Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Homeroom: \_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_ **2.3**

**Elements (SPI.9.3)**

|  |  |
| --- | --- |
| ***Key Point*** | ***Notes*** |
| **Atoms** | The atom is organized as follows:   * The \_\_\_\_\_\_\_\_\_\_\_ is in the center * A cloud of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ surround the nucleus * Electron cloud has energy levels where electrons occupy * Each energy level can only hold a \_\_\_\_\_\_\_\_\_\_\_\_\_ number of electrons   The number of **protons** in an atom determines which **\_\_\_\_\_\_\_\_\_\_\_\_** it forms   * **Atomic Number = Number of Protons**   + 1. The atomic number is the \_\_\_\_\_\_\_ number in the periodic table * Atoms of the same element are the \_\_\_\_\_\_\_. * Atoms of different elements are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   **All elements have no charge (neutral) in their pure form**   * This means that the number of \_\_\_\_\_\_\_\_\_\_\_\_ is equal to number of \_\_\_\_\_\_\_\_\_\_\_\_\_. |
| **Element** | * ***An element*** is a *pure substance* that cannot be \_\_\_\_\_\_\_\_\_\_\_\_\_ down into simpler substances by physical or chemical means * ***An element*** is a substance made up of atoms of \_\_\_\_\_ type. |
| **Chemical Symbol** | * Elements are often represented by one or two letter \_\_\_\_\_\_\_\_\_\_\_\_. For example: C is for carbon, O is for oxygen and H is for hydrogen. * The chemical symbol is the abbreviation for the \_\_\_\_\_\_\_ of an element. * ***Chemical symbols*** consist of \_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ letter or a capital letter plus 1 lower case letter**.** |
| **Periodic Table of Elements** | * A complete list of all elements and their chemical symbols can be found in the ***\_\_\_\_\_\_\_\_\_\_\_\_\_ Table of Elements*** |
| **Bohr Models** | * **Bohr Models** show electrons floating around the nucleus in specific \_\_\_\_\_\_\_\_. * The Bohr Model can show up to 4 energy levels before the model doesn’t work. * The first energy level can hold up to \_\_\_ electrons * 2nd can hold up to \_\_\_ electrons   Rules for making a Bohr model:   1. Draw the nucleus with correct number of protons and \_\_\_\_\_\_\_\_\_\_\_\_\_ 2. Draw each \_\_\_\_\_\_\_\_\_\_\_ level as needed (ie don’t draw all four levels if you don’t need them, as in for hydrogen) 3. Each energy level must be filled before filling the next energy level 4. Each energy level can only hold a certain number of electrons 5. Level 1 = 2 electrons, level 2 and 3 = 8 electrons |
| **So What?!** | *Write a summary of what you learned today here and why it matters to you:* |

**“I Own This” (Independent Practice):**

1. Where can you find all the elements listed?
2. What are the two elements make up H2O?
3. What is used to abbreviate elements?
4. Describe the structure of the atom.
5. How do you find the number of protons in an element?
6. List the chemical symbol for the following elements:

a. iron

b. hydrogen

c. helium

d. aluminum

e. calcium

f. potassium

1. Draw a model of an atom of Nitrogen (N). It has 7 electrons, 7 protons, and 7 neutrons.
2. Draw a model of an atom of Oxygen (O). It has 8 electrons, 8 protons, and 8 neutrons.
3. Draw a model of an atom of Helium (He). It has 2 protons, 2 electrons, and 2 neutrons.