

<b>Chapter 19 Review</b>
--------------------------

**Basics** - Know that valence electrons are the outer electrons of an atom, that atoms want to have 8 (octet rule), and how to find the valence electrons of each element (use the song). Be able to find oxidation numbers, too.  
 Know that metals are on the left side and non-metals are on the right (except hydrogen, a non-metal).  
 Know that metals tend to lose electrons and become positive ions (cations); non-metals tend to gain electrons and become negative ions (anions).  
 Be able to make dot diagrams for each element. The dots are valence electrons and are drawn as pairs of electrons.

1. Ion	A. A negatively charged ion: non-metals.
2. Cation	B. A positively or negatively charged atom because electrons have been gained or lost.
3. Anion	C. An atom with the same number of protons and electrons.
4. Neutral	D. Says that atoms will gain, loses, or share electrons in order to have 8 valence electrons.
5. Octet Rule	E. A positively charged ion: metals.

Give valence electrons for:

Give oxidation numbers for:

Lithium \_\_\_\_ Nitrogen \_\_\_\_

Lithium \_\_\_\_ Nitrogen \_\_\_\_

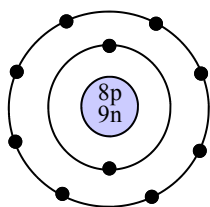
Chlorine \_\_\_\_ Calcium \_\_\_\_

Chlorine \_\_\_\_ Calcium \_\_\_\_

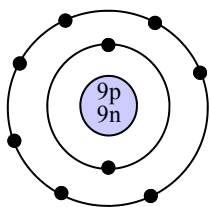
Draw the dot diagram for Magnesium. Metal or non-metal?

Draw the dot diagram for Oxygen. Metal or non-metal?

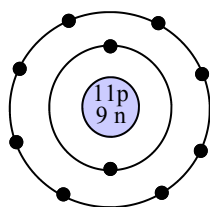
**Ions**— Know that ions are atoms with a different number protons than electrons.  $p - e = \text{charge}$   
 Be able to give and read ion notation.



Atom A



Atom B



Atom C

Are any of these atoms on the left ions?

Give the ion notation for any ions you do find.

How many electrons does  $\text{Mg}^{2+}$  have?  
 Cation or anion?

How many electrons would  $\text{N}^{3-}$  have?  
 Cation or anion? Metal or non-metal?

Give ion notation for an element with  
 35 protons and 36 electrons.

The number of electrons that are gained, lost, or shared when atoms bond we call:

The periodic table is organized by:

Elements in group 2 will not combine with which groups?

The property of an element most responsible for its chemical properties:

The electrons involved in chemical bonding we call:

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

Period: \_\_\_\_\_

**Compounds and Bonding -**

*Know that atoms combine into compounds to fulfill the octet rule by losing, gaining or sharing electrons.*

*Know that ionic bonds are between metals (positive ions) and non-metals (negative ions) that are electrically attracted to each other.*

*Know how to find the formulas for (make) ionic compounds by the "cross the number not the sign" method. Those numbers are oxidation numbers, not valence electrons.*

*Know that covalent bonds are between non-metals that share electrons to get eight. Be able to make covalent bonds by using dot diagrams.*

Make a compound with Beryllium and Chlorine.	Make a compound between Calcium and Nitrate (NO <sub>3</sub> ) <sup>1-</sup> .	Make a compound between Iron III and Nitrogen.
Make Sulfur difluoride: SF <sub>2</sub> .	Make Br <sub>2</sub> .	With dot diagrams make N <sub>2</sub> .

---

**Naming**—*Be able to name compounds and tell if they are ionic, covalent, or polyatomic.  
You will be given the polyatomic chart on the test, but not the Greek prefixes.*

Type: Ionic;  
Covalent; Polyatomic.

Compound Name

1. BaO \_\_\_\_\_

\_\_\_\_\_

2. Be(NO<sub>3</sub>) \_\_\_\_\_

\_\_\_\_\_

3. CaCl<sub>2</sub> \_\_\_\_\_

\_\_\_\_\_

4. C<sub>2</sub>Br<sub>4</sub> \_\_\_\_\_

\_\_\_\_\_

5. OCl<sub>2</sub> \_\_\_\_\_

\_\_\_\_\_

6. Na<sub>2</sub>SO<sub>4</sub> \_\_\_\_\_

\_\_\_\_\_