Steps:

* Determine Lewis dot structure
* Determine shape of molecule using VSEPR
* Determine polarity of bonds
* Use the shape + use knowledge of polar/non-polar bonds to determine molecule polarity

1. Identify which of the following molecules have ionic bonds, and which have covalent bonds.
   1. CaO Ionic
   2. CO Covalent
   3. NaBr Ionic
   4. NCl3 Covalent
   5. Cl2CO Covalent
2. Explain why homonuclear molecules (e.g. H2, Cl2, N2, etc.) are nonpolar.

There is no difference in electronegativity between identical atoms, making the charge consistent across the molecule.

1. Contrast nonpolar covalent bonds, polar covalent bonds, and ionic bonds.

Nonpolar covalent bonds are between atoms with an electronegativity difference <0.4, polar covalent bonds have a difference >=0.4 and <2.0, and ionic bonds have a difference in electronegativity >2.

1. Use the electronegativity trend on the periodic table to determine which atom in each pair has a greater electronegativity.
   1. Carbon or hydrogen: Carbon
   2. Hydrogen or Oxygen: Oxygen
   3. Carbon or Silicon: Carbon
   4. Chlorine or astatine: Chlorine
2. Arrange the following atoms in order from least electronegative to most electronegative: C, F, Cl, N, H, O, P, S
3. Identify whether the following bonds are polar or non-polar.
   1. C-C
   2. C-H
   3. O-H
   4. Se-H
   5. F-H
   6. C=O
   7. N-H
4. Identify whether the following molecules are polar or non-polar abd explain your reasoning. (*hint: draw out the Lewis dot structure and predict the shape using VSEPR before making a decision*).
   1. CO2
   2. H2S
   3. PF3
   4. BF3
   5. H2O
   6. NH3
   7. CH3Cl