

Molecular Geometry Guided Inquiry Tables

24 total
Valence
electrons
Resonance

Molecule	Lewis Dot Structure 1. Indicate # of Valence e's 2. Draw structure	e ⁻ Domain (ED) Geometry X = Central Atom 1. Draw Diagram 2. Name basic ED geo.	Molecular Geometry 1. Draw diagram 2. Provide relevant Bond Angle/s 3. Name specific molecular geometry	Polarity P or NP	Hybridization
NO_3^- *	N-5 30=18 	 Trig planar	 120° Linear	P	sp ²
N_2 *	5+5=10 :N≡N: 	X-X linear	180° :N≡N: Linear	NP	sp
BF_3 *	 24e ⁻ B has 6e ⁻	Trig planar 	Trig planar 120 	NP	sp ²
HF *		X-X	linear 180	P	sp

* = Must show a model to teacher

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Name: _____

Block: _____

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CH_4 *	8 valence e's 	 Tetrahedral			
5+3 NH_3 *	8 valence e's 	 Tetrahedral	 109.5° (actually 107°) Trigonal Pyramidal	P	sp ³
2+6 H_2O *	8 valence e's 	 Tetra	 105 Tetra	P	sp ³
4+12 CO_2 *	16 valence e's :O=C=O: 	X-X Linear	180 O=C=O Linear	NP	sp

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			1. Draw diagram	2. Provide relevant Bond Angle/s		
8+12 C ₂ H ₆ *	20 v.e. 			Tetrahedral 109.5	NP	SP ³
8+4 C ₂ H ₄ *	12 val e ⁻ 			Trig planar 120	NP	SP ²
8+2 C ₂ H ₂ *	10 val e ⁻ 			Linear 180	NP	SP
4+2+6 CH ₂ O *	12 val e ⁻ 			Trig planar 120	P	SP ²

each C is Tetrahedral 109.5

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			1. Draw diagram	2. Provide relevant Bond Angle/s		
3+6-1 H ₃ O ⁺	8 val e ⁻ 			Trig pyramidal	P	SP ³
6+18 SO ₃ RESONANCE	24 val e ⁻ 			Trig planar	NP	SP ²
5+3=8 PH ₃	8 			Tetrahedral 107	P	SP ³
12 O ₂	12 valence e ⁻ 			Linear	NP	SP

← Lone pairs polar

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