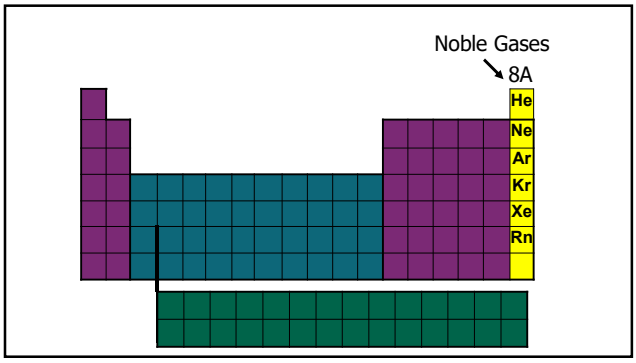
Electron Configuration Part II



A. Noble Gas Notation

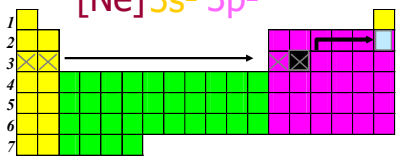
- Noble gases are the most stable and unreactive elements on the periodic table.
- When writing noble gas notations, find the noble gas that contains less electrons than the element you are writing the notation for. The noble gas is your new starting point. Write the noble gas in brackets and continue the notation as before.

Examples:

1. Silicon:
2. Germanium:
3. Cesium:

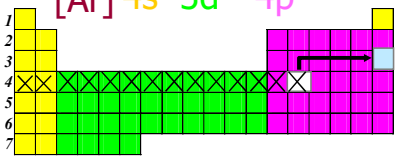
Ex – Silicon

$[Ne]\,3s^2\,3p^2$

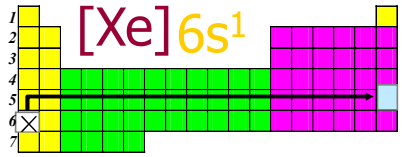


- **Ex -** Germanium

$[Ar]\,4s^2\,3d^{10}\,4p^2$



Ex - Cesium



Electron Configuration Practice (You Try)

2. Noble Gas Notation
   a) Zirconium (Zr)
   b) Selenium (Se)
   c) Lanthanum (La)

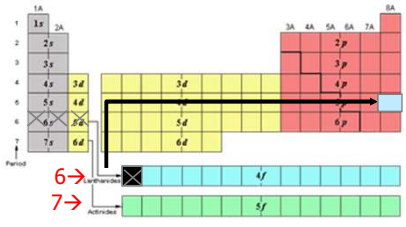
Electron Configuration Practice

2. Noble Gas Notation
   a) Zirconium (Zr): [Kr] $5s^2$ $4d^2$
   b) Selenium (Se): [Ar] $4s^2$ $3d^{10}$ $4p^4$
   c) Lanthanum (La): [Xe] $6s^2$ $5d^1$

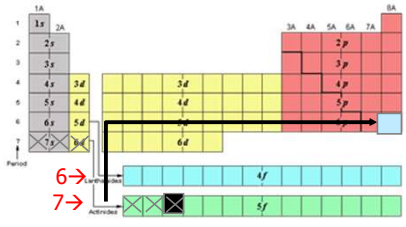
B. Going Through the F-block

Examples:
1. Ce:
2. U:
3. Ta:

Ce: [Xe] $6s^2$ $5d^1$ $4f^1$

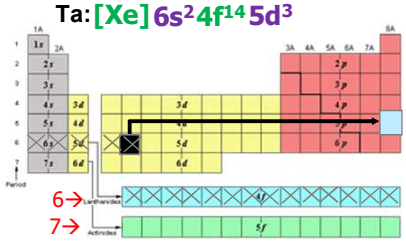


U: [Rn] $7s^2$ $6d^1$ $5f^3$



Ta: ~~[Xe]$6s^2$ $5d^1$ $4f^{14}$ $5d^2$~~

Ta: [Xe] $6s^2 4f^{14} 5d^3$

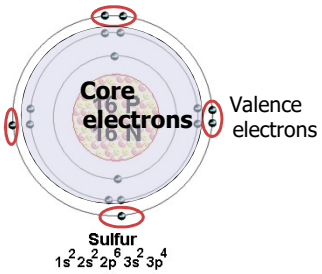


Electron Configuration Practice (You Try)

D. Neptunium (Np)
E. Osmium (Os)

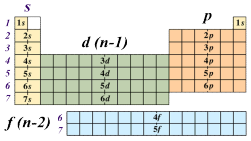
Electron Configuration Practice

D. Neptunium (Np): [Rn] $7s^2$ $6d^1$ $5f^4$
E. Osmium (Os): [Xe] $6s^2$ $4f^{14}$ $5d^6$



C. Electron Dot Structures

1. Show # valence electrons (e- in highest energy level)
   1. Draw symbol and Valence electrons around it
2. No element has more than __8__ valence electrons (only use __s__ and __p__ orbitals)



Examples

1. S:
2. Zr:
3. Ge:

C. Electron Dot Structures

- Ex: Sulfur = **[Ne] $3s^2$ $3p^4$**
- Highest energy level =3
- 2 from 3s and 4 from 3p = 6 valence electrons

C. Electron Dot Structures

Zr: [Kr] $5s^2 4d^2$

C. Electron Dot Structures

Ge: [Ar] $4s^2$ $3d^{10}$ $4p^2$