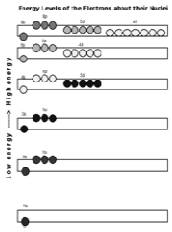
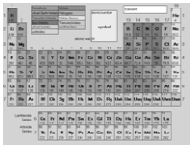
Electron Configuration Problems





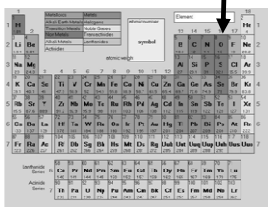
LPT

Walking Through The Periodic Table

Electron Configuration = a walk through the table

What element has the electron configuration $1s^2 2s^2 2p^4$? O
What period is it in? 2
What group is it in? 6
How many valence electrons? 6

Without "Table"
Coefficient = period
" A" Group = s + p

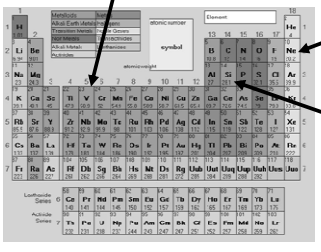


LPT

Identify the elements with electron configurations

$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^3$

V



$1s^2 2s^2 2p^6$

Ne

$1s^2 2s^2 2p^6 3s^2 3p^2$

Si

LPT

Write the ground state electron configuration of:

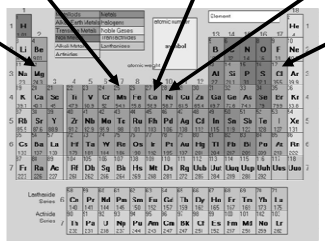
Magnesium
$1s^2\ 2s^2\ 2p^6\ 3s^2$

Manganese
$1s^2\ 2s^2\ 2p^6\ 3s^2 3p^6 4s^2\ 3d^5$

Cobalt
$1s^2\ 2s^2\ 2p^6\ 3s^2 3p^6 4s^2\ 3d^7$

Nickel
$1s^2\ 2s^2\ 2p^6\ 3s^2 3p^6 4s^2\ 3d^8$

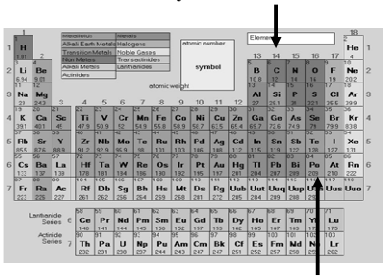
Chlorine
$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^5$



LPT

What is the # of valence electrons in atoms of carbon & silicon?

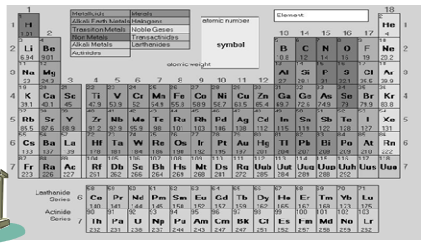
Carbon and Silicon members of family 4A ➔ 4 electrons

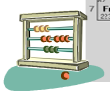


Which group of the Periodic Table does ns^2np^4 represent?
Valence shell is s + p: 2 + 4 = 6 ➔ VI A (16)

LPT

Comparing Entities: Looking for IsoElectronic Atoms





Loses Electrons (Becomes More Positive): Move to Left
Gains Electrons (Becomes More Negative): Move to Right

Number on Charge Determines How Many Spaces to Move

LPT

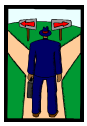
Which Atoms Are Isoelectronic?

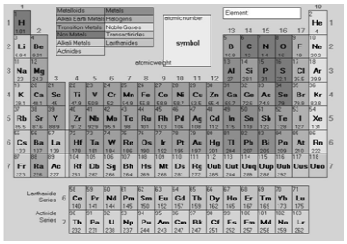
N^{3-} [Ne] & F^{-} [Ne] **Yes, both have same configuration (Ne)**

K^{+} [Ar] & Br^{-} [Kr] **No, different outer shells**

C^{4-} [Ne] & O^{2-} [Ne] **Yes, both have same configuration (Ne)**

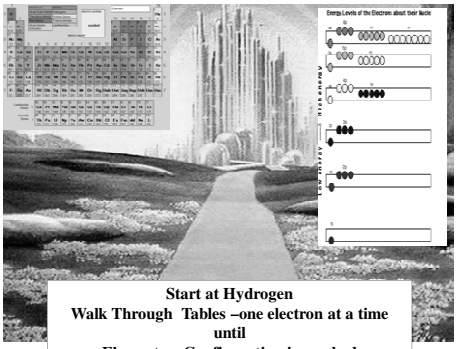
Mg^{2+} [Ne] & Ca^{2+} [Ar] **No, different outer shells**





LPT

Path To Success



Start at Hydrogen
Walk Through Tables –one electron at a time until
Element or Configuration is reached

LPT