Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Parts of the Atom

***\*Fill in the following table about the parts of the atom. (AMU stands for atomic mass unit.)***

|  |  |  |  |
| --- | --- | --- | --- |
| PART OF THE ATOM | ELECTRIC CHARGE | LOCATION IN ATOM | MASS (in AMU’s) |
| proton |  |  |  |
| neutron |  |  |  |
| electron |  |  |  |

***\*Here’s how to predict the structure of any element on the periodic table. For example, look at carbon:***

6

C

carbon

12.011

ﬂatomic number: This is the number of protons (also the number of electrons)

ﬂchemical symbol: This is an abbreviation for the element.

ﬂelement name: This is the name of the element.

ﬂatomic mass (in AMU’s): This number (rounded off) tells you the number of protons *plus* the number of neutrons. (Electrons are too small to be included.)

**To find the number of protons, look at the atomic number:**

Example for carbon: Atomic number: 6 Number of protons: 6

**To find the number of neutrons, subtract the atomic number from the atomic mass:**

Example for carbon: Atomic mass: 12 (rounded) Number of neutrons: 12 – 6 = 6

**To find the number of electrons, look at the atomic number:**

Example for carbon: Atomic number: 6 Number of electrons: 6

***\*Complete the table for the elements with atomic numbers 1-10.***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ELEMENT  NAME | ATOMIC NUMBER | ATOMIC MASS | PROTONS | NEUTRONS | ELECTRONS |
|  | 1 |  |  |  |  |
|  | 2 |  |  |  |  |
|  | 3 |  |  |  |  |
|  | 4 |  |  |  |  |
|  | 5 |  |  |  |  |
|  | 6 |  |  |  |  |
|  | 7 |  |  |  |  |
|  | 8 |  |  |  |  |
|  | 9 |  |  |  |  |
|  | 10 |  |  |  |  |

***\*Here’s how to draw an atom of any element using the Bohr model of the atom:***

P =

N =

**Protons and neutrons go in the nucleus (center).**

**Electrons go in energy levels of the electron cloud.**

The first energy level only holds up to 2 electrons.

The second energy level holds up to 8 electrons.

The third energy level holds up to 18 electrons.

Example for carbon: 6 electrons total

First 2 electrons in the 1st energy level

Next 4 electrons in the 2nd energy level

**The electrons in the outermost energy level are called valence electrons (V.E.)**

Example for carbon: 2nd energy level is the outermost energy level used by carbon

Carbon has 4 valence electrons

***\*Draw a picture of an atom for each of the first ten elements and write the number of valence electrons.***

1. hydrogen V.E.\_\_\_\_\_ 2. helium V.E.\_\_\_\_\_ 3. lithium V.E.\_\_\_\_\_

4. beryllium V.E.\_\_\_\_\_ 5. boron V.E.\_\_\_\_\_ 6. carbon V.E.\_\_\_\_\_

7. nitrogen V.E.\_\_\_\_\_ 8. oxygen V.E.\_\_\_\_\_

9. fluorine V.E.\_\_\_\_\_ 10. neon V.E.\_\_\_\_\_