

Study Guide: Quantum Theory

Have a working understanding of the following terms and concepts:

- ground state
- excited state
- ROYGBIV and the relative energies and wavelengths of light
- flame tests
- valence electrons
- Energy Levels
 - how it relates to electron cloud size, energy, capacity
 - $2n^2$ rule
 - possible values
 - relation to the rows of the periodic table
- Sublevels
 - four values
 - shapes of the s and p orbitals
 - number and types of orbitals in each sublevel
 - how many electrons each can hold
- Orbitals
 - what orbitals are
 - capacity
- Spin
 - possible values
 - concept of "spin"
- Heisenberg Uncertainty Principle
- Energy changes related to electrons moving between energy levels
 - color of emitted light

You should be able to represent electron configurations for atoms and ions using the following diagrams:

- Orbital filling
- Noble gas abbreviations
- Lewis dot diagrams