

LESSON CHEM 3.1 PART 1 – INVESTIGATING CHEMICAL COMPOUNDS

EVIDENCE NOTEBOOK

KEY IDEAS

1. A _____ is a lasting attraction between atoms that enables the formation of chemical compounds.
2. _____ are *good* conductors of heat and electricity and are located on the **left** side of the stair-step line on the periodic table.
3. _____ are usually *poor* conductors of heat and electricity and are located on the _____ side of the stair-step line on the periodic table.
4. _____ are *intermediate* conductors of heat and electricity. They are located on the stair-step line. There are six of them:

- | | | |
|----|----|----|
| 1. | 2. | 3. |
| 4. | 5. | 6. |

5. Bond types:

BOND TYPE	BETWEEN WHAT TYPE OF ATOMS? (METALS OR NON-METALS)	DEFINITION
Ionic		
Covalent		
Metallic		

6. When *magnesium* becomes a stable ion:
- Which noble gas electron configuration would it become?
 - He
 - Ne
 - Ar
 - It would need to:
 - Gain electrons
 - Lose electrons
 - What would be the overall electron change?
 - 1 electron
 - 2 electrons
 - 3 electrons
 - 6 electrons
7. When *sulfur* becomes a stable ion:
- Which noble gas electron configuration would it become?
 - He
 - Ne
 - Ar
 - It would need to:
 - Gain electrons
 - Lose electrons
 - What would be the overall electron change?
 - 1 electron
 - 2 electrons
 - 3 electrons
 - 6 electrons

8. _____ are positively charged ions.

9. _____ are negatively charged ions.

10. Determine the ionic charge for elements located in the following groups:

Charge:								
Group:	1	2	13	14	15	16	17	18
	Li	Be	B	C	N	O	F	Ne
	Na	Mg	Al	Si	P	S	Cl	Ar
	K	Ca	Ga	Ge	As	Se	Br	Kr

NAME: _____ DATE: _____ PERIOD: _____

11. What are the four steps for writing an ionic formula?

Step 1:

Step 2:

Step 3:

Step 4:

12. Write the ionic formula and illustrate the exchange of electrons for the following:

a. Aluminum fluoride

b. Magnesium sulfide

c. Aluminum oxide

13. Salts are: *(select all that apply)*

- a. ionic compounds
- b. covalent compounds
- c. metallic compounds
- d. crystals

14. A _____ is a repeating, symmetrical arrangement of atoms.

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15. Ionic formula practice:

WRITE THE IONIC FORMULAS FOR THE FOLLOWING IONIC COMPOUNDS	WRITE THE NAME FOR THE FOLLOWING COMPOUNDS
1. Potassium bromide	8. LiBr
2. Calcium chloride	9. Na ₂ S
3. Sodium oxide	10. Al ₂ O ₃
4. Aluminum sulfide	11. SrI ₂
5. Magnesium fluoride	12. Rb ₂ O
6. Barium oxide	13. AlF ₃
7. Strontium nitride	14. CaCl ₂

16. A _____ is a model that shows how the valence electrons are arranged among the atoms in the molecule.

17. The rules for writing Lewis structures are:

Step 1:

Step 2:

Step 3:

NAME: _____ DATE: _____ PERIOD: _____

18. Draw the Lewis Structure for:

1. H_2

2. F_2

3. Water H_2O

4. Carbon dioxide CO_2

5. NHO

6. CCl_4

7. C_3H_6

19. Lewis Structure practice:

COMPOUND	LEWIS STRUCTURE	NUMBER OF <i>LONE PAIR</i> ELECTRONS	NUMBER OF <i>SINGLE</i> BONDS	NUMBER OF <i>DOUBLE</i> BONDS	NUMBER OF <i>TRIPLE</i> BONDS
1. HF					
2. N ₂					
3. NH ₃					
4. CH ₄					
5. CF ₄					
6. O ₂					
7. NF ₃					
8. CH ₂ O					
9. H ₂ O					
10. C ₂ H ₆					
11. C ₂ H ₄					
12. C ₂ H ₂					