

## Chemical Bonding and Octet Rule

Name \_\_\_\_\_ Per \_\_\_\_\_

1. What is a chemical bond?
2. Describe the octet rule (and any exceptions).
3. What family of elements does not form chemical bonds? Explain why this family does not bond.
4. The type of bonding that occurs depends on the difference in \_\_\_\_\_ of the atoms in the bond.

5. Complete the table below:

Type of Bond	E.N difference
	Large (>1.7)
	Small (<1.7)

Use the table below and chart above (#5) to label the following compounds as covalent or ionic:

The table below gives **Pauling Values for Electronegativity**:

H 2.1																	He ....
Li 1.0	Be 1.5											B 2.0	C 2.5	N 3.0	O 3.5	F 4.0	Ne ....
Na 0.9	Mg 1.2											Al 1.5	Si 1.8	P 2.1	S 2.5	Cl 3.0	Ar ....
K 0.8	Ca 1.0	Sc 1.3	Ti 1.5	V 1.6	Cr 1.6	Mn 1.5	Fe 1.8	Co 1.8	Ni 1.8	Cu 1.9	Zn 1.6	Ga 1.6	Ge 1.8	As 2.0	Se 2.4	Br 2.8	Kr ....
Rb 0.8	Sr 1.0	Y 1.2	Zr 1.4	Nb 1.6	Mo 1.8	Tc 1.9	Ru 2.2	Rh 2.2	Pd 2.2	Ag 1.9	Cd 1.7	In 1.7	Sn 1.8	Sb 1.9	Te 2.1	I 2.5	Xe ....
Cs 0.7	Ba 0.9	La-Lu 1.1-1.2	Hf 1.3	Ta 1.5	W 1.7	Re 1.9	Os 2.2	Ir 2.2	Pt 2.2	Au 2.4	Hg 1.9	Tl 1.8	Pb 1.8	Bi 1.9	Po 2.0	At 2.2	Rn ....
Fr 0.7	Ra 0.9	Ac-Lr 1.1-1.7															

6. NH<sub>3</sub>

7. MgO

8. Cl<sub>2</sub>

9. HCl

10. H<sub>2</sub>O

11. NaCl

12. CH<sub>4</sub>

13. NO<sub>2</sub>

Use the octet rule to answer complete the following questions:

14. To achieve a full valence shell, Hydrogen can gain \_\_\_\_\_ electrons or lose \_\_\_\_\_ electrons.
15. To achieve a full valence shell, Magnesium can gain \_\_\_\_\_ electrons or lose \_\_\_\_\_ electrons.
16. To achieve a full valence shell, Nitrogen can gain \_\_\_\_\_ electrons or lose \_\_\_\_\_ electrons.