

PPT notes

Unit 6 Quantum Mechanics

Evolution of atomic theory:

1. _____ (plum pudding)
2. _____ (nucleus)
3. _____ (planetary)
4. _____ (quantum mechanical theory)

Draw a **Bohr model**

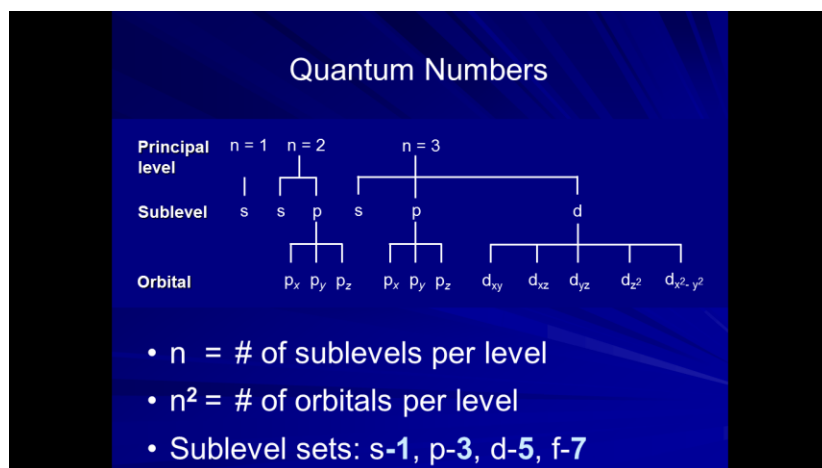
- Label the valence shell



Bohr model: electrons exist in energy levels

Electron hierarchy:

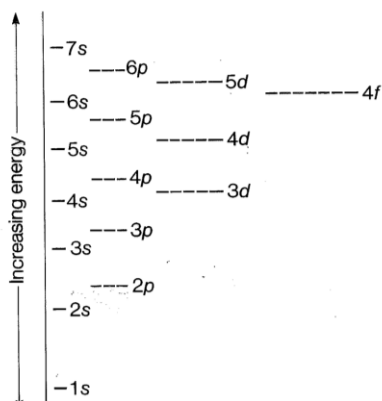
1. _____ (shells), = same number as the period, called "principle quantum #"
2. _____ (sublevels s,p,d,f) = shape of the orbital
3. _____ (clouds)



- Please label the **sublevels** on the periodic table in your notebook.

Example: Lithium _____ Sulfur _____ Iron _____ Erbium _____

Aufbau Principal: electrons enter the lowest energy level available. Electrons fill the bottom (lowest energy) levels first then fill the higher energy levels



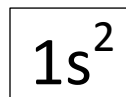
Pauli Exclusion Principal: only _____ electrons can occupy an orbital

Hund's Rule: electrons "spread out" and fill one orbital at a time. When all orbitals contain one electron, then electrons "share" an orbital with another electron

Example: Carbon $1s^2 2s^2 2p^2$

Label the following:

- Energy level
- Number of electrons in the orbital
- Orbital shape



Example:

- Lithium _____
- Sulfur _____
- Iron _____
- Erbium _____