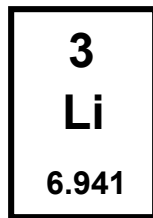


# Putting Electrons in Atoms: The Aufbau Principle

Fill atomic orbitals with electrons  
beginning with the lowest P.E. orbital and  
working towards high P.E orbitals.

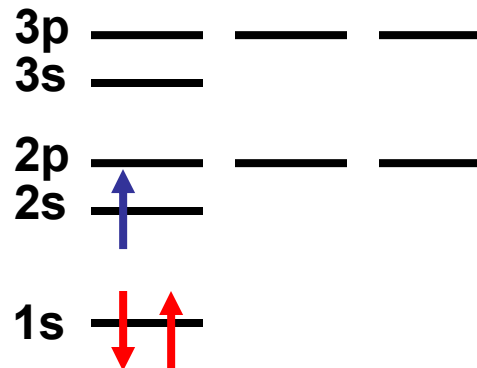
Neutral Lithium Atom



$\Rightarrow 3 p^+ \Rightarrow 3 e^-$

$m_s = -\frac{1}{2} \downarrow$

$m_s = +\frac{1}{2} \uparrow$

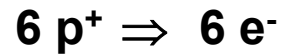
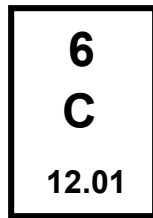


Electron Configuration:  $1s^2 2s^1$



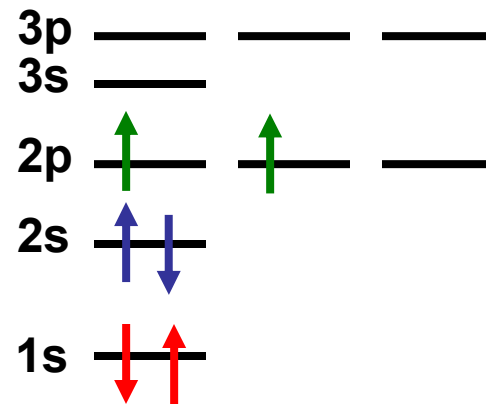
# Putting Electrons in Atoms: The Aufbau Principle

## Neutral Carbon Atom



$$m_s = -\frac{1}{2} \downarrow$$

$$m_s = +\frac{1}{2} \uparrow$$



**Hund's Rule: Don't pair electrons  
in an orbital until you  
have no choice.**

**...electron spins in  
same direction!**

**Electron Configuration:  $1s^2 2s^2 2p^2$**

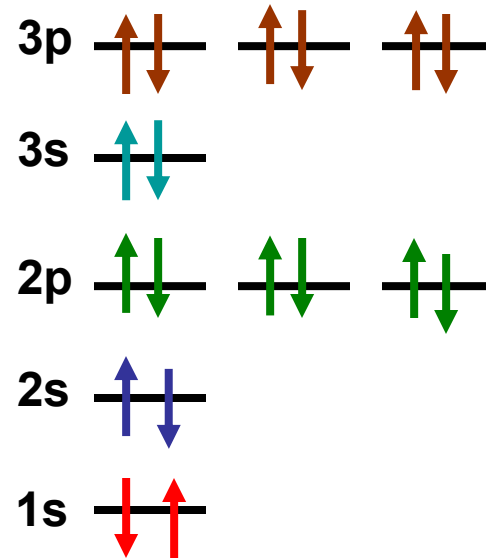


# Putting Electrons in Atoms: The Aufbau Principle

Chlorine anion:  $\text{Cl}^-$

17
Cl
35.45

$17 \text{ p}^+ \Rightarrow 17+1 = 18 \text{ e}^-$

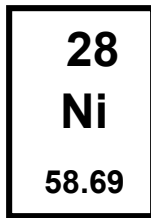


Electron Configuration:  $1s^2 2s^2 2p^6 3s^2 3p^6$



# Putting Electrons in Atoms: The Aufbau Principle

Neutral Nickel Atom



28 p<sup>+</sup> ⇒ 28 e<sup>-</sup>

Electron Configuration:



Argon's electron configuration

