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| Electron Configuration – an “address” for the electrons in an atom | | | | | | |
| **An Orbital is:** | | | **How do we describe orbitals?** | | | |
| **Different orbitals are in different energy levels** | **Different orbitals have different shapes** | | | **Different orbitals have different orientations** | | **Each orbital is only allowed to have two e-s** |
| **Where do e- live? What is the address for one?**  State ----------> Energy level  City ----------> Type/shape of orbital  Street ----------> Orientation or orbital  House # ----------> Spin up or spin down of electron | | | | **Electron configuration for an electron in the second energy level, inside a p shaped orbital that is lined up on the x axis and is a spin up electron:** | | |
| **They can get REALLY long**  1s+½ ,1s-½ ,2s+½ , 2s-½  2px +½ , 2px -½ , 2py +½  2py -½ , 2pz +½ , 2pz -½ | | | | **Want to describe where ALL the e- in an atom were? Shrink it down and only list:**        **Example:** | | |
| **Steps to finding all the electrons**   1. Pick an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. Find the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. Start putting electrons into the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Use an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. List which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ you used and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electrons in each one | | | | | | |
| **Rules for putting electrons in an orbital diagram:** | | | | | | |
| 1. **Aufbau Principle**   *An electron occupies the lowest energy orbital that it can.*  Means: | | 1. **Pauli Exclusion Principle**   *No two e-s in the same atom can have the same set of 4 quantum numbers*  Means: | | | 1. **Hunds Rule**   *Orbitals of equal energy are each occupied by one e- before any orbital is occupied by a second e-.*  Means: | |