

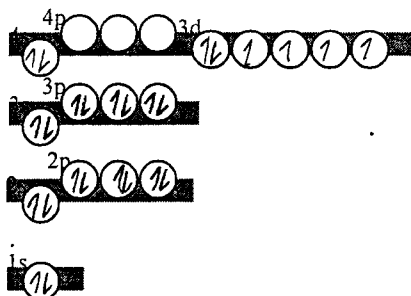
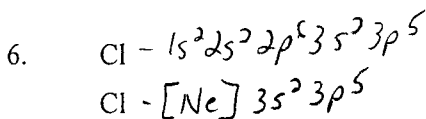
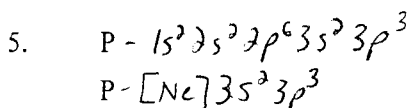
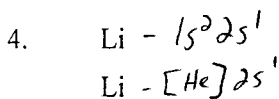
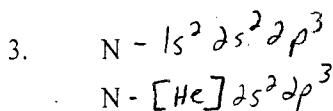
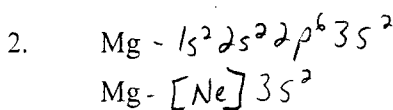
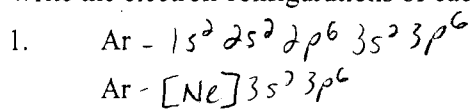
# Electron Configurations & Periodicity

## WRITING ELECTRON CONFIGURATIONS

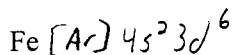
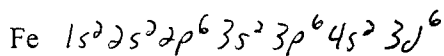
For each given element, fill in the orbital diagram and then write the electron configuration for the element.

1.	2.	3.	4.	5.	6.
Element: Ar # of e <sup>-</sup> s: 18	Element: Mg # of e <sup>-</sup> s: 12	Element: N # of e <sup>-</sup> s: 7	Element: Li # of e <sup>-</sup> s: 3	Element: P # of e <sup>-</sup> s: 15	Element: Cl # of e <sup>-</sup> s: 17

Write the electron configurations of each of these in **long form** and **short form**:



7. Fill in the orbital diagram for the element, Fe, and write the electron configuration of Fe in the long and short form.



Draw the orbital diagram and both forms of the electron configuration of four members of Group 16:  
 Write the **short form** and then the **long form** for each of these elements.  
 Draw a box around the valence electrons.

8.		<p>Oxygen, O</p> <p>O - <math>1s^2 2s^2 2p^4</math></p> <p>O - <math>[\text{He}] 2s^2 2p^4</math></p>
9.		<p>Sulfur, S</p> <p>S <math>1s^2 2s^2 2p^6 3s^2 3p^4</math></p> <p>S <math>[\text{Ne}] 3s^2 3p^4</math></p>
10.		<p>Selenium, Se</p> <p>Se <math>1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^4</math></p> <p>Se <math>[\text{Ar}] 4s^2 3d^{10} 4p^4</math></p>
11.		<p>Tellurium, Te</p> <p>Te <math>1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^4</math></p> <p>Te <math>[\text{Kr}] 5s^2 4d^{10} 5p^4</math></p>

### Family Similarities and Valence Electrons:

Write the symbols for the valence electrons (outermost s & p) found in the following elements. Note the similarities in the vertical columns.

Per	1	2	13	14	15	16	17	18
1	H • $1s^1$							He • $1s^2$
2	Li • $2s^1$	Be $2s^2$	B $2s^2 2p^1$	C $2s^2 2p^2$	N $2s^2 2p^3$	O $2s^2 2p^4$	F $2s^2 2p^5$	Ne $2s^2 2p^6$
3	Na • $3s^1$	Mg $3s^2$	Al $3s^2 3p^1$	Si $3s^2 3p^2$	P $3s^2 3p^3$	S $3s^2 3p^4$	Cl $3s^2 3p^5$	Ar $3s^2 3p^6$
4	K • $4s^1$	Ca $4s^2$	Ga $4s^2 4p^1$	Ge $4s^2 4p^2$	As $4s^2 4p^3$	Se $4s^2 4p^4$	Br $4s^2 4p^5$	Kr $4s^2 4p^6$
5	Rb • $5s^1$	Sr $5s^2$	In $5s^2 5p^1$	Sn $5s^2 5p^2$	Sb $5s^2 5p^3$	Te $5s^2 5p^4$	I $5s^2 5p^5$	Xe $5s^2 5p^6$
6	Cs • $6s^1$	Ba $6s^2$	Tl $6s^2 6p^1$	Pb $6s^2 6p^2$	Bi $6s^2 6p^3$	Po $6s^2 6p^4$	At $6s^2 6p^5$	Rn $6s^2 6p^6$
7	Fr • $7s^1$	Ra. $7s^2$						