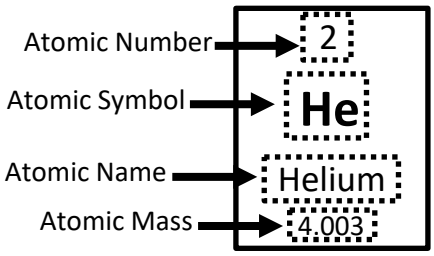
Bio – Assignment 4.A Lab

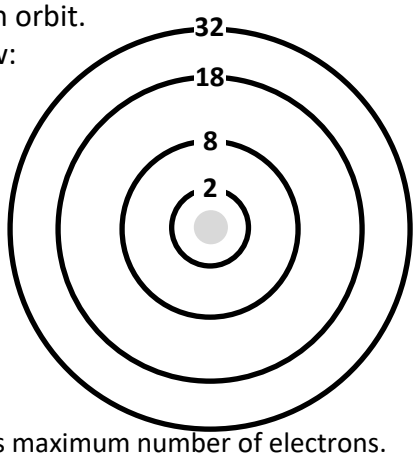
"Exploring the parts of the Atom" *Name* Riley Gero

Scientist have known the parts of the atom for over a hundred years. The basic parts of the atom are the *Protons, Neutrons* and *Electrons*. Protons and Neutrons are found in the center of the atom in the area called the *Nucleus*. **Electrons** are found outside the nucleus in different energy levels called *shells* or *orbits*. Electrons orbit the nucleus based on their energy, the higher the energy the farther out they can orbit.

NOTE: Each shell/orbit can only hold a max number of electrons. See table below:

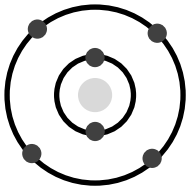


Orbit Level	Max Number of Electrons
1	2
2	8
3	18
4	32



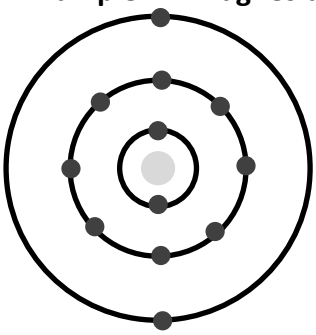
Note: Atoms do not add electrons to outer levels ***until*** a lower energy level contains its maximum number of electrons. Below you will see 2 examples of "*Bohr Models*", which are used to show the arrangement of electrons.

Example 1 – Carbon 6



Carbon has 6 electrons, maximum 2 on first orbit, 4 on the second.

Example 2 – Magnesium 12



Magnesium has 12 electrons, maximum 2 on first orbit, 8 on the second, and 2 on the 3rd.

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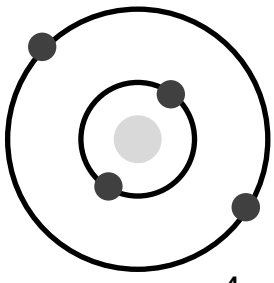
*Use the periodic table found at the beginning of Chapter 4 in Online Biology to **identify** the following atoms and fill in their **atomic number.**

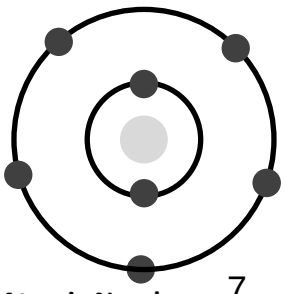
http://bodell.mtchs.org/OnlineBio/Graphics/PeriodicTableWallpaper.png

1Name- beryllium



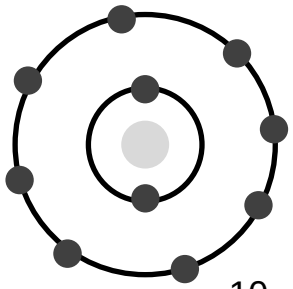
Atomic Number = 4

2Name- nitrogen



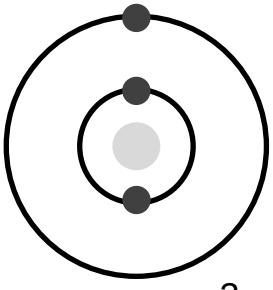
Atomic Number = 7

3Name- neon



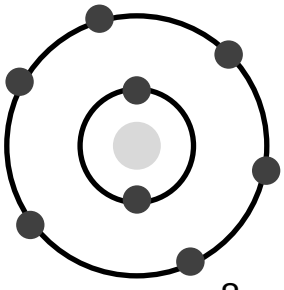
Atomic Number = 10

4Name- lithium



Atomic Number = 3

5Name- oxygen



Atomic Number = 8

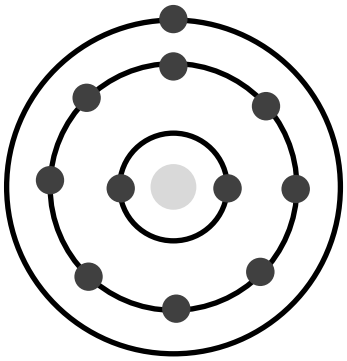
Bio – Assignment 4.A Lab

"Exploring the parts of the Atom…Continued"

*Use the periodic table found at the beginning of Chapter 4 in Online Biology to **identify** the following atoms and fill in their **atomic number.**

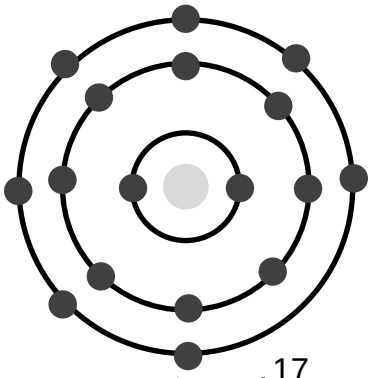
http://bodell.mtchs.org/OnlineBio/Graphics/PeriodicTableWallpaper.png

6Name- aluminum

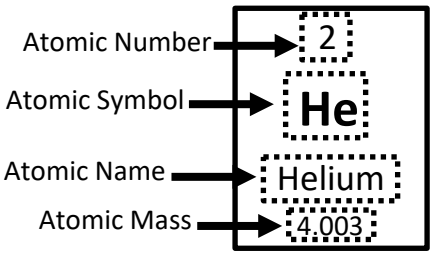


Atomic Number = 11

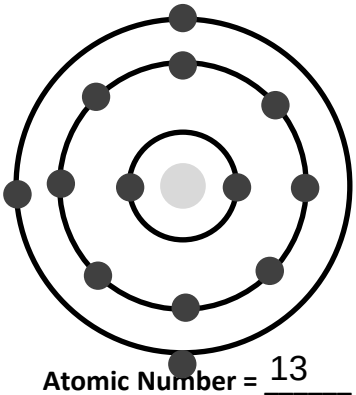
7Name- chlorine



Atomic Number = 17

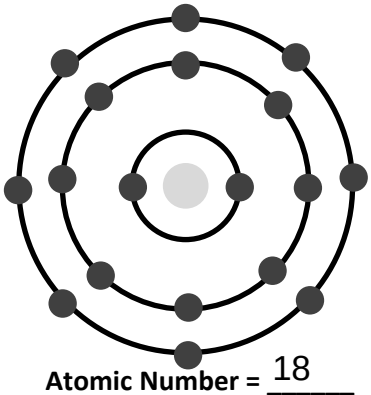


8Name- sodium



Atomic Number = 13

9Name- argon



Atomic Number = 18

CH4 - Interpretive atomic questions: Please answer in complete sentences if applicable.

1- What are the 3 main particles of an atom and what are their charges?

proton _____ electrons _____ nuetrons _____

2-Most naturally occurring atoms have a neutral charge, if Electrons have a negative charge explain why atoms are mostly neutral?

because nuetrons are nuetral at the start and protons are positve

3- Explain, what is an Isotope?

each of two or more forms of the same element that contain equal numbers of protons but different numbers of neutrons in their nuclei, and hence differ in relative atomic mass but not in chemical properties; in particular, a radioactive form of an element.

4- Explain what determines if an atom is highly reactive or not.

The number of electrons in the outermost shell of an atom determines its reactivity.

5- Radioactive Isotopes can be dangerous, how are they used in modern medicine?

they can be used for imaging to study the dynamic processes taking place in various parts of the body.