

Determining Bond & Molecular Polarity: Bonds & molecules are either **Polar** or **Non-Polar**.

1 Complete the chart below (except the last column)

Use Phet Molecule Shapes & <http://bit.ly/2Za8zLb> chart to help with shape names and determining symmetry.

Compound	Atom with greater EN	EN Difference	Type of Bond(s)	Shape	Molecule Symmetry (Y/N)	
HCl						
H ₂ S						
CaO						
PCl ₃						

Molecule Polarity Determined by:

- If all of the bonds are all ionic the polarity is just **"Ionic"**
- If all of the bonds are non-polar covalent then the molecule is **"Non-Polar"**
 - ** Unless there are unbound electrons ***
- If the only bond is polar then the molecule is **"Polar"**
- If one or more of the bonds are polar then look at symmetry:
 - If the polar covalent bonds are arranged in a way that causes them to cancel each other out (ie. linear, tetrahedron, or trigonal planar and all bonds are the same) then the molecules is **"Non-Polar"** due to symmetry
 - If the polar covalent bonds do not cancel each other out (ie. pyramid, linear, or bent) then the molecule is **"Polar"**

2. Label the last column in the chart above "Polar or Non-Polar?" and complete the chart.

3. Complete the chart below.

Compound	Molecule Dot Diagram	Type of Bond(s)	Shape	Molecule Symmetry	Polar or Non-Polar Molecule?
H ₂					
N ₂					

Compound	Molecule Dot Diagram	Type of Bond(s)	Shape	Molecule Symmetry	Polar or Non-Polar Molecule?
O ₂					
CaCl ₂					
CO					
CH ₄					
CO ₂					
NH ₃					
NCl ₃					
CF ₄					
CCl ₄					
NaCl					
H ₂ O					