Bell Ringer #15:

Socrative Room Name:
LEVEL70WARRIOR

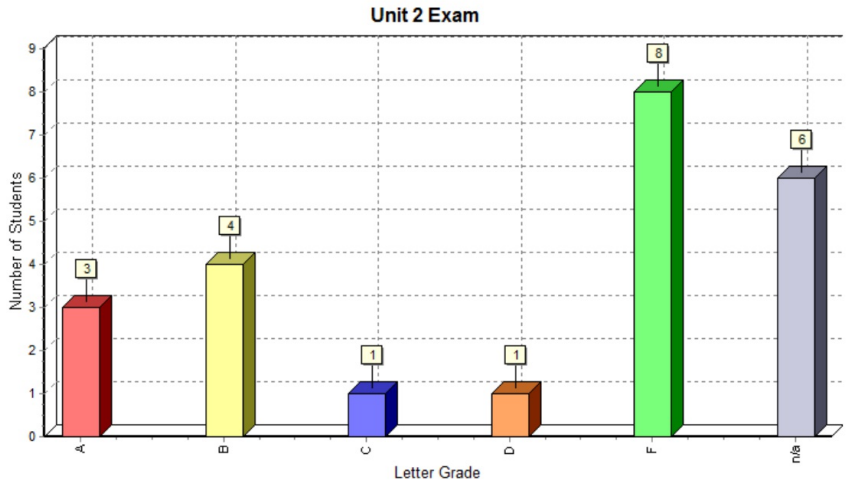
Electron Configuration
Part 2

http://drmoad.weebly.com/

Agenda

Bell Ringer
Exam 2 Results
Electron Configuration Notes
Whiteboard Activity
Flame Tests Intro & Demo
Flame Test Lab
Exit Ticket

Unit 2 Exam



Class Average: 64.76% D

Electron Configuration (Notes)

- All of chemistry and chemical reactions have to do with electrons and how they behave.
- Electrons occupy specific orbitals around the nucleus of an atom.
- These orbitals have known shapes and and we classify these as s, p, d, and f.
- Electrons fill these orbitals in a known pattern. You are expected to become familiar with this pattern!

Example Test Question:

- **Write out the complete electron configuration for Seaborgium (Sg) element 106.**

$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^6 7s^2 5f^{14} 6d^4$

What's the Pattern?:

Total: 2 electrons $1s^2$

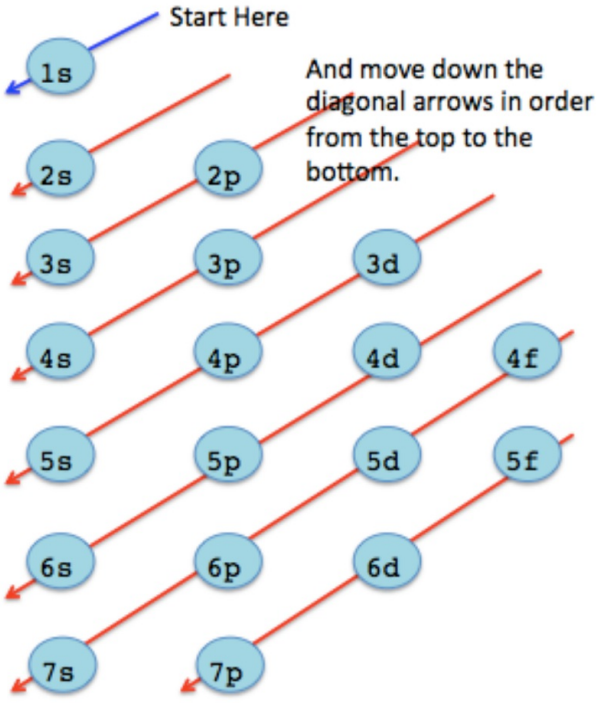
Total: 4 electrons $1s^2\ 2s^2$

Total: 12 electrons $1s^2\ 2s^2\ 2p^6\ 3s^2$

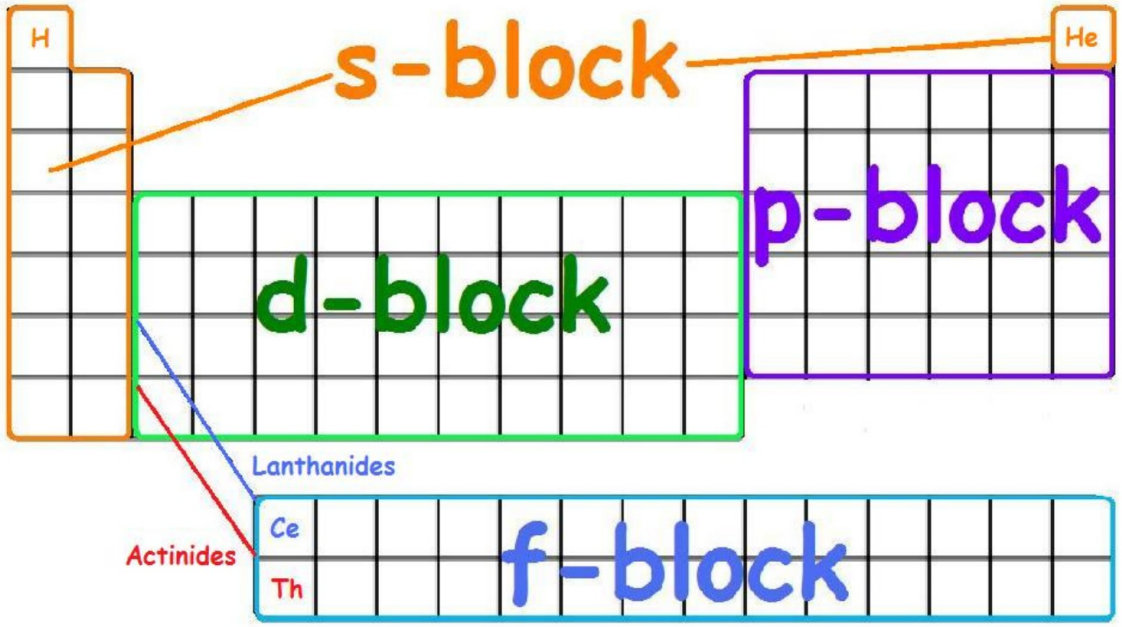
Total: 20 electrons $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2$

Total: 38 electrons $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^2$

Total: 56 electrons $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^2\ 4d^{10}\ 5p^6\ 6s^2$



Electron Configuration (Be able to draw this!)



Electron Configuration

$1s^1$																	$1s^2$
$2s^1$	$2s^2$											$2p^1$	$2p^2$	$2p^3$	$2p^4$	$2p^5$	$2p^6$
$3s^1$	$3s^2$											$3p^1$	$3p^2$	$3p^3$	$3p^4$	$3p^5$	$3p^6$
$4s^1$	$4s^2$	$3d^1$	$3d^2$	$3d^3$	$3d^5$	$3d^5$	$3d^6$	$3d^7$	$3d^8$	$3d^{10}$	$3d^{10}$	$4p^1$	$4p^2$	$4p^3$	$4p^4$	$4p^5$	$4p^6$
$5s^1$	$5s^2$	$4d^1$	$4d^2$	$4d^4$	$4d^5$	$4d^5$	$4d^7$	$4d^8$	$4d^{10}$	$4d^{10}$	$4d^{10}$	$5p^1$	$5p^2$	$5p^3$	$5p^4$	$5p^5$	$5p^6$
$6s^1$	$6s^2$		$5d^2$	$5d^3$	$5d^4$	$5d^5$	$5d^6$	$5d^7$	$5d^9$	$5d^{10}$	$5d^{10}$	$6p^1$	$6p^2$	$6p^3$	$6p^4$	$6p^5$	$6p^6$
$7s^1$	$7s^2$		$6d^2$	$6d^3$	$6d^4$	$6d^5$	$6d^6$	$6d^7$	$6d^8$	$6d^{10}$	$6d^{10}$	$7p^1$	$7p^2$	$7p^3$	$7p^4$	$7p^5$	$7p^6$

$5d^1$	$4f^1$	$4f^3$	$4f^4$	$4f^5$	$4f^6$	$4f^7$	$4f^7$	$4f^9$	$4f^{10}$	$4f^{11}$	$4f^{12}$	$4f^{13}$	$4f^{14}$	$4f^{14}$
$6d^1$	$6d^2$	$5f^2$	$5f^3$	$5f^4$	$5f^6$	$5f^7$	$5f^7$	$5f^9$	$5f^{10}$	$5f^{11}$	$5f^{12}$	$5f^{13}$	$5f^{14}$	$5f^{14}$

Some Examples:

Write the full electron configurations for:

Beryllium

Oxygen

Magnesium

Sulfur

Whiteboard Examples:

Write the full electron configurations for:

Boron

Sodium

Argon

Titanium

Whiteboard Examples:

Write the full electron configurations for:

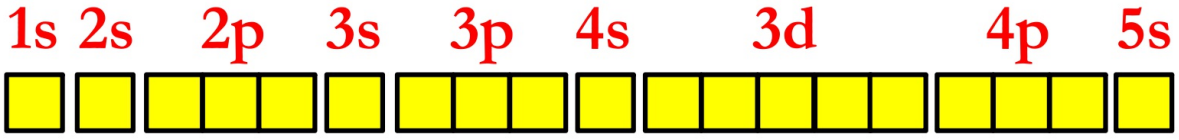
Zinc

Xenon

Which atom has this electron configuration?

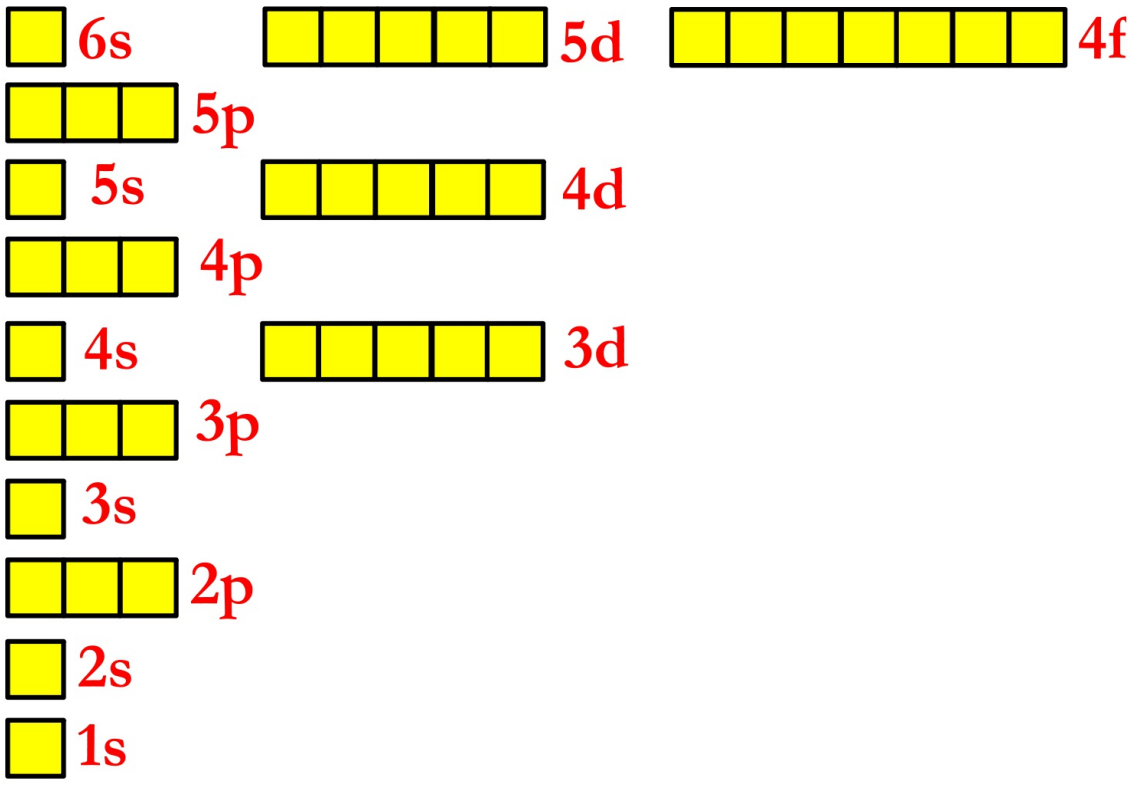
$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6$

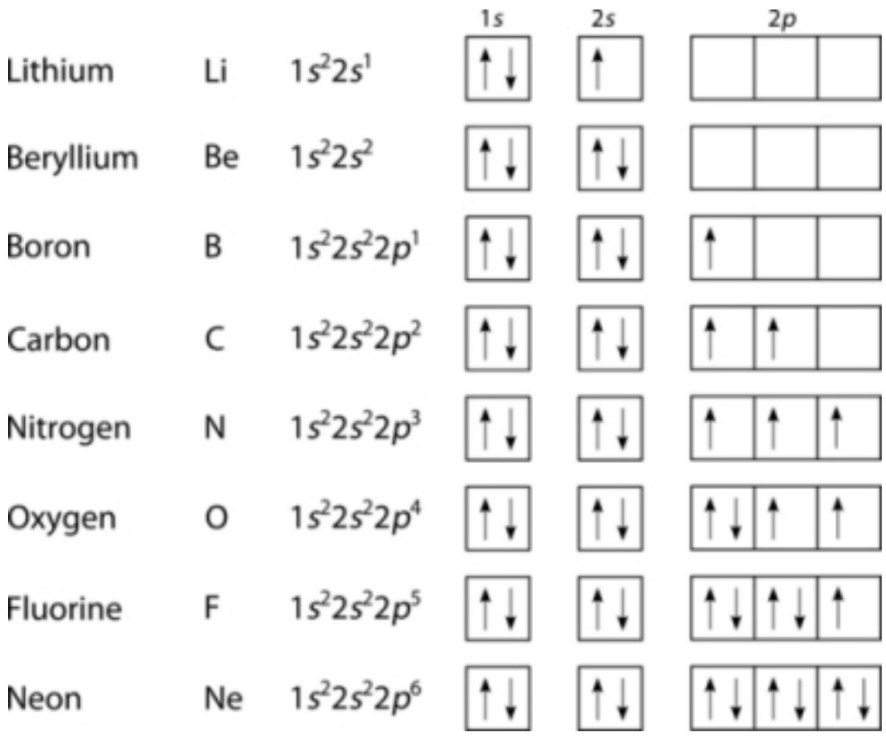
Orbital Diagrams (Drawn in a line)



https://chemistry.boisestate.edu/richardbanks/inorganic/atomic%20structure/orbboxanim.gif

Orbital Diagrams (On and energy scale)





Flame Test Demo

Flame Test Lab

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Exit Ticket #15:

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Electron Configuration