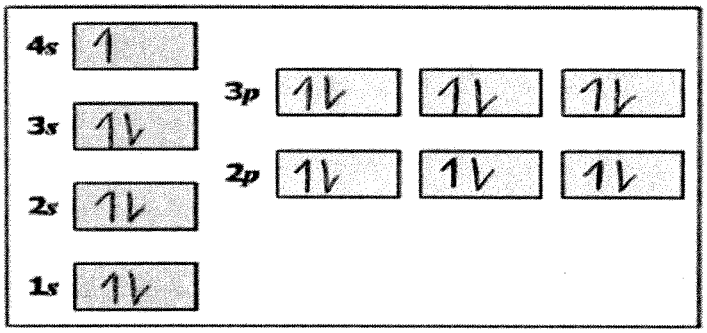
Electron Configuration of Ions Name:_____ Block:____

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

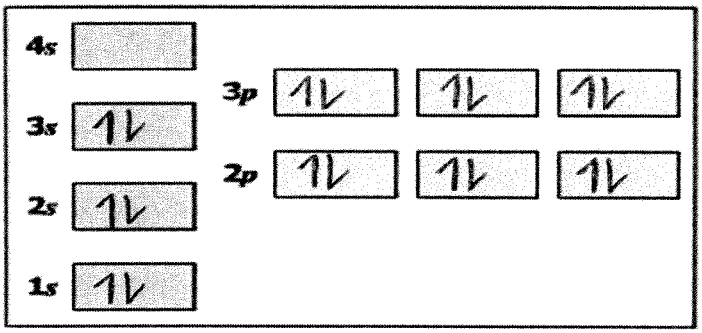
1+ 1							18
H•	2+ 2	3+ 13	14	3- 15	2- 16	1- 17	He:
Li•	•Be•	•B•	•C•	•N•	•O•	•F•	:Ne:

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.



ground state = normal e- config

5. What is the formula (symbol and charge) of the potassium ion? K^{+1}
6. How many electrons does the potassium ion contain? 19 - 1 = (18) (K loses its one valence e-)
7. In the box below, write the orbital notation for the potassium ion.



K^{+1} ion has lost the e- in 4s orbital

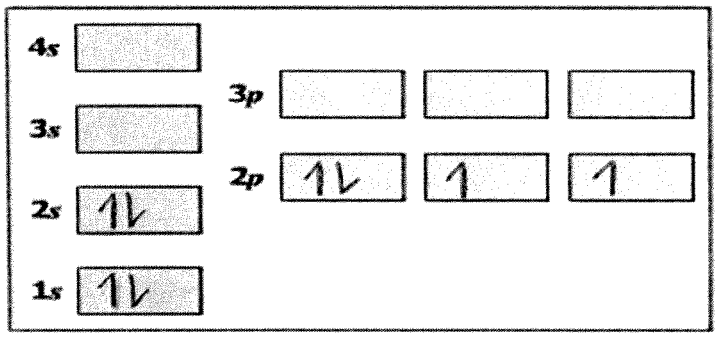
8. Write the correct superscript in the boxes. You must write all the correct superscripts. Some boxes could be blank.

Complete the electron configuration for the potassium ion.

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

9. Write the electron configuration of oxygen at the ground state. $1s^2 2s^2 2p^4$

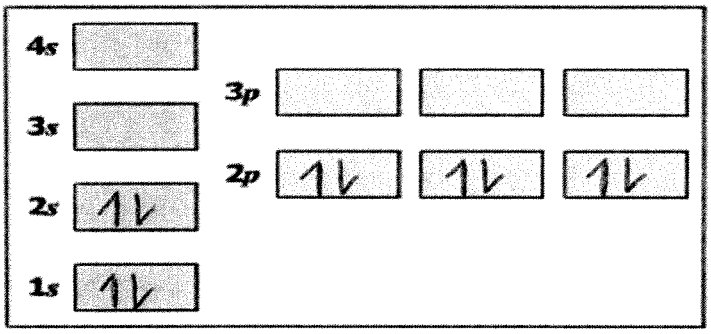
10. In the box below, write the orbital notation of oxygen at the ground state.



11. What is the formula (symbol and charge) of the oxide ion? O^{2-}

12. How many electrons does the oxide ion contain? $8 + 2 = (10)$ (O gains 2 e⁻ to complete its octet)

13. In the box below, write the orbital notation for the oxide ion.



O^{2-} ion has gained 2 e⁻
∴ O^{2-} has 8 valence e⁻ = stable

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.

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

15. What is the charge of the lead ion in the ionic compound PbO_2? $+4$ ($^{+4}Pb\ ^{-2}O_2$)

16. How many electrons does the lead ion have in the ionic compound PbO_2? $82 - 4 = (78)$ (Pb^{4+})

17. What is the electron configuration of the aluminum ion in the ionic compound $Al(NO_3)_3$? (Al^{3+})

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? (Cl^{-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. $1s^2 2s^2 2p^6 3s^2 3p^8$