**Science Worksheet**

**Atomic Structure and the Periodic Table**

Use your notes, the textbook and the periodic table provided to complete the following questions.

***(The answers have been provided on this sheet and are in bold/underlined)***

1. The 3 particles of the atom and their respective charges are:

|  |  |
| --- | --- |
| **Particle** | **Charge** |
| 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_** | **+** |
| 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_** | **-** |
| 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_** | **No charge** |

1. The atomic number gives the “identity” of an element as well as its location on the Periodic Table. The atomic number tells you the number of**\_\_\_\_\_\_\_\_\_\_** in the nucleus of one atom of an element. It also tells you the number of **\_\_\_\_\_\_\_\_\_\_\_\_\_** in an atom of that element.
2. The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**of an element is the average mass of an atom of that element.
3. The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** of an element is the total number of protons and neutrons in the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** of the atom. You can determine this number from the periodic table by rounding the **atomic mass** to the nearest whole number.
4. In order to calculate the number of neutrons in an atom of a particular element, you must subtract the number of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** from the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.
5. Use the periodic table to find the symbol and number of protons in one atom of:
   1. Lithium - **\_\_\_\_\_\_\_\_**
   2. Iron - **\_\_\_\_\_\_\_\_\_**
   3. Krypton - **\_\_\_\_\_\_\_\_\_**
   4. Bromine - **\_\_\_\_\_\_\_\_\_**
   5. Mercury - **\_\_\_\_\_\_\_\_**
   6. Helium - **\_\_\_\_\_\_\_\_**
6. Use the periodic table to find the symbol and number of electrons in a neutral atom of:
   1. Uranium - **\_\_\_\_\_\_**
   2. Boron - **\_\_\_\_\_\_\_**
   3. Antimony - **\_\_\_\_\_\_\_**
   4. Chlorine - **\_\_\_\_\_\_\_**
   5. Iodine - **\_\_\_\_\_\_\_**
   6. Xenon - **\_\_\_\_\_\_\_\_**
7. Use the periodic table and the chart below to determine the number of neutrons in one atom of:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element** | **Symbol** | **Number of Protons (same as atomic number)** | **Mass number**  **(round atomic mass to whole number)** | **Number of neutrons (mass number – protons)** |
| **Barium** |  | **56** |  |  |
|  | **C** |  | **12** | **6** |
| **Bismuth** |  | **83** |  |  |
|  | **Mg** |  | **24** |  |
|  |  | **63** | **152** |  |

1. Using the periodic table and your notes outlining the common properties of elements in the same chemical family, name the element based on the information given:
   1. Atomic number of 34................................................. **\_\_\_\_\_\_\_\_\_\_**
   2. A noble gas with a mass number of 84...................... **\_\_\_\_\_\_\_\_\_\_**
   3. The first element in the fourth period....................... **\_\_\_\_\_\_\_\_\_\_**
   4. A halogen with 45 neutrons....................................... **\_\_\_\_\_\_\_\_\_\_**
   5. A transition metal with the symbol Tc........................ **\_\_\_\_\_\_\_\_\_\_**
   6. An alkaline earth metal in period 5 ............................. **\_\_\_\_\_\_\_\_\_\_**
   7. A metalloid in family 13............................................... **\_\_\_\_\_\_\_\_\_\_**
   8. An element in period 3 that produces ....................... **\_\_\_\_\_\_\_\_\_\_**

bright flames

* 1. A stable, unreactive element from period 6............... **\_\_\_\_\_\_\_\_\_\_**
  2. A magnetic element from family 8 ............................. **\_\_\_\_\_\_\_\_\_\_\_**