The Valence Shell and Formation of Ions

**Valence Shell –**

**Ion Formation**

**Definition: Ion**

Electron shells have a preference to be \_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_. In between is considered \_\_\_\_\_\_\_\_\_\_\_.

An element will “give” their extra electrons away if it is a \_\_\_\_\_\_\_\_\_\_\_\_\_:

**Calcium Strontium**

Element Ion Element Ion

**Scandium**

Element Ion

An element with “take” extra electrons if it is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:

**Flourine Nitrogen**

Element Ion Element Ion

**Oxygen**

Element Ion

If an element gives away, or loses electrons, it gains a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ charge.

If an element takes, or gains electrons, it gains a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charge.

The difference between an electron and an ion is:

Ions are chemically stable when they have a full valence shell. How many electrons is that for the second and third electron shell?

**Chemical Families and Valence Shells**

What do you notice about the number of electrons in the valence shells of elements in the same family?

What does this mean about their ion formation?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Alkali Metals | Alkaline Earth Metals | Halogens | Noble Gases |
| Number of electrons in the Valence Shell |  |  |  |  |
| Electric Charge of Ion |  |  |  |  |

**Homework:**

Chapter 2.3 in the textbook pg.71 #1-16

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