

ELECTRON CONFIGURATION PART I

NAME _____

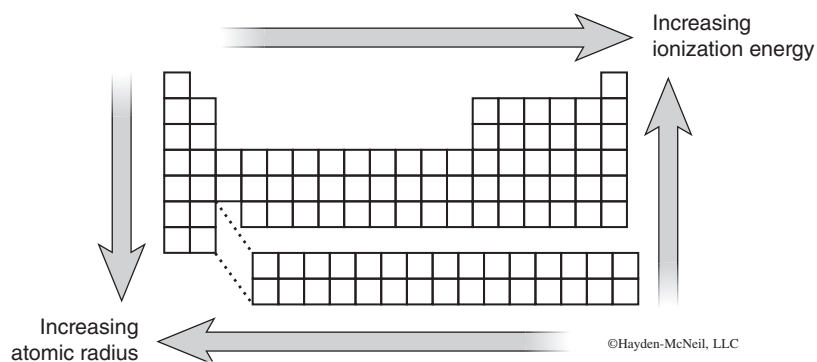
SECTION _____

1. Write the *electronic configuration* for the *valence electrons* for each of the following elements and ions and their *Lewis dot structure*:

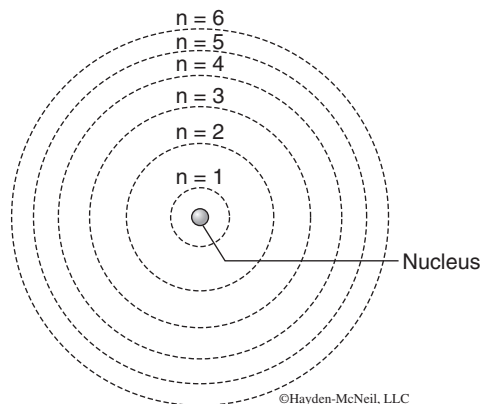
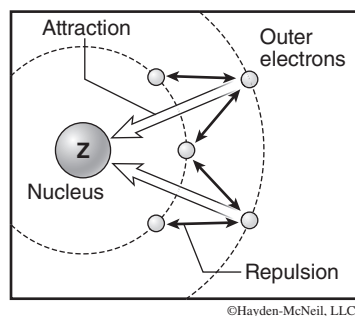
Period	Group IA		Group IIA		Group IIIA		Group VIA		Group VIIA	
	Atom	Ion	Atom	Ion	Atom	Ion	Atom	Ion	Atom	Ion
2	Li	Li ⁺	Be	Be ²⁺	B	B ³⁺	O	O ²⁻	F	F ⁻
3	Na	Na ⁺	Mg	Mg ²⁺	Al	Al ³⁺	S	S ²⁻	Cl	Cl ⁻
4	K	K ⁺	Ca	Ca ²⁺	Ga	Ga ³⁺	Se	Se ²⁻	Br	Br ⁻

*If you want to **learn** and not just memorize rules, it is **CRITICAL** that you **don't use** your notes for the rest of this problem.*

2. The periodic table below shows the periodic trends for the atomic radius and the ionization energy (IE).



Based on the table that you built in Question 1, the periodic trends shown above and the two pictures below explain:



- why the radii of atoms decrease across a period.
 - why the radii of atoms increase down a group.
 - why the ionization energy increases across a period.
 - why the ionization energy decreases down a group.
3. The **radius of a cation** (positive ion) is always **smaller** than that of the atom from which it is derived. On the other hand, the **radius of an anion** (negative ion) is always **bigger** than that of the atom from which it is derived.

Using the information provided above, explain why.

4. Write the electronic configuration of the following elements and ions (Watch for the exceptions!):

Cr _____ Cr³⁺ _____

Fe _____ Fe²⁺ _____

Ne _____ Fe³⁺ _____

Cu _____ Cu⁺ _____

C _____ Cu²⁺ _____