**Unit 3: Extra Practice**

**Periodic Table**

1. List 3 trends that you notice as we travel across a period on the periodic table.
2. List 3 trends that you notice as we travel down a family on the periodic table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Symbol** | **Family Name** | **Valence Electrons** | **Oxidation Number** |
| Potassium |  |  |  |  |
| Phosphorus |  |  |  |  |
| Bromine |  |  |  |  |
| Neon |  |  |  |  |
| Copper |  |  |  |  |
| Magnesium |  |  |  |  |
| Iron |  |  |  |  |
| Helium |  |  |  |  |

**Ionic vs Covalent**

|  |  |  |
| --- | --- | --- |
|  | **Ionic Bonds** | **Covalent Bonds** |
| Between metal and nonmetal | YES |  |
| Between 2 non metals |  | YES |
| High melting points |  |  |
| Generally gas or liquid at room temperature |  |  |
| Strong bonds |  |  |
| Sharing electrons |  |  |
| Use greek prefixes within names |  |  |
| Use roman numerals when naming transition metals |  |  |
|  | **Ionic Bonds** | **Covalent Bonds** |
| Can include transition metals |  |  |
| Transferring electrons |  |  |
| Drawn with arrows showing electron movement |  |  |
| Drawn with lines to indicate electrons being shared |  |  |
| Product is always a NEUTRAL compound, meaning oxidation numbers add up to zero. |  |  |
| Conduct electricity when in solution |  |  |
| Also called a molecule |  |  |
| Generally a crystalline structure when solid |  |  |

**Ionic vs Covalent Drawings:** Figure out if it is: Ionic/Covalent, the Formula, and Draw the Structure.

|  |  |
| --- | --- |
| **Sodium fluoride**  Ionic/Covalent: \_\_\_\_\_\_\_\_\_\_\_\_  Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_  Draw: | **Phosphorus trihydride**  Ionic/Covalent: \_\_\_\_\_\_\_\_\_\_\_\_  Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_  Draw: |
| **Oxygen Molecule (O2)**  Ionic/Covalent: \_\_\_\_\_\_\_\_\_\_\_\_  Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_  Draw: | **Barium Bromide**  Ionic/Covalent: \_\_\_\_\_\_\_\_\_\_\_\_  Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_  Draw: |
| **Copper (III) oxide**  Ionic/Covalent: \_\_\_\_\_\_\_\_\_\_\_\_  Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_  Draw: | **Dinitrogen trioxide**  Ionic/Covalent: \_\_\_\_\_\_\_\_\_\_\_\_  Formula: \_\_\_\_\_\_\_\_\_\_\_\_\_  Draw: |

**Compound Name: Ionic/IonicTransition/Covalent? Write the Formula:**

1. Sodium fluoride \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Phosphorus trihydride \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Aluminum oxide \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Carbon monoxide \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Iron (III) chloride \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Sodium Nitride \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Dinitrogen trioxide \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. Copper (III) oxide \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. Dioxygen diflouride \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Nickel (II) oxide \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Compound Formula Ionic/IonicTransition/Covalent? Write the Formula:**

1. SO2 \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Mg3P2 \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. ZnCl2 \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. CO \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Li2O \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Cu2O3  \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. C3H8  \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. BaBr2 \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. NiO \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. BrF5 \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**HONORS ONLY for the rest of the study guide:**

**Define Polyatomic Ion:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Use the table below. If I give you the formula, write the name. If I give you the name, write the formula.

|  |  |  |  |
| --- | --- | --- | --- |
| **Polyatomic Ion** | **Oxidation Number** | **Polyatomic Ion** | **Oxidation Number** |
| Phosphate (PO4) | 3- | Nitrate (NO3) | 1- |
| Carbonate (CO3) | 2- | Sulfate (SO4) | 2- |
| Ammonium (NH4) | 1+ | Acetate (C2H3O2) | 1- |
| Hydroxide (OH) | 1- | Hydronium (H3O) | 1+ |

1. K2(CO3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. (NH4)2S \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Mg(OH)2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Ca3(PO4)2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Calcium Sulfate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Sodium Nitrate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Ammonium Nitrate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Hydronium phosphate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_