

Electron Configuration Worksheet

Write the electron configuration for each of the following. Also give the number of valence electrons and the number of unpaired electrons. Don't forget to arrange the electrons so that all electrons in the same energy level are together!

Element	Electron Configuration	Valence Electrons	Unpaired Electrons
calcium			
arsenic			
cadmium			
cesium			
fluorine			
iron			
argon			
sulfur			
zinc			
xenon			
lead			
aluminum			
chromium			
iodine			
mercury			
sodium			
strontium			
oxygen			
bromine			
gold			

Name _____ Date _____

Problems:

Write complete electron configurations for the following atoms or ions:

1. N _____
2. Mg _____
3. K^{+1} _____
4. O^{-2} _____

Write complete orbital diagrams for the following atoms or ions:

1. C _____
2. He _____
3. Cl^{-1} _____

Write abbreviated electron configurations for the following atoms or ions:

Hint: reference the appropriate noble gas and then begin the electron configuration at the next lowest s orbital (use period number to find if it is 3s, 2s, etc.)
Ex: Si [Ne] $3s^2 3p^2$ (neon is the first 10 electrons, then start at period 3 with Na)

1. Sr _____
2. Cs _____
3. S _____

Use the shortcut method to determine which element is being referenced.

Hint: remember the period number is the energy level and different parts of the periodic table are considered the s block, p block, and d block

1. $2s^2$ _____
2. $3p^4$ _____
3. $5p^1$ _____
4. $4s^1$ _____

Tell whether the following elements would gain or lose electrons, and the number of electrons involved in order to achieve the electron configuration of a noble gas. Which noble gas configuration would they achieve? What will be their ionic charge?

Ex. N $1s^2 2s^2 2p^3$ needs to gain three electrons to look like Ne N^{-3}

1. Li _____
2. Br _____
3. Ge _____
4. Fr _____