

# Electron Configuration of Ions

Name: \_\_\_\_\_

1. Draw the correct Lewis electron-dot diagrams for each atom in the below table.

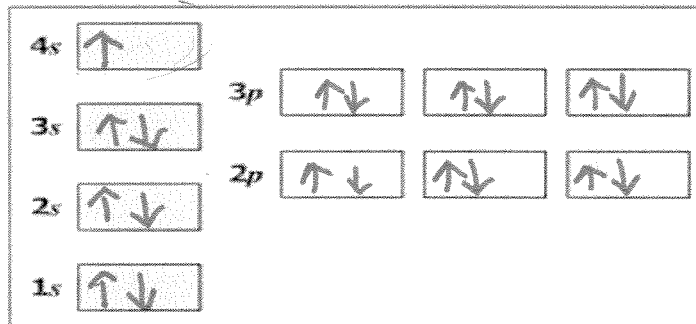
1 +1 H•						18 He••	
	2 +2	+3	+/-4	-3	-2	-1	
Li••	Be••	13 B••	14 C••	15 N••	16 O••	17 F••	18 Ne••

2. Above each group on the periodic table, write the charge of the ions in each group.

3. Write the electron configuration of potassium at the ground state.

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

4. In the box below, write the orbital notation of potassium at the ground state.



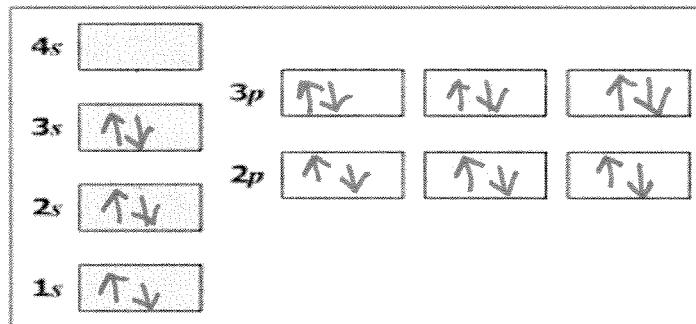
5. What is the formula (symbol and charge) of the potassium ion?

$K^+$

6. How many electrons does the potassium ion contain?

18

7. In the box below, write the orbital notation for the potassium ion.

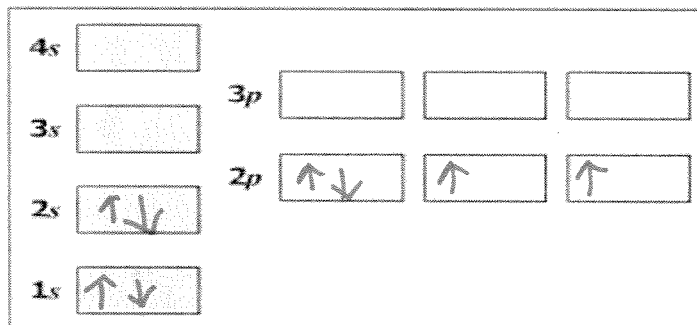


8. Write the correct superscript in the boxes. You must write all the correct superscripts. Some boxes could be blank.

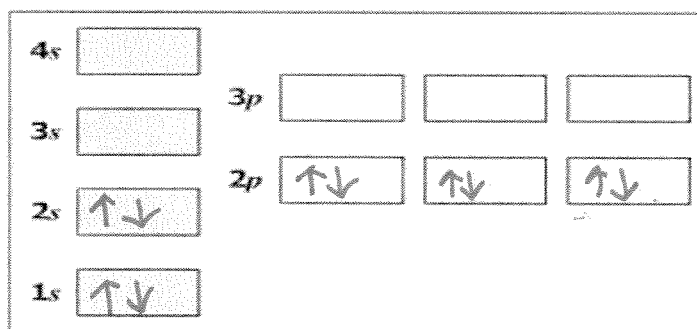
Complete the electron configuration for the potassium ion.

$1s^{\boxed{2}}$ 
 $2s^{\boxed{2}}$ 
 $2p^{\boxed{6}}$ 
 $3s^{\boxed{2}}$ 
 $3p^{\boxed{6}}$ 
 $4s^{\boxed{\phantom{0}}}$

9. Write the electron configuration of oxygen at the ground state.  $1s^2 2s^2 2p^4$
10. In the box below, write the orbital notation of oxygen at the ground state.



11. What is the formula (symbol and charge) of the oxide ion?  $O^{2-}$
12. How many electrons does the oxide ion contain? 10
13. In the box below, write the orbital notation for the oxide ion.



14. Write the correct superscript in the boxes. You must write all the correct superscripts. Some boxes could be blank.

Complete the electron configuration for the oxide ion.



15. What is the charge of the lead ion in the ionic compound  $PbO_2$ ?  $+4$
16. How many electrons does the lead ion have in the ionic compound  $PbO_2$ ?  $82 - 4 = 78$
17. What is the electron configuration of the aluminum ion in the ionic compound  $Al(NO_3)_3$ ?  $1s^2 2s^2 2p^6$  *valence last 3e*
- a.  $1s^2 2s^2 2p^6 3s^2 3p^1$
- b.  $1s^2 2s^2 2p^3$
- c.  $1s^2 2s^2 2p^6$
- d.  $1s^2 2s^2 2p^6 3s^2 3p^6$
18. What is the electron configuration of the chloride ion in the ionic compound  $NH_4Cl$ ?  $1s^2 2s^2 2p^6 3s^2 3p^6$  *+1 -1*
- a.  $1s^2 2s^2 2p^6 3s^2 3p^6$
- b.  $1s^2 2s^2 2p^6 3s^2 3p^8 4s^2$
- c.  $1s^2 2s^2 2p^6$
- d.  $1s^2 2s^2 2p^6 3s^2 3p^8$