

Molecular Models & Covalent Bonding

rev 12/08/2008

For each of the following compounds:

- Construct a model for each molecule; use the following "atoms" from the model kits
 - C = black sphere w/ 4 holes; use all 4 holes for bonds
 - H = white sphere w/ 1 hole
 - N = blue sphere w/ 4 holes; only use 3 holes for bonds
 - O = yellow sphere w/ 4 holes; only use 2 holes for bonds
 - Cl = green sphere w/ 1 hole
 - Br & I (*Use any other spheres with different colors.*); use only 1 hole for bonding in each.
- Draw a correct Lewis structure for each molecule. If the molecule has more than one possible structure, draw at least two isomers.
- Indicate hybridization, electron geometry, and *approximate* bond angles for each C, N and O atom.

	FORMULA & SOME NAMES	LEWIS STRUCTURE(S)	HYBRID-IZATION	e ⁻ GEO-METRY	BOND ANGLES	No. of ISOMERS
1	CH ₄ methane					
2	CH ₂ Cl ₂ dichloro-methane					

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3	NH ₃ ammonia					
4	H ₂ O water					
5	C ₂ H ₆ ethane					
6	C ₃ H ₈ propane					

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7	C ₄ H ₁₀					
8	C ₂ H ₄ Cl ₂					
9	C ₂ H ₆ O					
10	C ₂ H ₄ ethene					

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11	C ₂ H ₂ Cl ₂					
12	C ₃ H ₆					
13	C ₄ H ₈					
14	C ₂ H ₂ ethyne					

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15	C ₃ H ₄					
16	CHClBrI					