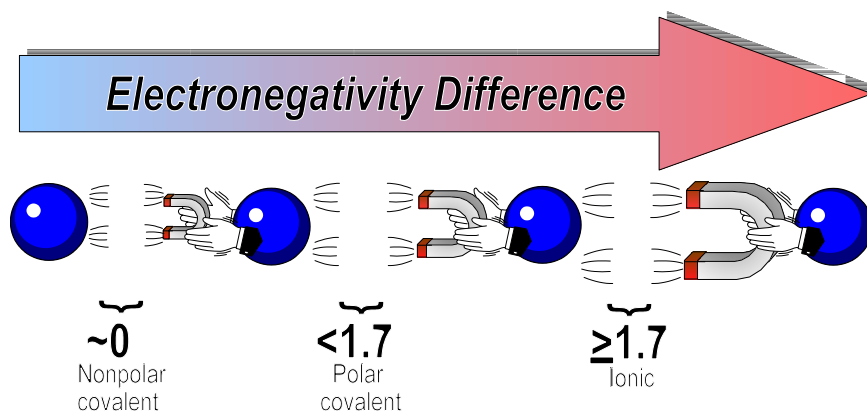


## Bond Type

When atoms combine, there is a tug of war over their valence electrons. The type of bond that forms depends on the outcome of the tug of war. The outcome of the tug of war is determined by the relative strengths of the forces exerted by the atoms. The electronegativity provides a measure of those forces. When the electronegativity difference is greater than or equal to 1.7, the atom with the greater electronegativity gains the electron, and an **ionic bond** is formed. Electronegativity differences below 1.7 result in covalent bonds or sharing. If the electronegativity difference is close to zero ( $<0.4$ ), the atoms share equally and a **nonpolar bond** forms. Higher electronegativity differences (still below 1.7) result in unequal sharing or **polar bonds**.



Fill in the table below by looking up the electronegativities of the elements in each compound. Determine the electronegativity difference and the bond type.

Compound	Electronegativity		Electronegativity Difference	Bond Type Ionic, Polar covalent, Nonpolar covalent
	Metal (low)	Nonmetal (high)		
<u>Example:</u> NaBr	0.9	3.0	2.1	ionic
HCl				
H <sub>2</sub> Te				
KI				
SO <sub>2</sub>				
H <sub>2</sub> O				
CS <sub>2</sub>				
N <sub>2</sub> O <sub>5</sub>				
MgO				