

Electron Configurations in The Quantum Mechanical Model

Currently three rules:

- 1) Aufbau principle
- 2) Pauli's exclusion principle
- 3) Hund's rule

Aufbau Principle

- electrons will occupy the orbitals with lowest energy levels first.

Pauli Exclusion Principle

- any orbital may contain at MOST 2 electrons
- in order to occupy the same orbital, electrons must have opposite 'spins'.

Hund's Rule

- states that electrons occupy orbitals of the same energy level in such a way as to make the number of electrons with the same spin direction as large as possible

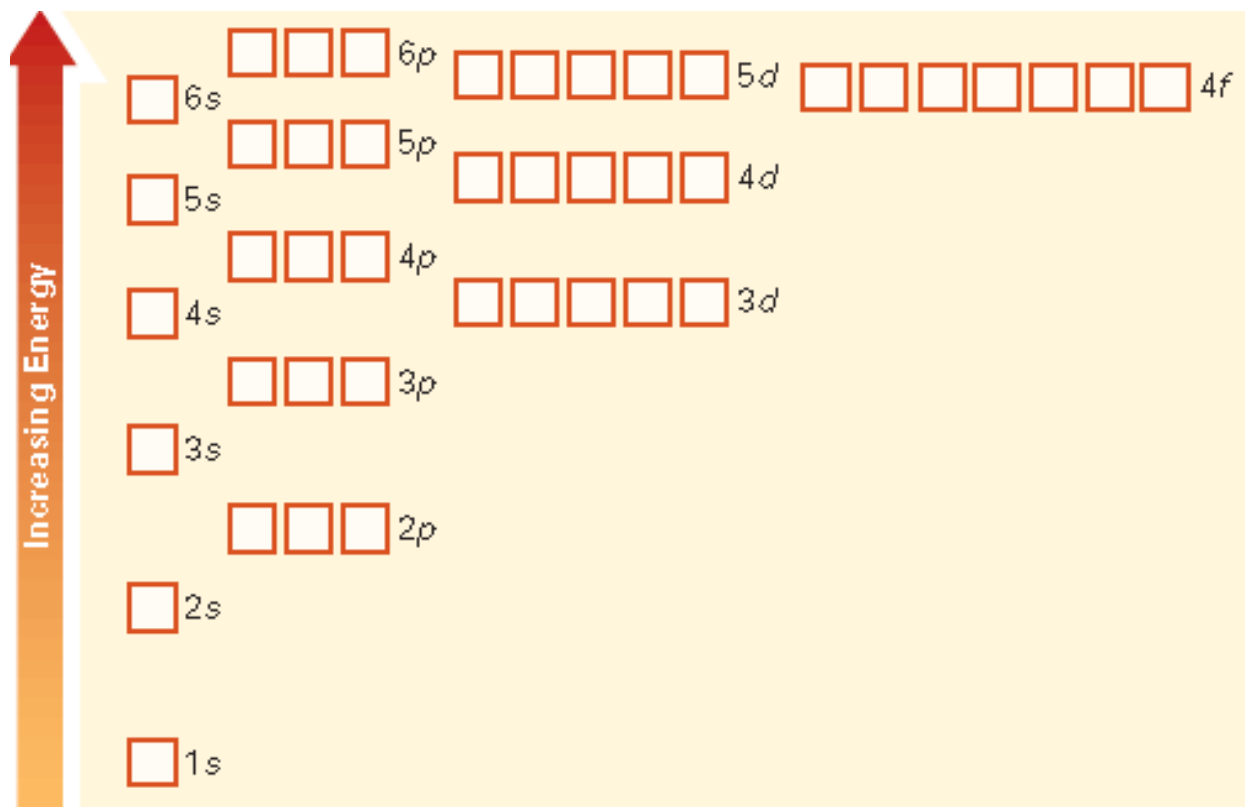


Table 5.3

Electron Configurations for Some Selected Elements

Element	Orbital filling						Electron configuration
	1s	2s	2p _x	2p _y	2p _z	3s	
H	↑	□	□	□	□	□	1s ¹
He	↑↓	□	□	□	□	□	1s ²
Li	↑↓	↑	□	□	□	□	1s ² 2s ¹
C	↑↓	↑↓	↑	↑	□	□	1s ² 2s ² 2p ²
N	↑↓	↑↓	↑	↑	↑	□	1s ² 2s ² 2p ³
O	↑↓	↑↓	↑↓	↑	↑	□	1s ² 2s ² 2p ⁴
F	↑↓	↑↓	↑↓	↑↓	↑	□	1s ² 2s ² 2p ⁵
Ne	↑↓	↑↓	↑↓	↑↓	↑↓	□	1s ² 2s ² 2p ⁶
Na	↑↓	↑↓	↑↓	↑↓	↑↓	↑	1s ² 2s ² 2p ⁶ 3s ¹