

Molecular Shape and Polarity

Read from Lesson 3: Covalent Bonding in the Chemistry Tutorial Section, Chapter 6 of The Physics Classroom:

Part a: [Valence Shell Electron Pair Repulsion Theory \(VSEPR\)](#)Part b: [Advanced VSEPR](#)Part c: [Molecular Polarity](#)Part d: [Hybrid Orbitals](#)

Draw each Lewis Structure and then complete the table:

Molecule/Lewis Structure	AXE Notation	e- Pair Geometry	Molecular Geometry	Bond Angle	Hybrid Orbitals	Molecular Polarity
<i>Example: CH₃F</i> <pre> H H - C - F: H </pre>	<i>AX₄</i>	<i>Tetrahedral</i>	<i>Tetrahedral</i>	<i>109.5°</i>	<i>Four sp³</i>	<i>Polar molecule</i>
H ₂ CS						
NO ₂ ⁺						
NO ₂ ⁻						
N ₂ O						

Chemical Bonding

Molecule	AXE Notation	e- Pair Geometry	Molecular Geometry	Bond Angle	Hybrid Orbitals	Molecular Polarity
AsF₃						
AsF₅						
OCl₄						
C₃H₈ <i>Consider geometry around any C</i>						
CH₃COOH <i>Consider geometry around 1st C</i>						
CH₃COOH <i>Consider geometry around 2nd C</i>						