

Table 1: Drawing Lewis structure and determining electron & Bonding domains

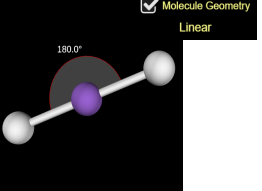
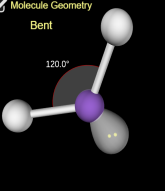
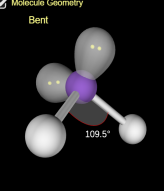
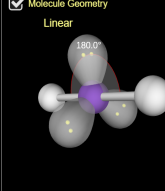
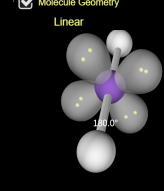
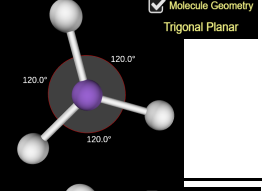
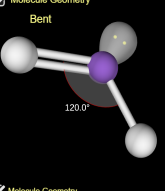
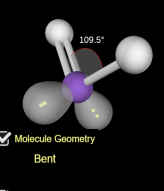
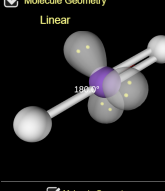
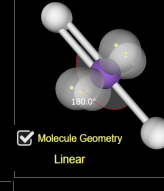
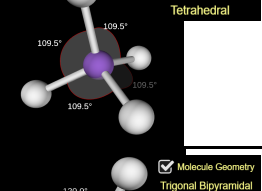
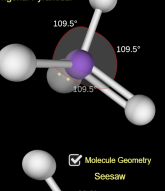
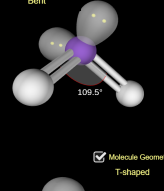
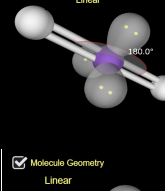
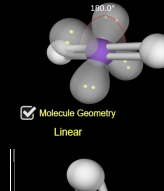
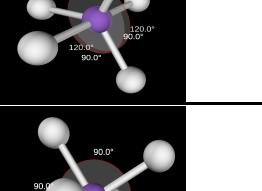
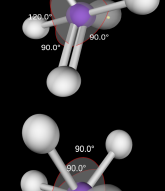
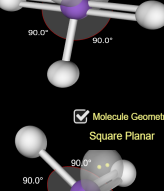
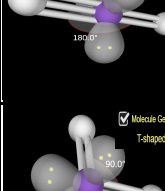
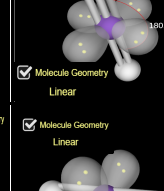
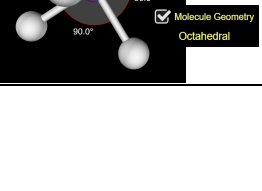
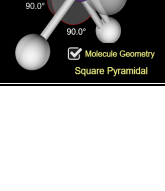
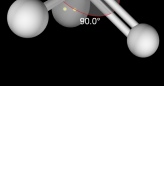
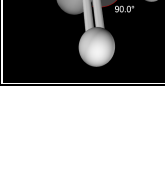
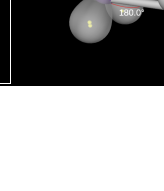
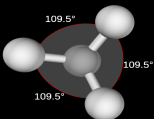
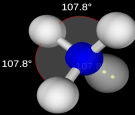
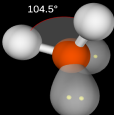
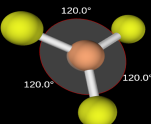
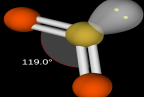
Number of Domains Around Central Atom	Electron Geometry (No lone pairs)	1 Lone Pair	2 Lone Pairs	3 Lone Pairs	4 Lone Pairs
2 Linear					
3 Trigonal Planar					
4 Tetrahedral					
5 Trigonal Bipyramidal					
6 Octahedral					

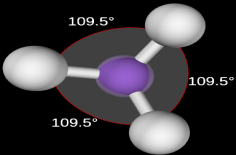
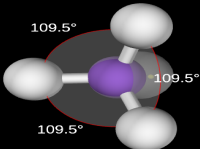
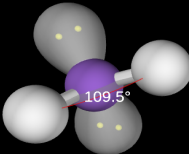
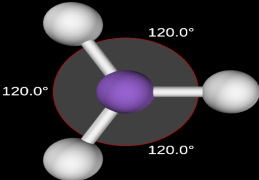
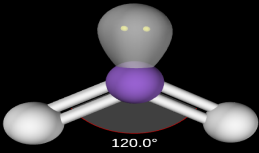
Table 2: Drawing Lewis structure and determining electron & Bonding domains

Formula of compound	Lewis Structure	Bond Angles	# Of bonding e ⁻ groups (central atom)	# Of non-bonding e ⁻ groups (central atom)	# Of total electron groups (central atom)

CH ₄	<input checked="" type="checkbox"/> Electron Geometry Tetrahedral	<input checked="" type="checkbox"/> Molecule Geometry Tetrahedral					
NH ₃	<input checked="" type="checkbox"/> Electron Geometry Tetrahedral	<input checked="" type="checkbox"/> Molecule Geometry Trigonal Pyramidal					
H ₂ O	<input checked="" type="checkbox"/> Electron Geometry Tetrahedral	<input checked="" type="checkbox"/> Molecule Geometry Bent					
BF ₃	<input checked="" type="checkbox"/> Electron Geometry Trigonal Planar	<input checked="" type="checkbox"/> Molecule Geometry Trigonal Planar					
SO ₂	<input checked="" type="checkbox"/> Electron Geometry Trigonal Planar	<input checked="" type="checkbox"/> Molecule Geometry Bent					

3. VSEPR Theory is introduced here using the PhET “Molecule Shapes Interactive Simulation”¹ (<https://phet.colorado.edu/en/simulation/molecule-shapes>). Students should have devices with internet access (preferably through cell phones) for this is a guided activity that introduces students to valence shell electronic pair repulsion theory (VSEPR). It is a group/computer-based activity that takes a few minutes. Students will work in groups and complete the activity sheet.

Table 3: Drawing 3D Model with correct bond angles

Formula of the molecule	3D Model with correct bond angles		
CH ₄			
NH ₃			
H ₂ O			
BF ₃			
SO ₂			

- The worksheet completed by the students will be reviewed by the faculty with the help of PhET simulations software.