

## Bond Type Practice

Name \_\_\_\_\_

← increasing electronegativity →

	group 1																	18
	H																	He
	2.2	2																
	Li	Be																
	1.0	1.6																
	Na	Mg																
	0.9	1.3	3	4	5	6	7	8	9	10	11	12						
	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
	0.8	1.0	1.4	1.5	1.6	1.7	1.6	1.8	1.9	1.9	1.9	1.7	1.8	2.0	2.2	2.6	3.0	–
	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
	0.8	1.0	1.2	1.3	1.6	2.2	2.1	2.2	2.3	2.2	1.9	1.7	1.8	2.0	2.1	2.1	2.7	2.6
	Cs	Ba	La-Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
	0.8	0.9	1.1-1.3	1.3	1.5	1.7	1.9	2.2	2.2	2.2	2.4	1.9	1.8	1.8	1.9	2.0	2.2	–
	Fr	Ra	Ac-Lr	104	105	106	107	108	109	110	111	112						
decreasing electronegativity ↓	0.7	0.9	1.1-1.7	–	–	–	–	–	–	–	–	–						

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**Part A Directions:** Determine the type of bond that will form between each pair of atoms in the table below. Use the Electronegativity Chart and notes to help you.

Atom 1	Atom 2	Electronegativity Difference ( $\Delta EN$ )	Bond Type (Nonpolar Covalent (NPC), Moderately Polar Covalent (MPC), Very Polar Covalent (VPC), or Ionic (I))
Arsenic	Sulfur		
Cobalt	Bromine		
Germanium	Selenium		
Silicon	Fluorine		
Potassium	Nitrogen		
Nickel	Oxygen		
Barium	Tin		
Hydrogen	Oxygen		
Calcium	Sulfur		
Iron	Carbon		

**Part B Directions:** Draw the Lewis Dot Structure for each compound below. Then, label each bond as either nonpolar covalent (NPC), moderately polar covalent (MPC), very polar covalent (VPC), or ionic (I).

11.  $\text{H}_2\text{O}$

13.  $\text{CO}_2$

12.  $\text{NaCl}$

14.  $\text{PF}_3$

**Part C Directions:** Determine what elements would form each of the 4 bond types with the elements given.

Element	I	VPC	MPC	NPC
15. Boron	Fluorine	Oxygen	Sulfur	Phosphorus
16. Calcium				
17. Sulfur				