

Name _____

Period ____

Lewis Structure Worksheet #1

Read the **Instructions for Drawing Lewis Structures** worksheet carefully and draw Lewis structures for each of the following molecules:

Group A: Simple Molecules

CH ₄	NH ₃	H ₂ O	SiF ₄	NCl ₃
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Group B: Polyatomic Ions

PO ₄ ³⁻	ClO ₃ ⁻	ClO ₄ ⁻	SO ₃ ²⁻
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Group C: Multiple Bonds

H ₂ CO	HCN	CO	CO ₂
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Group D: Incomplete Octets

BCl ₃	BeF ₂
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Group E: Expanded Octets

SF ₆	PCl ₅	BrF ₅	XeF ₄	ClF ₃
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Group F: Multiple Central Atoms

C ₂ H ₆	C ₃ H ₈	C ₂ H ₅ OH	C ₂ H ₄	C ₂ F ₂
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Lewis Structure Worksheet #2

Draw Lewis Structures for each of the following molecules or ions:

1. Br ₂	2. BH ₃
3. O ₂	4. PS ₃ ⁻
5. H ₂ CS	6. CHCl ₃
7. SF ₂	8. SHF
9. N ₂ F ₄	10. XeO ₄
11. N ₂ O ₃ (dinitrogen trioxide)*	12. NO ₂ (nitrogen dioxide)*
13. N ₂ O ₄ (dinitrogen tetraoxide)*	14. N ₂ O ₅ (dinitrogen pentaoxide)*

*Problems 11-14 are more challenging and may have more than one correct structure. Please note that if a molecule has an odd number of valence electrons, at least one atom in the molecule will NOT fulfill the octet rule.

15. Draw two resonance structures for the formate ion, CHO_2^- and calculate the C—O bond order in the molecule.

16. Draw three possible Lewis structures for the cyanate ion, CNO^- , where C is the central atom. Calculate the formal charges of all atoms in each structure. Then, determine the most stable structure for the ion.

17. Draw three possible Lewis structures for N_2O and assign formal charges to the atoms in each molecule. Then, identify the most stable structure for N_2O . (Note: N must be the central atom in each molecule).

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Lewis Structure Worksheet #3

Lewis Structure	Electron Pair Geometry (Electron Pair Arrangement)	Molecular Geometry (Molecular Structure/Shape)	Bond Angle(s)	Polarity	Hybridization
BF ₃					
NO ₂ ⁻					
CCl ₄					
H ₃ O ⁺					
H ₂ S					
PF ₅					

Lewis Structure	Electron Pair Geometry (Electron Pair Arrangement)	Molecular Geometry (Molecular Structure/Shape)	Bond Angle(s)	Polarity	Hybridization
SF ₄					
ICl ₃					
XeF ₂					
SF ₆					
ClF ₅					
XeF ₄					