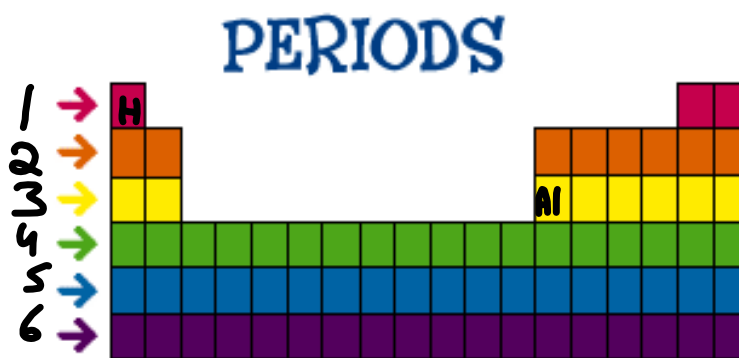


Orbital Diagrams and Electron Configurations

- **Principle Quantum Number** = Energy level that corresponds to the period on periodic table

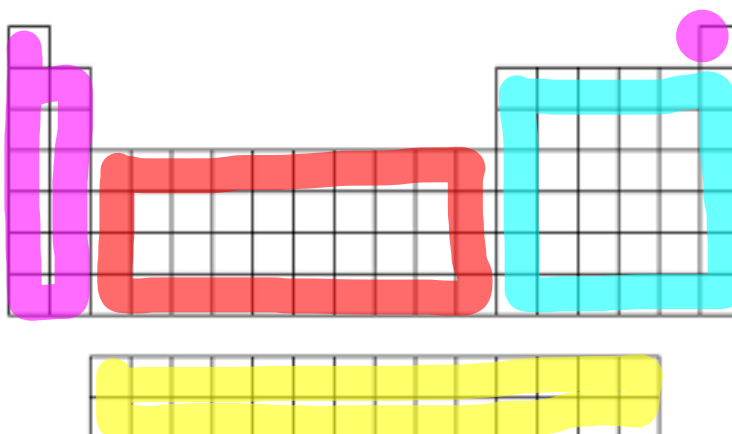
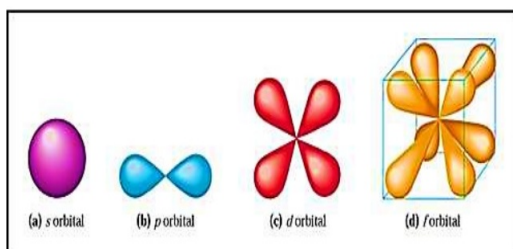


- Example: Hydrogen = 1
- Example 2: Aluminum = 3

Orbital Diagrams and Electron Configurations

- **Energy Sublevel** = Orbital **shape** in which electrons are most likely to be found. Corresponds to area on periodic table in which element is found.

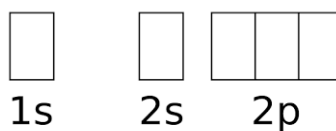
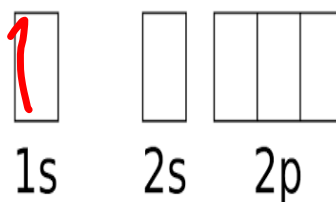
Orbitals



Orbital Diagrams and Electron Configurations

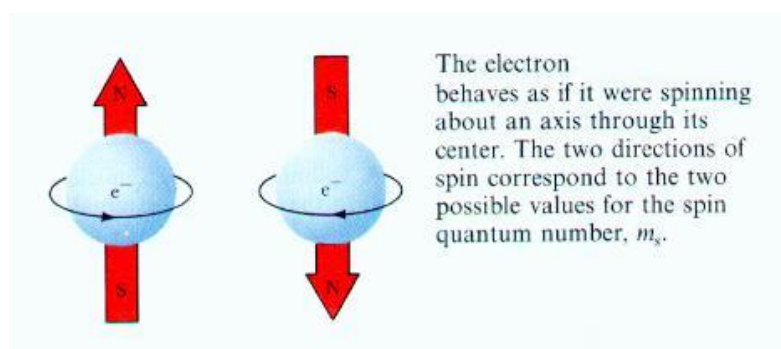
- **Aufbau Principle:** Each electron occurs at the lowest energy orbital available.

H



Orbital Diagrams and Electron Configurations

- Pauli Exclusion Principle: A maximum of two electrons can occupy each orbital. Electrons must have opposite spins.



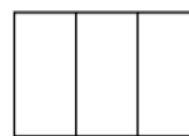
He



1s



2s



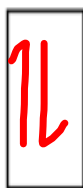
2p

Orbital Diagrams and Electron Configurations

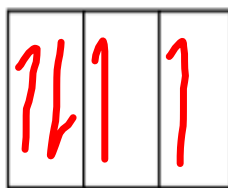
- Hund's Rule: Single electrons with the same spin must occupy each energy level orbital before additional electrons with opposite spins can occupy the same orbital.



1s



2s

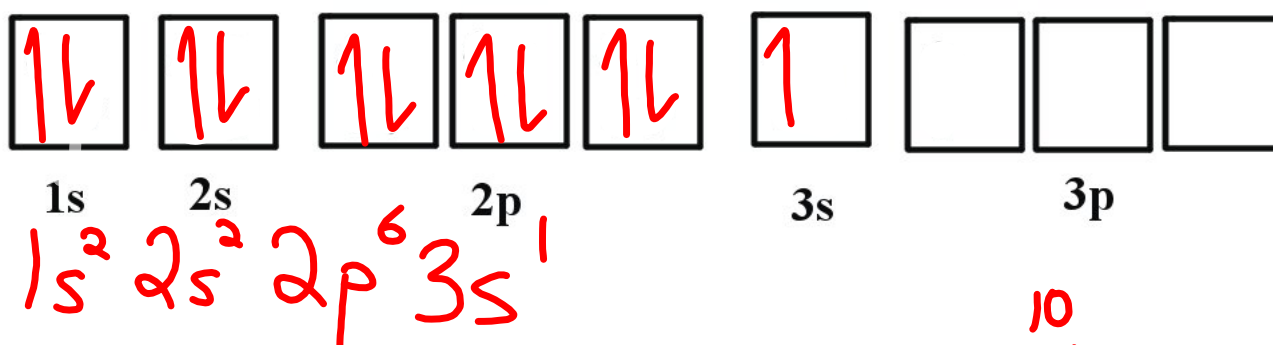


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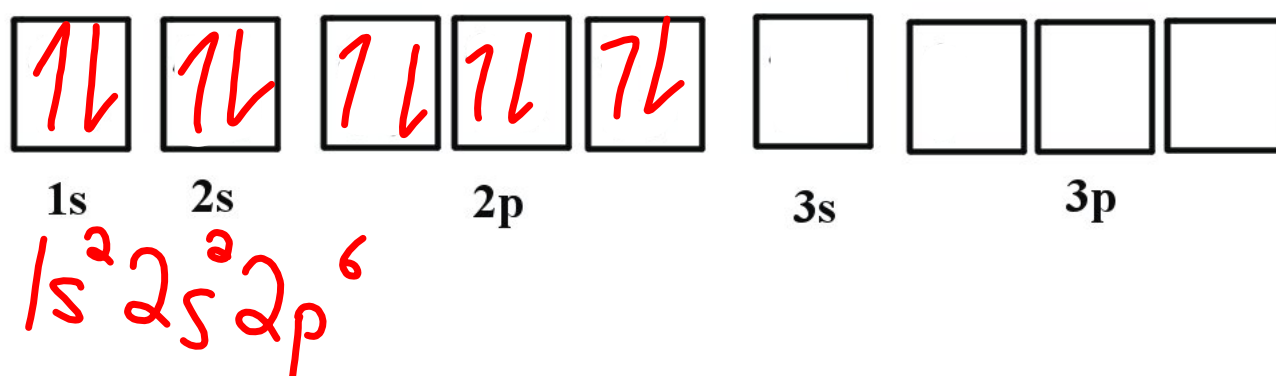


Orbital Diagrams and Electron Configurations

Example 1: Na



Note: Ions can have electron configurations too. Ex: F^{10-}



Noble Gas Configurations

Start at previous noble gas []

Example: Silicon

