Unit 5 NAME

Class Work 12/13/13

5.2 Ionic Bonding

SPARK (Take out your textbook work!)

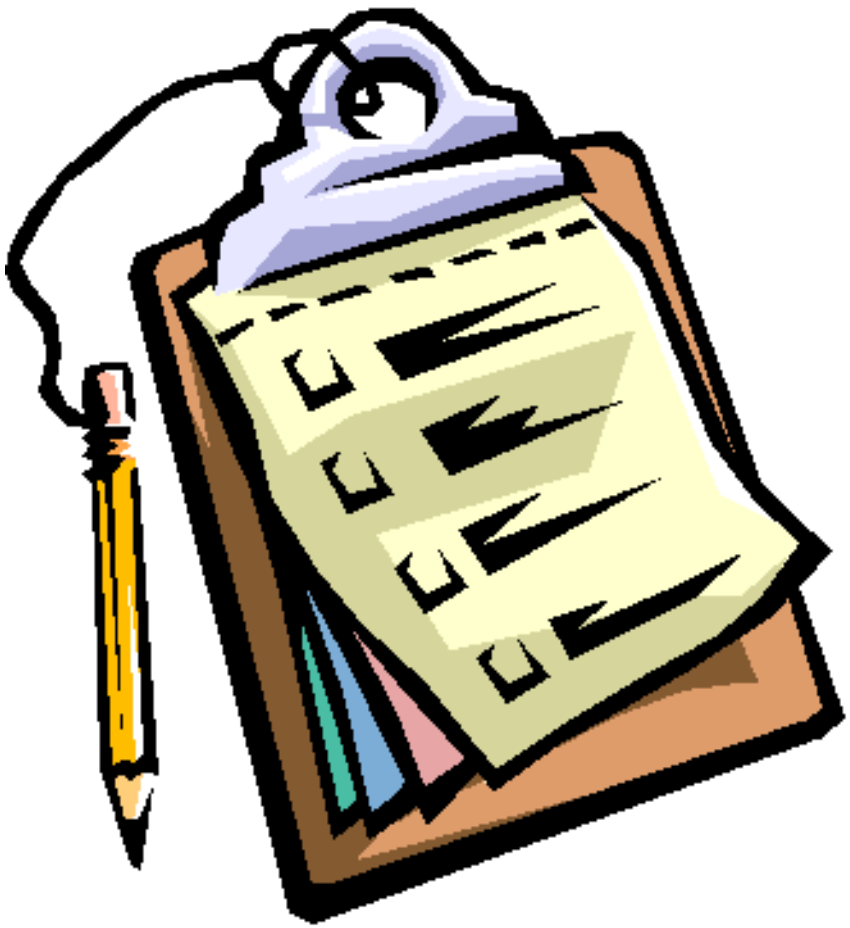
1. Name the following compounds:
   a. MgCl
   b. NaF
   c. SrO

Objective

SWBAT identify, describe and name ionic compounds.

Agenda:

- SPARK/Objective
- Review – chemical formulas
- Lesson
- Practice
- Exit Ticket
- Homework



Objective: SWBAT explain trends in electronegativity

Thought Provoker

- Letters : Words :: Elements : _____??

Chemical Formulas are the language of chemistry!

Formula Review!
Paper Clip Activity!

- Subscript – number of atoms in a compound that is chemically bonded
- Ex. The 2 in H_2O
- Coefficient – the total number of compounds
- Ex. The 3 in 3NaCl

Formula Review!
Paper Clip Activity!

- Butterfly clips = X
- Big paper clips = Y
- Small paper clips = Z

Formula Review!
Paper Clip Activity!

- Creating a model:
- Let's make, Z_2Y

- What about 2X?

- And… $X(YZ)_2$?

Formula Review!
Paper Clip Activity!

- Using the materials in front of you, create the following models:

1. X_2Y_4
2. ZX_2
3. $3Y$
4. X_2Z
5. $X_2(YZ_3)_3$

Raise your hand to get your models approved!

Formula Review!
Paper Clip Activity!

- Create at least five models (add more to the back!) and quiz your partner!
- Turn in this sheet when you are finished and make sure the following words are in your glossary:

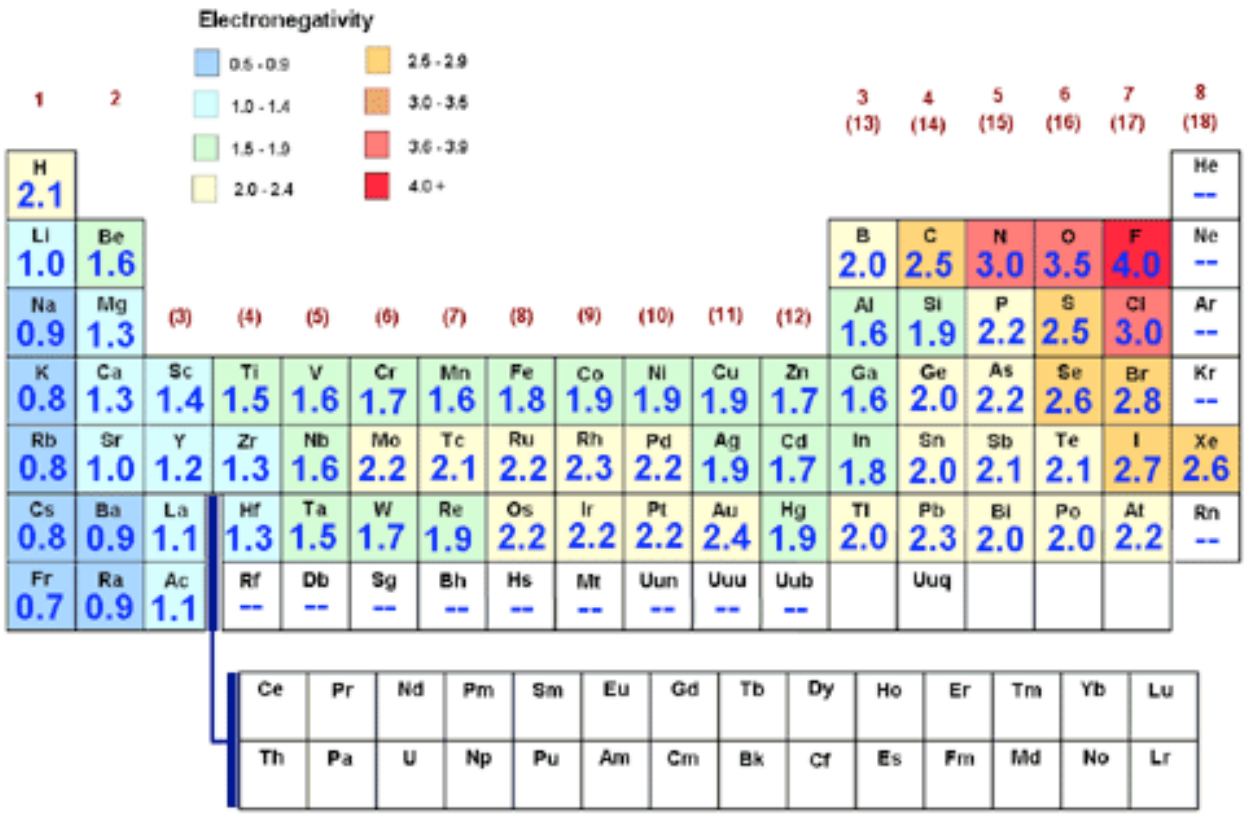
1. Ionic Radius
2. Ionic Compound
3. Covalent Compound

Review of Electronegativity

- What is electronegativity in your own words?

Electronegativity

- **The tendency of an atom to attract electrons to itself when it is bonded to another atom**



Electronegativity and Bonding

- The greater the difference in electronegativity, the more likely a transfer of electrons or an ionic bond will occur.

Type of Bond	**Difference in Electronegativity**
Ionic	>2.0
Covalent	≤ 2.0

Electronegativity and Bonding

- What is the difference in electronegativity of Li and F?

Li and F form a _____ bond because _____

- What is the difference in electronegativity of H and S?

H and S form a _____ bond because _____

Use Table S to determine what kind of bond will form between the following atom pairs:

1) H and H
2) H and F
3) H and C
4) Rb and F
5) C and O

IONIC Compounds

CATIONS

Typically formed by metals.

Naming Rule:

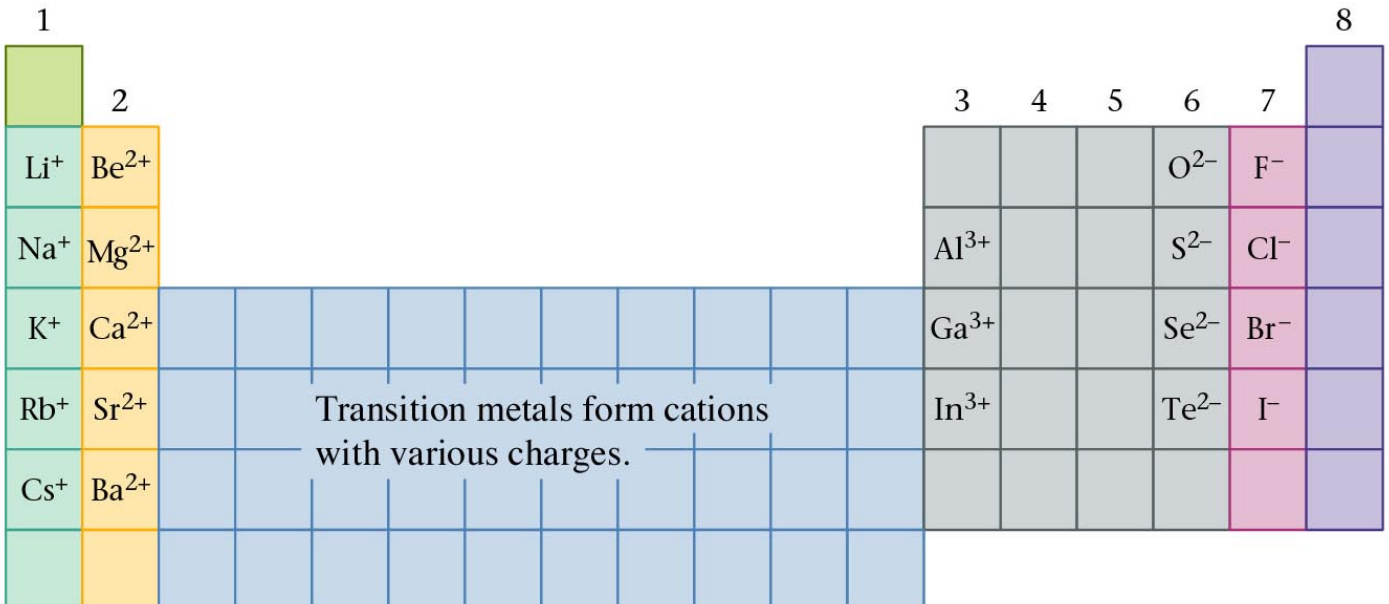
***element* ion**

ANIONS

Typically formed by nonmetals.

Naming Rule:

***root + "ide"* ion**



Naming Ionic Compounds

- What compound would Lithium and Fluoride form?

- Li^+ is called a Lithium ion
- F^- is called a Fluoride ion
- The ionic compound LiF is called Lithium Fluoride.

KEY IDEAS!

- Metals lose electrons, nonmetals gain electrons.
- Electrons lost must equal electrons gained.
- Total charge of the compound will equal zero.

Ionic Compound Naming #1 – Lewis Dot Method

1) Find electron config
2) Determine electrons lost/gain
3) Write chemical equation in Lewis Dot Diagrams

- Ex. Potassium and Oxygen

Your Turn!

1) Find electron config
2) Determine electrons lost/gain
3) Write chemical equation in Lewis Dot Diagrams

- Ex. Calcium and Chlorine

Ionic Compound Naming #2 – Criss Cross Method

1. Find the charges of the ions (use your periodic tables and reference sheet!)
2. CRISS CROSS!

Example: Aluminum Oxide

Al^{3+} O^{2-}

Al_2O_3

Al_2O_3

Name of cation Name of anion

Aluminum Oxide

Your Turn!

- Ex. Potassium and Oxygen

Ionic Compound Naming #1 – Box Method!

- Find the chemical formula of Potassium and chloride

Ionic Compound Naming #1 – Box Method!

- Find the chemical formula of Magnesium and Bromine

Practice #1

- Identify the formula for Magnesium Nitride.

Practice #2

- Identify the formula for Potassium Bromide.

CFU!

For the following ionic compounds:

- write the name of the compound for: $BaCl_2$

- write the formula of the compound for: Sodium Oxide

5.2 Independent Work!

- Practice problems on your own.

Exit Ticket

Write the formula for a compound formed between:

1) Rb and O
2) Ba and N

3) Why is NaCl a ionic compound?

HOMEWORK

Finish 5.2 independent practice sheet!

Objective: SWBAT demonstrate mastery of Unit 4 topics!