

Atoms and Electron Orbitals

💡 Electron Configuration

- Electrons occupy specific energy levels
- Quantum numbers define orbital characteristics
- Aufbau principle: fill lowest energy first
- Pauli exclusion principle

⚡ Valence Electrons

- Outermost shell electrons
- Determine chemical reactivity
- Participate in bond formation
- Critical for biological interactions

Orbital Shapes



s



p

Spherical



d

Dumbbell



f

Very Complex

🔬 Biological Elements (CHNOPS)

C • H • N • O •
P • S