NAME: _____ DATE: _____

Molecular Shapes Part 2 at phet.colorado.edu.

Exploratory Lab (10 points)

Learning Goals: Students will be able to:

- ❖ Identify substances to which "Molecular geometry" applies.
- ❖ Name molecule and electron geometries for basic molecules.

Directions:

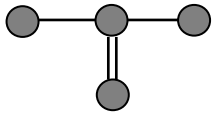
Step 1: Go to http://phet.colorado.edu/en/simulation/molecule-shapes.
Step 2: Run the simulator
Step 3: Check "Molecule Geometry" and "Electron Geometry"
Step 4: Create the molecules listed below by adding and removing bonded atoms and electron clouds.

Complete the table.

Bond Type	**Lone Pairs**	**Molecule Geometry**	**Electron Geometry**	**Bond Angle**	**Sketch**
Double	0				
Double	1				
Double	2				
Double	3				
Double	4				
Double	5				

Bond Type	Lone Pairs	Molecule Geometry	Electron Geometry	Bond Angle	Sketch
Triple	0				
Triple	1				
Triple	2				
Triple	3				
Triple	4				

Now, create molecular shapes with any combination of bonds onto the central atom. The first one is completed for you.

Bond Type	Lone Pairs	Molecule Geometry	Electron Geometry	Bond Angle(s)	Sketch
2 single, 1 double	3	T-shaped	Octahedral	90°	

Post-Lab Question

Create a simplified chart that you could use to identify the shape of a molecule based on the number and type of bonds surrounding the central atom.