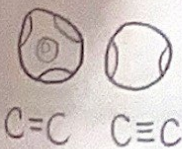


4 holes
single bonds
90°



W → Hydrogen (only functional group)
R → oxygen
B → nitrogen
Bl → carbon

20
20
Molecular

Molecular Models

Use the atomic model kits to assemble models of each of the following sets of molecules. When each set has been assembled, bring the models to your teacher to be checked. Draw each molecule and answer the questions for each set before going on to the next set of molecules.

Molecule Name	Initial	Line Drawing	Questions
cis-but-2-ene	✓		Assemble & draw a third isomer of butene. ✓ ↓
trans-but-2-ene	✓		
propyne	✓	Handwritten: HO-C≡C-H 	

propan-1-ol (a primary alcohol)	✓	HO	Explain the nomenclature 'primary, secondary & tertiary alcohols' (i.e., what is '1' about primary, '2' about secondary & '3' about tertiary alcohols?) Dependent on # of CS bonded to C- bonded to OH group
propan-2-ol (a secondary alcohol)	✓		
2-methylpropan-2-ol (a tertiary alcohol)	✓		

cyclohexane	✓		What is different about benzene compared to cyclohexane & cyclohexene? Benzene has a resonance structure (1 1/2 bonds) cyclohexene has 1 DB cyclohexane has 0 DB Can cyclohexane be assembled differently? Compare your model with others in the class. 11/2 carb
cyclohexene	✓		
benzene	✓		

methyl propyl ether	✓		How is an aldehyde similar to a ketone & an acid? They contain
pentanal	✓		
butanone	✓		How is an aldehyde different from a ketone? An aldehyde has C=O at the terminal of the chain A ketone has C=O at any part within chain
propanoic acid	✓		

ethylamine (a primary amine)	✓		Explain the nomenclature 'primary, secondary & tertiary amines' (i.e., what is '1' about primary, '2' about secondary & '3' about tertiary amines?) That means that it's dependent on # of bonds to Nitrogen number of alkyl groups to C
dimethylamine (a secondary amine)	✓		
ethyl dimethylamine (a tertiary amine)	✓		

2-aminoethanoic acid (glycine to biologists)	✓		What is similar in acids, esters & amides? They all have C=O in their chain (apart of it)
ethyl ethanoate	✓		
N-methyl propanamide	✓		What is the main difference between an ester & an amide? Amide has nitrogen and ester doesn't Amide \rightarrow $\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{N}-\text{R}$ Ester \rightarrow $\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{R}$