**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |
| --- |
| Electron Configuration – an “address” for the electrons in an atom |
| **An Orbital is:**  | 1. **How do we tell someone where an electron is?**with a number
2. with a letter (s, p, d, f)
3. with a superscript
 |
| **The Number**Tells you the ***energy level******Numbers 1 – 7***Look at the orbital Diagram | **The Letter *s, p, d or f***Tells you the ***shape of the orbital***Each letter has a different number of boxes **s has 1 box** **p has 3 boxes** **d has 5 boxes** **f has 7 boxes** |
| **The Superscript** The number after the letter tells ***how many electrons*** are in all the boxes of that letter**Examples** **s2  = 2 e** **p5 = 5 e** **d8 = 8 e** **f13 = 13** | **Boxes**1. Each box can have zero, one or two electrons. TWO IS THE MAXIMUM!
2. We use one arrow for an electron.
3. We use an up arrow and a down arrow in each box.
 |
| **FINDING the location of the electrons**1. Pick an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Find the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*(remember # p = # e, atomic number)*1. Start putting electrons (arrows) into the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 | **DESCRIBING where ALL the electrons are****Shrink it down and only list:****Example:** |
| **Rules for putting electrons in an orbital diagram:** |
| **RULE 1***An electron occupies the lowest energy orbital that it can. This rule overrides the other two.*  | **RULE 2***Electrons in the same box must have one up arrow and one down arrow.*  | **RULE 3***If you have more than one box at the same amount of energy - You must put 1 arrow in each box before you add a second arrow to that box.* |
| ***For example:*** | ***For example:*** | ***For example:*** |



**3rd Electron**

**4th Electron**

**2nd Electron**

**1st Electron**





**9th Electron**

**10th Electron**

**8th Electron**

**7th Electron**

**6th Electron**

**5th Electron**





**11th Electron**

**12th Electron**