

Aufbau Principle and Electron Configurations

- I. Each element is “built up” systematically from the previous by the addition of both one proton (to the nucleus) and one electron
- II. The electron is placed in the lowest energy orbital available (maximum 2 electrons/orbital)

Examples:

H:	$1s^1$	
He:	$1s^2$	
Li:	$1s^2 2s^1$	[He] $2s^1$
Be:	$1s^2 2s^2$	[He] $2s^2$
B:	$1s^2 2s^2 2p^1$	[He] $2s^2 2p^1$
C:	$1s^2 2s^2 2p^2$	[He] $2s^2 2p^2$
N:	$1s^2 2s^2 2p^3$	[He] $2s^2 2p^3$
O:	$1s^2 2s^2 2p^4$	[He] $2s^2 2p^4$
F:	$1s^2 2s^2 2p^5$	[He] $2s^2 2p^5$
Ne:	$1s^2 2s^2 2p^6$	[He] $2s^2 2p^6$
Na:	$1s^2 2s^2 2p^1 3s^1$	[Ne] $3s^1$
Ca:	$1s^2 2s^2 2p^1 3s^2$	[Ne] $3s^2$
Al:	$1s^2 2s^2 2p^1 3s^1 3p^1$	[Ne] $3s^2 2p^1$