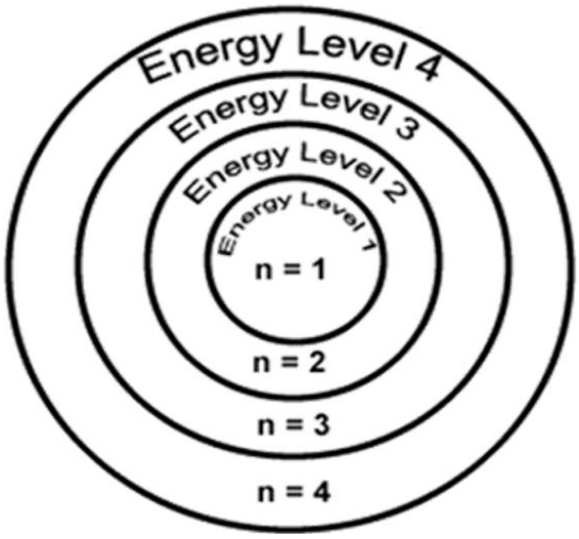
Academic Chemistry **Name** _____
Guided Notes – Electron Location **Date** _____

ELECTRONS

- **Quantum Mechanical (QM) Model**- This is the currently accepted model of the atom.
    - Erwin Schrödinger wrote an equation which describes _____ _____.
        - These locations are not definite because of the Heisenberg Uncertainty Principle.
- Each of the following terms gives a *more specific* description of where an electron *probably* is.

  In Chemistry… **In CB South, for example…**
    - Energy level, *n*
    - Sublevel, *l*
    - Orbital, m_l
    - Spin, *s*
- **Energy Levels, *n*-**



    - An electron may NOT be found _____ _____.
    - Higher *n* = higher energy (typically)
    - *n* is called the _____ _____.
    - To determine how many electrons fit into a given energy level, use this **formula**: _____
    - The maximum number of electrons is **32**.
    - Electrons will occupy _____ first.
- **Sublevels (subshells), *l*-** **orbitals**

	***s* Sublevel**	***p* Sublevel**	***d* Sublevel**	***f* Sublevel**
Shape				
Appears				
# of Orbitals				
Capacity				

ELECTRON CONFIGURATIONS

- **Electron Configurations**-

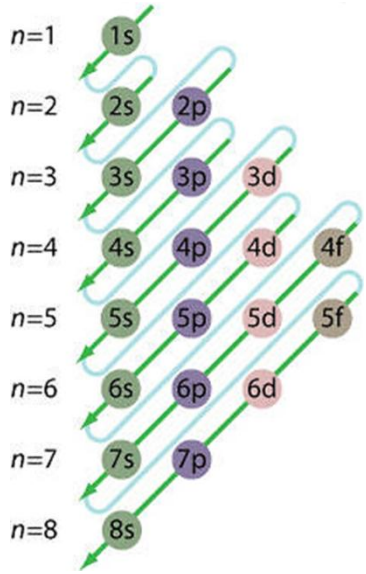
- Electron Configuration PRACTICE
  - Sulfur (S)
  - Cobalt (Co)
  - Strontium (Sr)
  - Molybdenum (Mo)
  - Antimony (Sb)
  - Chlorine (Cl)
  - Calcium (Ca)
  - Chromium (Cr)
  - Zinc (Zn)
  - Selenium (Se)
  - $1s^2 2s^2 2p^6 3s^2 3p^4$
  - $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10}$
  - $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^1$

- **Shorthand notation**- To write in *shorthand* electron configuration notation:
  - 1st – Find the _____ that is in the row above the element you want
  - 2nd – Write that noble gas's _____ in [brackets]
  - 3rd – Then continue with the e^- configuration starting with the next element
    - Ex- Scandium: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^1$ →
    - Ex- Chlorine: $1s^2 2s^2 2p^6 3s^2 3p^5$ →

ORBITAL NOTATIONS & THE RULES

- **Orbital notations**-
  - Ex- Titanium: ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
    1*s* 2*s* 2*p* 3*s* 3*p* 4*s* 3*d*

- **Aufbau Principle**-
  - This is the order we get from "reading" the Periodic Table.



- **Pauli Exclusion Principle**-
  - This is the electron "spin." Either +½ or –½

- **Hund's Rule** –
  - They'd rather spread out.