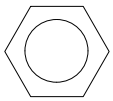
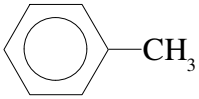
Organic Functional Groups and Nomenclature

Compound	Functional group	Structural formula	Condenses to	Example
alkane	N/A	H H – C – C – H H	– CH_2 – CH_2 – or – CH_2CH_2 –	$CH_3CH_2CH_3$ propane
alkene	alkene	H – C = C – H	– CH = CH – or – CHCH –	CH_3–CH=CH_2 or CH_3CHCH_2 propene
alkyne	alkyne	– C ≡ C –	– C ≡ C – or – CC –	CH_3–C≡CH or CH_3CCH propyne
alkyl halide	halogen	– F – Cl – Br – I	N/A	CH_3CH_2F fluoro ethane CH_3CH_2Cl chloro ethane CH_3CH_2Br bromo ethane CH_3CH_2I iodo ethane
alcohol	hydroxyl	– O – H	– OH	CH_3CH_2OH ethanol
aldehyde	carbonyl (at end of chain)	O || – C – H	– CHO	CH_3CH_2CHO propanal
ketone	carbonyl (in middle of chain)	O || – C –	– CO –	CH_3COCH_3 propanone
carboxylic acid	carboxyl	O || – C – O – H	– COOH	CH_3CH_2COOH propanoic acid
carboxylate ion	carboxylate	O || – C – O^-	– COO^-	$CH_3CH_2COO^-$ propanoate ion
ester	ester	O || – C – O –	– COO –	$CH_3COOCH_2CH_2CH_3$ propyl ethanoate
amine	amino	H – N – H	– NH_2	$CH_3CH_2NH_2$ ethanamine
amide	amide	O H || | – C – N –	– CONH –	$CH_3CH_2CONH_2$ propanamide
benzene	benzene		N/A	 methyl benzene

A blank space beside a bond line means a carbon chain (alkyl group) of any length is bonded there.*
In an amino group, any H in the structure shown can be replaced with an alkyl group.
Structures are often drawn with bonds on angles, and often use a mixture of condensed and expanded forms.
Condensed forms must be drawn backwards (e.g. H_2N– and HO–) in some cases to preserve meaning.

*In alkanes, alkenes, alkynes, aldehydes, carboxylic acids, and amides any of these can be also be a H. The bond that is part of the 'oate' in the ester can also be a H.