Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_

**CLASSWORK: Ions**

*Review.* Take out your POGIL Ions packet from yesterday’s class. Look over the POGIL and in your own words what is an ion and how is it different from a neutral atom?

**Notes:**

An ion is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

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*\*\*****KEY POINT:*** *Why do neutral atoms form ions?*

Atoms will form an ion based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**For example:**

|  |  |
| --- | --- |
| **Sodium***If a neutral sodium atom loses 1 electron, what charge will the sodium ion have? Why?* | **Chlorine***If a neutral chlorine atom gains 1 electron, what charge will the chlorine ion have? Why?* |

|  |  |
| --- | --- |
| 1. Magnesium – 24

Atom Ion 🡪 Forms a \_\_\_\_\_\_\_ charge. | 1. Fluorine – 20

Atom Ion 🡪 Forms a \_\_\_\_\_\_\_ charge. |

**Practice:**

1. An atom that gains 2 electrons will have a \_\_\_\_\_ charge because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. An atom that loses 2 electron will have a \_\_\_\_\_ charge because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. An atom that loses 4 electrons will have a \_\_\_\_\_ charge because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. An atom that gains 3 electrons will have a \_\_\_\_\_ charge because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Practice.** Draw the Lewis Dot Structure for the following atoms. Then determine what ion the atom would most likely form and draw the Bohr model for the ion. *Finally, determine the charge and fill in the correct information for the atomic symbol for the atom AND the ion.*

24

12

Mg

Mg

F

24

12

2+

F

|  |  |
| --- | --- |
| 1. Beryllium – 9

BeBeAtom Ion 🡪 Forms a \_\_\_\_\_\_\_ charge. | 1. Nitrogen – 13

NNAtom Ion 🡪 Forms a \_\_\_\_\_\_\_ charge. |
| 1. Sulfur – 32

SSAtom Ion 🡪 Forms a \_\_\_\_\_\_\_ charge. | 1. Oxygen – 15

OOAtom Ion 🡪 Forms a \_\_\_\_\_\_\_ charge. |

**Practice.** Draw the Lewis dot structure for the following elements. Then draw the Lewis dot structure for the following ions. Label the ion cation or anion depending on what type of ion it forms. ***Do NOT draw in dots for cations and draw in dots for anions.***

\*\*\*Remember: Cations are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and anions are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
| **Atom** | **Ion** | **Atom** | **Ion** |
| K | +K Cation | Ca | Ca |
| P | P | Cl | Cl |
| Al | Al | I | I |
| N | N | Sr | Sr |
| C | C | O | O |