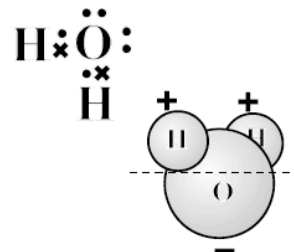


Name: _____

Date: _____

Unit 8 - Topic 4

Polar / Non-Polar Covalent Molecules (Shapes)



To determine if a compound is polar, you must consider the electronegativity difference within each bond and the three dimensional shape of the compound. If the electronegativity difference is greater than 2.0 or close to zero, the compound is not polar. Electronegativity differences around zero are found in molecules with non-polar bonds. Electronegativity differences between 0.4 and 2.0 are found in molecules with polar bonds. These molecules can be polar or non-polar depending on their shapes. Molecules with polar bonds distributed symmetrically are non-polar. Asymmetric molecules with polar bonds are polar. Water is polar. An imaginary line can be drawn through a water molecule separating the positive pole from the negative pole. This is because the charges are distributed asymmetrically. Carbon dioxide is non-polar because the electronegative oxygen atoms are distributed symmetrically around the carbon ($O=C=O$).

Determine if each of the compounds listed below are IONIC, POLAR, or NON-POLAR as follows:

[1] determine the types of bonds. [2] draw electron dot diagrams to determine shape.

Compound	Type of Bond: IONIC, POLAR, or NON-POLAR	Electron Dot Diagram	Type of compound: IONIC, POLAR, or NON-POLAR	Compound	Type of Bond: IONIC, POLAR, or NON-POLAR	Electron Dot Diagram	Type of compound: IONIC, POLAR, or NON-POLAR
HCl				CCl_4			
CH_4				KCl			
Cl_2				N_2			
NH_3				NaBr			

1. WHY is it necessary to draw the Lewis Dot Diagram of a molecule in order to determine if it is a polar molecule or not?

2. Define DIPOLE:
