Science 10 Name
Number #

**Ionic Compounds**

|  |
| --- |
| **Slide 2 – Atoms vs Molecules vs Compounds*** **ATOMS**
	+ Example: an atom of hydrogen (H) or an atom of calcium (Ca)
* **MOLECULES**
	+ Example: H2 or O2 or H20 or HCl
* **COMPOUNDS**
	+ Example: H20, HF, NH3 or CH4
 |

|  |
| --- |
| **Slide 3 – Forming Compounds*** When atoms move close together, their valence electrons interact
* A bond will form if the electrons become more stable (become an octet)
* Electrons become more stable by either:
	+
 |

|  |
| --- |
| **Slide 4 – Types of Bonding**There are two main types of chemical bonding:* **IONIC BONDING**
	+ - Example: Na + Cl = NaCl
* **COVALENT BONDING (We’ll get to this later)**
	+ When atoms share electrons with other atoms

Example: H2 + O = H20 |

|  |
| --- |
| Slide 5 – Ionic Bonding* An ionic compound contains a POSITIVE ion (usually a METAL) and a NEGATIVE ion (usually a non-metal)
* EX:
* In ionic bonding one or more electrons TRANSFERS from each atom of METAL to each atom of NON-METAL
 |

|  |
| --- |
| Slide 6 – Example of an Ionic Compound* Sodium (Na) has 1 valence electron
* Chlorine (Cl) has 7 valence electron
* Sodium loses its 1 valence electron and gives it to Chlorine
* Sodium has become less negative (**more positive**) and now has a +1 charge
* Chlorine has become **more negative** and now have a -1 charge
 |

|  |
| --- |
| Slide 7 – NaCl Ionic Bondingbc10_u2c4_p177_fig4_9.jpgbc10_u2c4_p177_fig4_9.jpgbc10_u2c4_p177_fig4_9.jpg |

|  |
| --- |
| Slide 8 – Naming Ionic Compounds* Ionic compound names have 2 parts to it, one for each ion in it:
	+ The **positive metal ion** is always written FIRST
	+ The **negative non-metal ion** is always written SECOND
	+ The non-metal’s name always ends with the suffix “ide”

 metal non-metal + ion - ion* + Example: **Potassium Iodide**

 (positive metal) (negative non-metal, ending with –ide) |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Slide 9 – Names of Ionic Non-Metals

|  |  |  |
| --- | --- | --- |
| Element | Ionic Name | Symbol |
| Flourine | Flouride |  |
| Chlorine | Chloride |  |
| Bromine | Bromide |  |
| Iodine | Iodide |  |
| Oxygen | Oxide |  |
| Selenium | Selenide |  |
| Nitrogen | Nitride |  |
| Phosphorus | Phospide |  |

 |

|  |
| --- |
| Slide 10 – Practice Naming* Write down the proper name of the ionic compound formed from the following ions:
	+ Magnesium + Phosphorus =
	+ Calcium + Bromine =
	+ Aluminum + Oxygen =
	+ Lithium + Nitrogen =
	+ Zinc + Sulfur =
 |

|  |
| --- |
| Slide 11 – Naming Ionic Compounds from Formulas* If you just have the formula, how do you name it?

 Example: 1. Identify and name the metal ion in the compound
	* Ca2+ is the metal. Its name is calcium.
2. Identify and name the non-metal ion in the compound
	* I- is the non-metal. Its name is Iodine.
3. Change the name of the non-metal so it ends with “ide”
4. Write the two together to name the ionic compound
 |

|  |
| --- |
| Slide 12 – Practice Naming from FormulasNa3P1. Name the positive metal ion
2. Name the negative non-metal ion
3. Change the suffix to “ide”
4. Write out the name
5. Bam!
 |

|  |
| --- |
| Slide 13 – Writing Formulas for Ionic CompoundsExample: **Aluminum Flouride**1. Identify the POSITIVE ion and the NEGATIVE ion and list their charges
2. Figure out how many of each ion you need to balance out the charges
3. Notice how many of each ion you needed to balance the charges
4. Write out the formula by listing the ions. Indicate how many of each ion are there by writing the number in a subscript beside it
 |

|  |
| --- |
| Slide 14 – Practice Writing Ionic Formulas**Example: magnesium nitride**1. Identify each ion and list its charge
2. Figure out how many of each ion you need to balance the charges
3. Note how many of each ion you needed
4. Write out the formula and indicate how many of each ions are there with a subscripted number
5. Bam!
 |