Representing Ions, Noble Gas Abbreviations & Lewis Dot Structures

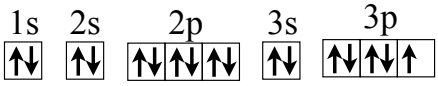
Ions and Quantum Numbers

A Little Review

- Draw the orbital filling diagrams for
  - $_{11}Na$

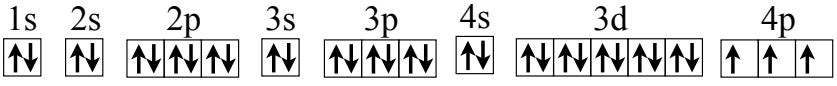
  - $_{17}Cl$

  - $_{29}Cu$

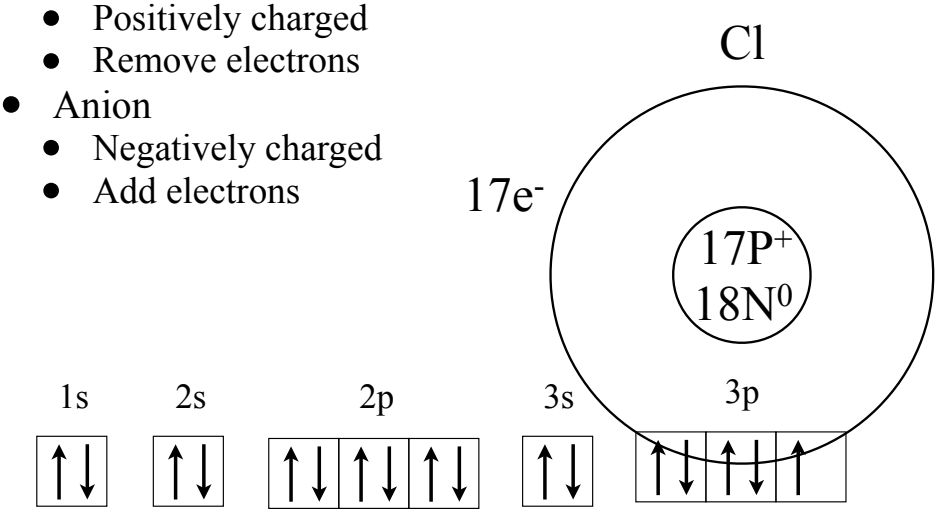
  - $_{33}As$

Ions and Quantum Numbers

Representing Ions

- Ion
  - An atom with a charge
- Cation
  - Positively charged
  - Remove electrons
- Anion
  - Negatively charged
  - Add electrons



Ions and Quantum Numbers

Ions

(+) Remove

(-) Add

⇒ Highest **s** and/or **p** orbitals (valence = on the outside)

Ions and Quantum Numbers

A Little Review

- Draw the orbital filling diagrams for
  - $_{11}Na$

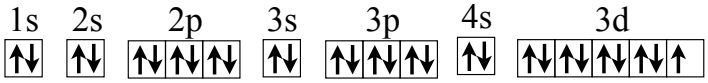
    1s 2s 2p 3s

    
  - $_{17}Cl$

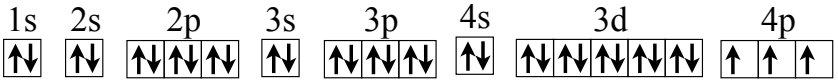
    1s 2s 2p 3s 3p

    
  - $_{29}Cu$

    1s 2s 2p 3s 3p 4s 3d

    
  - $_{33}As$

    1s 2s 2p 3s 3p 4s 3d 4p

NGA & LDS

Noble Gas Abbreviations

- Noble Gas Abbreviations
  - Provide the same information contained in orbital filling diagrams
  - Except,
    - Don't draw electrons as arrows. Instead, use a superscript to count total electrons in each sub-level.
    - Don't start at H each time. Instead, begin at nearest preceeding Noble Gas.

Ions and Quantum Numbers

A Little Review

- Draw the orbital filling diagrams for
  - $_{11}Na$

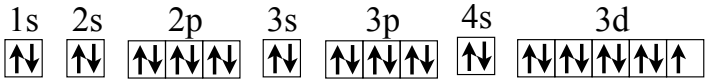
    1s 2s 2p 3s

    
  - $_{17}Cl$

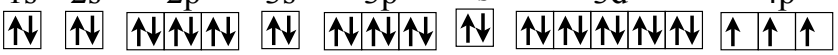
    1s 2s 2p 3s 3p

    
  - $_{29}Cu$

    1s 2s 2p 3s 3p 4s 3d

    
  - $_{33}As$

    1s 2s 2p 3s 3p 4s 3d 4p

NGA & LDS

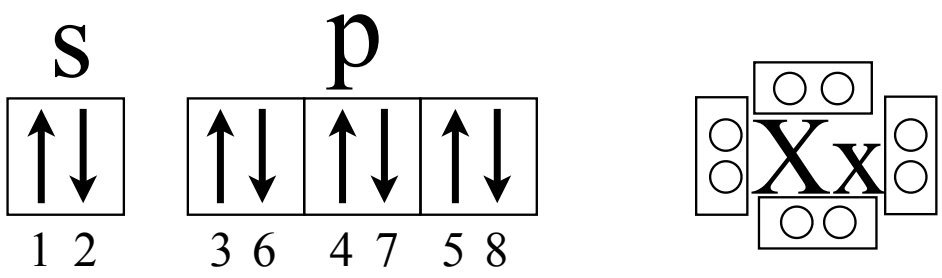
Let's Practice

- Draw the noble gas abbreviations for
  - Mg
  - Ga
  - I^{-1}
  - Sr^{+2}

NGA & LDS

Lewis Dot Structures

- Lewis Dot Diagrams represent valence electrons as dots surrounding the abbreviation of the element



Ions and Quantum Numbers

A Little Review

- Draw the orbital filling diagrams for
  - $_{11}$Na

    1s 2s 2p 3s

  - $_{17}$Cl

    1s 2s 2p 3s 3p

  - $_{29}$Cu

    1s 2s 2p 3s 3p 4s 3d

  - $_{33}$As

    1s 2s 2p 3s 3p 4s 3d 4p

NGA & LDS

Let's Practice

- Draw the Lewis Dot Structures for
  - Mg
  - Ga
  - I^{-1}
  - Se^{+1}
  - Ca^{+2}