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| CHEMISTRY | CODE: SCS21A |
| 2014-2015 SCHOOL YEAR | INSTRUCTOR: Ms. Bui |
| CLASSROOM: 510 | LAB ROOM: 506 |

**PERIODIC TABLE**

**TRENDS**

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| Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Subject: Chemistry |

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| **Standards:** * 5.2b - Atoms attain a stable valence electron configuration by bonding with other atoms. Noble gases have stable valence configurations and tend not to bond
* 5.2d - Electron-dot diagrams (Lewis structures) can represent the valence electron arrangement in elements, compounds and ions.
* 5.2i - When an atom gains one or more electrons, it becomes a negative ion and its radius increases. When an atom loses one or more electron, it becomes a positive ion and its radius decreases.
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| **SCIENCE STARTER** 1. Using the Periodic Table, complete the following table

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| --- | --- | --- | --- |
| **Element** | **Electron Configuration** | **Valence Electrons** | **Number of Electron Shells** |
| Li |  |  |  |
| Ne |  |  |  |
| Cl |  |  |  |

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**Vocabulary:**

1. Chemical bond – attraction between \_\_ \_\_\_\_\_\_\_\_\_\_\_\_that allows the formation of chemical substances that contain \_\_\_\_\_\_\_\_\_\_\_ or more atoms.

2. Ions – an atom or molecule in which the total number of \_\_\_\_\_\_\_\_\_\_\_\_\_ is not equal to the total number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, giving the atom or molecule a net \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_ electrical charge.

3. Cation – a neutral atom \_\_\_\_\_\_\_\_\_\_ one or more electrons and has a net \_\_\_\_\_\_\_\_\_\_\_\_\_\_ charge.

4. Anion – a neutral atom \_\_\_\_\_\_\_\_\_\_\_\_ one or more electrons and has a net \_\_\_\_\_\_\_\_\_\_\_\_ charge.

5. Octet rule – atoms tend to combine in such a way that each atom has \_\_\_\_\_\_\_\_\_\_\_\_ electrons a neutral atom \_\_\_\_\_\_\_\_\_\_\_\_ one or more electrons and has a net \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charge.

**Part 1: Draw Lewis Dot Structure for Atoms**

|  |  |
| --- | --- |
| **Element** | **Lewis Dot Structure** |
| Li |  |
| Ne |  |
| Cl |  |
| Mg |  |

**Part 2: Draw ions**

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| --- | --- | --- |
| **Element** | **Lewis Dot Structure** | **Symbol** |
| Lithium ion |  |  |
| Chloride ion |  |  |
| Oxygen ion |  |  |
| Magnesium ion |  |  |

**Question:**

**1.** What is the difference between an atom and an ion?

2. How many valence electrons does a chlorine atom have?

3. How many valence electrons does a chloride ion have?

4. Using the table above, name one cation and one anion.

5. Lithium is part of what group?

 What is the trend for elements in this group in terms of forming ions?

6. Chlorine is part of what group?

 What is the trend for elements in this group in terms of forming ions?

7. Based on the number of valence electrons for each element, why don’t elements in the Noble Gas Group readily form compounds with other elements?

**AIM Prompt: In a chemical reaction between lithium and chlorine, what types of ions will be formed? State your claim and provide evidence.**

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