**Chemical Bonds – Ionic Bonds**

1. **Identify the *Number of Valance Electrons* and *Draw the Lewis Dot Structure***

Notes: Scientists use *Lewis Dot Structures* to show the valance electrons of an element as dots. Since bonding involves the valance shell electrons only, it is only necessary to illustrate those outer electrons.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element** | **Bohr Diagram** | **Group Number (PT)** | **# of Valance Electrons** | **Lewis Dot Structure** |
| Calcium |  |  |  |  |
| Carbon |  |  |  |  |
| Hydrogen |  |  |  |  |
| Helium |  |  |  |  |
| Oxygen |  |  |  |  |
| Fluorine |  |  |  |  |
| Neon |  |  |  |  |
| Sodium |  |  |  |  |
| Aluminum |  |  |  |  |

**Determining the Ionic Charge**

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Property** | **Before Making an Octet** | **After Making an Octet** |
| **Li** | **electron config** |  |  |
| **# protons** |  |  |
| **#electrons** |  |  |
| **charge** |  |  |
| **Bohr Diagram** |  |  |
| **Lewis Dot Structure** |  |  |
| **Be** | **electron config** |  |  |
| **# protons** |  |  |
| **#electrons** |  |  |
| **charge** |  |  |
| **Bohr Diagram** |  |  |
| **Lewis Dot Structure** |  |  |
| **B** | **electron config** |  |  |
| **# protons** |  |  |
| **#electrons** |  |  |
| **charge** |  |  |
| **Bohr Diagram** |  |  |
| **Lewis Dot Structure** |  |  |

Skip Carbon

|  |  |  |  |
| --- | --- | --- | --- |
| **N** | **electron config** |  |  |
| **# protons** |  |  |
| **#electrons** |  |  |
| **charge** |  |  |
| **Bohr Diagram** |  |  |
| **Lewis Dot Structure** |  |  |
| **O** | **electron config** |  |  |
| **# protons** |  |  |
| **#electrons** |  |  |
| **charge** |  |  |
| **Bohr Diagram** |  |  |
| **Lewis Dot Structure** |  |  |
| **F** | **electron config** |  |  |
| **# protons** |  |  |
| **#electrons** |  |  |
| **charge** |  |  |
| **Bohr Diagram** |  |  |
| **Lewis Dot Structure** |  |  |
| **Ne** | **electron config** |  |  |
| **# protons** |  |  |
| **#electrons** |  |  |
| **charge** |  |  |
| **Bohr Diagram** |  |  |
| **Lewis Dot** |  |  |

**Making Ions – Ionic Bonds are made of Ions. A strong understanding of Ions is needed.**

Notes: Remember that Metals tend to lose their electrons, falling back to their inner octet, becoming smaller, forming positive “cations”. Nonmetals tend to gain electrons, filling up their current energy levels, becoming larger, forming negative “anions”. *Complete the chart below*.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element** | **Lewis Dot** | **# of Valance e-** | **Gain/Lose \_\_\_ e-** | **Valance Charge** |
| Na |  | 1 | L 1 | +1 |
| Be |  |  |  |  |
| Cl |  |  |  |  |
| S |  |  |  |  |
| Al |  |  |  |  |
| Ne |  |  |  |  |
| K |  |  |  |  |
| N |  |  |  |  |
| O |  |  |  |  |
| Ca |  |  |  |  |
| P |  |  |  |  |
| B |  |  |  |  |
| Mg |  |  |  |  |

**Lewis Dot, Formula Unit & Naming Practice Sheet**

**Notes:**

1. An **ionic bond** is an attraction of a *cation* for an *anion* resulting from the transfer of electrons. Remember, the smaller nonmetals are more electronegative and pull the electrons close, away from the larger, less electronegative metals.
2. When naming ionic compounds, the Metal is named first, followed by the nonmetal with an –ide ending. *Ex. Sodium Fluorine becomes Sodium Fluoride.*
3. **Formula Unit:** Lowest whole number ratio of elements in the compound. Ex. Ca3N2

|  |  |
| --- | --- |
| 1. Draw the Lewis Structure for Mg & Cl  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: | 2. Draw the Lewis Structure for Mg & S  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: |
| 3. Draw the Lewis Structure for K & F  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: | 4. Draw the Lewis Structure for K & O  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: |
| 5. Draw the Lewis Structure for Be & N  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: | 6. Draw the Lewis Structure for Ca & P  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: |
| 7. Draw the Lewis Structure for Al & F  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: | 8. Draw the Lewis Structure for Ca & I  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: |
| 9. Draw the Lewis Structure for Rb & O  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: | 10. Draw the Lewis Structure for Sr & F  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: |
| 11. Draw the Lewis Structure for Al & Cl  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: | 12. Draw the Lewis Structure for Mg & P  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: |
| 13. Draw the Lewis Structure for B & O  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: | 14. Draw the Lewis Structure for Be & S  Formula Unit: \_\_\_\_\_\_\_\_\_  Name of Compound: |

**Write the Formula / Formula Unit for the following Compounds**

Determining the formula for Magnesium Fluoride?

1. Identify the charges = **Mg2+ F1**
2. Cross the Charges, **Mg2+ F1** = **Mg1F2**
3. If the subscript is a 1 it does not need to be written.
4. If there is a common subscript such as 2 as in **Mg2O2**, reduce it to **Mg1O1** which is also **MgO**.

**Write Formula Unit For the Below Ionic Compounds**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Name** | **Cation (+)** | **Anion (-)** | **Formula** |
| 1 | Sodium Chloride | **Na1+** | **Cl1-** | **Na1+1Cl1-1 = NaCl** |
| 2 | Aluminum Chloride | **Al3+** | **Cl1-** |  |
| 3 | Aluminum Phosphide |  |  |  |
| 4 | Magnesium Oxide |  |  |  |
| 5 | Cesium Fluoride |  |  |  |
| 6 | Strontium Nitride |  |  |  |
| 7 | Lithium Sulfide |  |  |  |
| 8 | Calcium Chloride |  |  |  |
| 9 | Sodium Bromide |  |  |  |
| 10 | Beryllium Iodide |  |  |  |
| 11 | Strontium Fluoride |  |  |  |
| 12 | Aluminum Fluoride |  |  |  |
| 13 | Potassium Nitride |  |  |  |
| 14 | Sodium Sulfide |  |  |  |
| 15 | Lithium Oxide |  |  |  |
| 16 | Calcium Oxide |  |  |  |

# *Polyatomic Ions WS*

Ammonium (NH4)1+

Carbonate (CO3)2-

Chromate (CrO4)2-

Dichromate (Cr2O7)2-

Hydroxide (OH)1-

Nitrate (NO3)1-

Nitrite (NO2)1-

Sulfate (SO4)2-

Sulfite (SO3)2-

Phosphate (PO4)3-

***Write the NAME of each of the following compounds.***

1. (NH4)Cl \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Be(SO4) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. (NH4)3N \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. MgCl2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. NH4(NO3)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Sr3(PO4)2  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Zn(CrO4)2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. K2(Cr2O7)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. Ga(ClO3)3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Cu(OH)\*\*\*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. (NH4)3(PO4)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. Fe(SO4)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
13. Mg(NO3)2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
14. (NH4)NO2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Na2(Cr2O7)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Na(OH) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Write the CHEMICAL FORMULA for each of the given NAMES…………cross charges**

1. calcium carbonate Ca2+ (CO3)2- = Ca2(CO3)2 = CaCO3
2. barium nitrate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. ammonium sulfate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. aluminum hydroxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­\_
5. calcium phosphate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. cesium nitrate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. sodium nitrite \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. calcium sulfate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. beryllium sulfate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. sodium carbonate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. magnesium phosphate\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. calcium phosphate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Variable Charge Cations**

**Notes**:

* 1. Some cations can have many charges, they are known as variable charge cations
  2. It is important to note the charge of the cation when naming the ionic compound

Ex: Tin (VI) Oxide….where VI is the charge on tin.

1. **Draw SnO3 instead as a picture of Atoms:**

Total Charge on Oxygen = -6

Total Charge on Tin = +6

Individual Charge on Tin = +6

Name of Compound = **Tin (VI) Oxide**

1. Draw Au3N as a picture of Atoms:

Name of Compound = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Draw Sn2O3 instead as a picture of Atom

Name of Compound = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Draw Ag1O3 instead as a picture of Atom

Name of Compound = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. **What is the name of SnO3?**

*Tin Oxide = Wrong Answer*

Since tin has more than once charge, the charge needs to be determined so it can be included in the name.

The charge on tin was calculated to be +6, therefore the +6 is included in the naming of the compound. Once again, this is only done with metals with more than one charge.

1. What is the name of Sn2O3?
2. What is the name of CuN?
3. What is the name of Au3N?
4. What is the name of CuNO3?

**Complete the Following Questions on Formula Units**

1. What is the Formula Unit for Silver (III) Nitride \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the Formula Unit for Vanadium (III) Chloride \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is the Formula Unit for Lead (IV) oxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What is the Formula Unit for Silver (II) Nitride \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What is the Formula Unit for Vanadium (II) Chloride \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. What is the Formula Unit for Lead (II) oxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Write the formula for the *variable* charged *binary* ionic compounds:**

1. Nickel (II) chloride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Gold (III) oxide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Cobalt (II) phosphide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Copper (I) bromide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Iron (III) chloride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Copper (II) chloride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Copper (I) bromide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. Cobalt (II) phosphide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. Manganese (III) bromide\_\_\_\_\_\_\_\_\_\_\_\_
10. Iron (III) fluoride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Name the variable charged compounds……use I, II, III, IV**

1. Pb Br4\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Pb3 N2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Cu2 S\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Pb O2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Cu Br\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Cu O\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Ni O2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Cu2 S\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# *Ions in Chemical Compounds*

Complete the following table, being sure that the total charge on the resulting compound is *zero*.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Ions | **Chloride**  **Cl1-** | **Hydroxide**  **(OH)1-** | **Nitrate**  **(NO3)1-** | **Sulfate**  **(SO4)2-** | Sulfide S2- | Carbonate (CO3)2- | **Phosphate(PO4)3-** |
| Hydrogen **H** |  |  |  |  |  |  |  |
| **Sodium**  **Na** |  |  |  |  |  |  |  |
| **Ammonium**  **NH41+** |  |  |  |  |  |  |  |
| Potassium **K** |  |  |  |  |  |  |  |
| Calcium **Ca** |  |  |  |  |  |  |  |
| Magnesium **Mg** |  |  |  |  |  |  |  |
| Aluminum **Al** |  |  |  |  |  |  |  |
| **Iron (I)**  **Fe** |  |  |  |  |  |  |  |
| **Iron (II)**  **Fe** |  |  |  |  |  |  |  |
| Strontium **Sr** |  |  |  |  |  |  |  |
| **Iron (III)**  **Fe** |  |  |  |  |  |  |  |
| Lead (II) **Pb** |  |  |  |  |  |  |  |
| Tin (IV) **Sn** |  |  |  |  |  |  |  |
| **Copper (I)**  **Cu** |  |  |  |  |  |  |  |
| **Hydrogen**  **H** |  |  |  |  |  |  |  |

Ionic Review

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Element** | **# of Valance e-** | **# of e- Gain or Lose** | **Ionic Charge** |
| **1** | **Cl** |  |  |  |
| **2** | **Na** |  |  |  |
| **3** | **Mg** |  |  |  |
| **4** | **O** |  |  |  |
| **5** | **N** |  |  |  |
| **6** | **Al** |  |  |  |
| **7** | **Xe** |  |  |  |

**Below, pay attention what is given and what is being asked. The chart below is not how the test will be worded. Refer to handouts for additional examples.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Name** | **Cation** | **Anion** | **Chemical Formula** |
| 8 | Potassium Sulfide |  |  |  |
| 9 | Potassium Phosphide |  |  |  |
| 10 | Beryllium Fluoride |  |  |  |
| 11 |  |  |  | Sr I2 |
| 12 |  | K | F |  |
| 13 |  | Ca | O |  |
| 14 | Copper (II) Fluoride |  |  |  |
| 15 | Tin (I) Sulfide |  |  |  |
| 16 |  |  |  | AgO2 |
| 17 |  | Al | (CO3)2- |  |
| 18 |  |  |  | Na(SO4)2- |
| 19 | Xenon |  |  |  |

# NAME the Ionic Compound

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Ca I2
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mg O
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\*\*\*Cu S
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\*\*\*Cr N
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\*\*\*V3 (PO4)2
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Li2S
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Mg(NO3)2
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Be3(PO4)2
9. How are Ionic Bonds formed and what is the attractive force within an Ionic Bond?
10. Draw the transfer of electrons within ***Aluminum Chloride***.
    1. Using Lewis Dot Structures:
    2. Write the Chemical Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. Draw the transfer of electrons within ***Barium Sulfide***.
    1. Using Lewis Dot Structures:
    2. Write the Chemical Formula:\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. Show what would happen if ***Ba2+*** and ***F1‑*** bonded.
    1. Criss-Cross
    2. Name of Compound: \_\_\_\_\_\_\_\_\_\_\_\_
    3. Chemical Formula: \_\_\_\_\_\_\_\_\_\_\_
13. Show what would happen if ***Chromium (II)*** and ***Sulfur*** bonded.
    1. Criss-Cross
    2. Name of Compound: \_\_\_\_\_\_\_\_\_\_\_\_
    3. Chemical Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_
14. From the review sheet, list an example of a **POLYATOMIC Ion**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
15. From the review sheet, list an example of a **BINARY** ionic compound: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
16. From the review sheet, list an example of a **TERNARY** ionic compound:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
17. Explain what is meant when at atom gains or loses an electron in reference to the octet rule.
18. Ho do you distinguish between an **ionic** and a **covalent** compound?\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ionic Review

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Element** | **# of Valance e-** | **# of e- Gain or Lose** | **Ionic Charge** |
| **1** | **Cl** |  |  |  |
| **2** | **Na** |  |  |  |
| **3** | **Mg** |  |  |  |
| **4** | **O** |  |  |  |
| **5** | **N** |  |  |  |
| **6** | **Al** |  |  |  |
| **7** | **Xe** |  |  |  |

**Below, pay attention what is given and what is being asked. The chart below is not how the test will be worded. Refer to handouts for additional examples.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Name** | **Cation** | **Anion** | **Chemical Formula** |
| 8 | Potassium Sulfide |  |  |  |
| 9 | Potassium Phosphide |  |  |  |
| 10 | Beryllium Fluoride |  |  |  |
| 11 |  |  |  | Sr I2 |
| 12 |  | K | F |  |
| 13 |  | Ca | O |  |
| 14 | Copper (II) Fluoride |  |  |  |
| 15 | Tin (I) Sulfide |  |  |  |
| 16 |  |  |  | AgO2 |
| 17 |  | Al | (CO3)2- |  |
| 18 |  |  |  | Na(SO4)2- |
| 19 | Xenon |  |  |  |

# NAME the Ionic Compound

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Ca I2
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mg O
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\*\*\*Cu S
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\*\*\*Cr N
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\*\*\*V3 (PO4)2
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Li2S
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Mg(NO3)2
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Be3(PO4)2
9. How are Ionic Bonds formed and what is the attractive force within an Ionic Bond?
10. Draw the transfer of electrons within ***Aluminum Chloride***.
    1. Using Lewis Dot Structures:
    2. Write the Chemical Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. Draw the transfer of electrons within ***Barium Sulfide***.
    1. Using Lewis Dot Structures:
    2. Write the Chemical Formula:\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. Show what would happen if ***Ba2+*** and ***F1‑*** bonded.
    1. Criss-Cross
    2. Name of Compound: \_\_\_\_\_\_\_\_\_\_\_\_
    3. Chemical Formula: \_\_\_\_\_\_\_\_\_\_\_
13. Show what would happen if ***Chromium (II)*** and ***Sulfur*** bonded.
    1. Criss-Cross
    2. Name of Compound: \_\_\_\_\_\_\_\_\_\_\_\_
    3. Chemical Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_
14. From the review sheet, list an example of a **POLYATOMIC Ion**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
15. From the review sheet, list an example of a **BINARY** ionic compound: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
16. From the review sheet, list an example of a **TERNARY** ionic compound:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
17. Explain what is meant when at atom gains or loses an electron in reference to the octet rule.
18. Ho do you distinguish between an **ionic** and a **covalent** compound?\_\_\_\_\_\_\_\_\_\_\_\_\_\_