

## Molecular Models

<https://phet.colorado.edu/en/simulation/molecule-polarity>

You will digitally build, model, and explore various structures & shapes of covalently bonded molecules following the accompanying Lab Report Form and using an on-line computational program, *MolView*. The Table below is a general scheme for 4 of the most commonly bonded elements that are found in molecules of all living organisms. Complete the table for the respective “electronic”/“VSEPR” shapes and molecular shapes associated with the bonding patterns using the information presented in class. **Retain this page for your reference.**

Symbol	Valence electrons	Number of Bonds	Types	Shape	
				electronic	molecular
C	4	4	4 single		
		4	2 single + 1 double		
		4	1 single + 1 triple		
H	1	1	1 single		
O	6	2	1 double		
		2	2 single		
N	5	3	3 single		
		3	1 single + 1 double		
		3	1 triple		

*MolView* (<http://molview.org>) is an open source, highly intuitive, interactive molecular modeling, computational, visualization program. Take a tour of MolView:

<https://www.youtube.com/channel/UCRP9nXCC59TMIqc-bk1mi3A>

Open the *MolView* page (<http://molview.org>) refer to the Report Form and click on **Get Started**.

The search and drawing features will be used to access & build 3-D molecules and to relate them to Lewis structures in the process. Read through the general description given in the **Drawing structural formulas** Tab. If you know the name of the illustrated chemical formula, the search function can be used. Complete the Lewis structures in the table, which will correspond to the displayed formulas if drawn correctly.

**OPTIONAL:** Using the models, draw 3-D line drawings in the table using the following convention.

**Line:** In the plane of the paper: ———

**Wedge:** Coming forward, in front of the plane of the paper:

**Dash:** Going backward, behind the plane of the paper:

*For example:* The 5 atoms in the CHFCIBr molecule are in the following positions:

in the plane of the paper    H    C    Br   

in front of the plane of the paper    F   

behind the plane of the paper    Cl   

