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**CHEMISTRY UNIT – BOHR MODEL DIAGRAMS**

(AKA Energy Level Model)

* Electrons surround the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** of an atom in three dimensions, making atoms **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Think of electrons as being in the different energy levels *like* concentric spheres around the nucleus.

|  |  |
| --- | --- |
| * Since it is very difficult to show these spheres, the energy levels are typically shown in **\_\_\_\_\_\_\_** dimensions, which we now know is **not** the most accurate/current version of the atomic model (quantum mechanical model) | A picture containing white, object  Description automatically generated |

**PARTS OF AN ATOM – RECAP**

* **Proton** - Positively charged particle in the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** of the atom. The # of protons in an atom’s nucleus is the **atomic number**.
* **Electron** - Negatively charged particle **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** the nucleus of the atom. The # of electrons surrounding the nucleus of an atom is equal to the # of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in the atom’s nucleus.
* **Neutron** - Particle in the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** that has about the same mass as a proton but has no charge. For the atoms of the first 20 elements, the number of neutrons is either **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** or slightly **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** than the # of protons.

**WHAT ATOM IS THIS?**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| A close up of a ball  Description automatically generated | | | * The nucleus is represented by a dot in the center which contains both protons and neutrons. Some models show it as a dot, other models show P = # and N = # * The smaller dots surrounding the nucleus represent **electrons** in the energy levels. | | | |
| 1. How many electrons: 2. Which means there are how many protons: | | | | 1. And the # of protons represents the: 2. Which element has this atomic number: | | |
|  | | | | | * Electrons exist in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **­­­­­­­­­­­­­­­** pattern, filling from inside shell to the outside * The electrons in the outermost shell (those farthest from the nucleus) have the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** influence on the properties of an atom. * These electrons in the outermost shell are called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** * The shell that contains the outermost electrons is called the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | |
| ***USE YOUR BOHR TABLE TO PRACTICE A FEW* EXAMPLE #1 – Neon**   * Atomic # = # protons: * Neutrons = atomic mass – protons * Electrons = # protons: * Electrons arranged 2-8-8-18 pattern | | | |  | | | |
| **EXAMPLE #2– Phosphorus**   * Atomic # = # protons: * Neutrons = atomic mass – protons * Electrons = # protons: * Electrons arranged 2-8-8-18 pattern | | | |  | | | |

**Try one on your own - Calcium**