**NOTES: Compounds,Molecules, Formulas and Bonding**

**Important to know!**

* **Elements are made up of only one type of atom**

 **such as Hydrogen = H2 or Copper = Cu**

* **Molecules are made up of two or more atoms**

 **such as Cl2 or CO2**

* **The a compound is made up of 2 or more atoms from different elements.**

**such as K2S**

**What is a compound?**

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ joined together by chemical bonds**
* **The substance has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ properties than the elements that make it up.**
* **The elements making up the compound exist in specific ratios**

**Ex. Water = H2O Contains:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Chemical formulas of Compounds /Molecules show:**

1. **The proportion of each element present in the substance**
2. **The elements present in a substance**
3. **Number of atoms of each element in the substance**
4. **Parentheses may be used to show groups of atoms that stay together and behave as a unit**

**E.g. CO 2 =**

**E.g. Ca(NO3)2 =**

**How many atoms are in the following compound: Ca3N2 ?**

**Try the Following:**

**1) How many different elements are in the following compound? Al (OH)3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **How many atoms are in this compound? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2) How many elements different are in the following compound? (NH4)3 PO4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**How many atoms are in this compound? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2 Types of Compounds**

|  |
| --- |
|  |
| * Electrons \_\_\_\_\_\_\_\_\_\_\_\_\_ between two or more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_atoms
* Form “molecules” a neutral particle made up of atoms joined by covalent bonds
* Bonding due to electron sharing
 | * Electrons \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_from metal to non-metal to create oppositely charged ions
* Form “ionic lattice”
* Bonding due to attraction between oppositely charged ions (+/-attraction)
 |

**Covalent Compounds**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms share electrons to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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|  |  |
| --- | --- |
| **Example 1** H­2O | **Example 2** CH4 |
|  |  |

**Diatomic molecules: Non-metal elements that always exist as two atoms

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_covalently bonded together.**

**Ionic Compounds**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ transfer electrons to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to create a bond.**

**Example** NaCl



\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charged Sodium ions are attracted to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charged Chloride ions



Ions come together to form an \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

All \_\_\_\_\_\_\_\_\_\_ ions attract all \_\_\_\_\_\_\_\_\_\_ ions to form a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (eg. grains of salt).

**Polyatomic Ions -**.A group of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonded chemically to each other that has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Some examples of polyatomic ions are:

**Do This:** Refer to text pages 76-80;

Complete: *Ions vs Atoms vs Compounds* and Comparison Sheets (Mark with keys on Website)