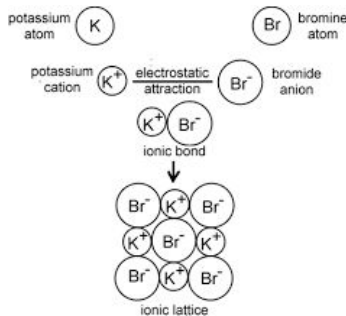


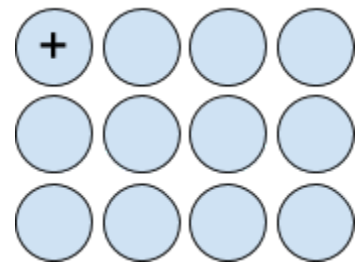
Ionic Bond Practice Problems

1. Using the diagram below, explain **how** an ionic crystal lattice structure is formed:



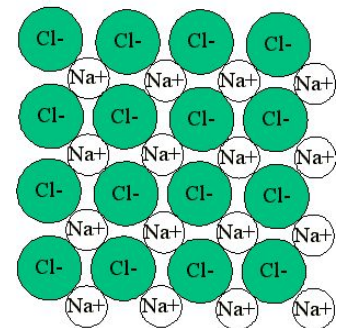
2. Using the diagram to the right, fill in the charges of the ions in the crystal lattice structure:

- Why do the charges alternate?

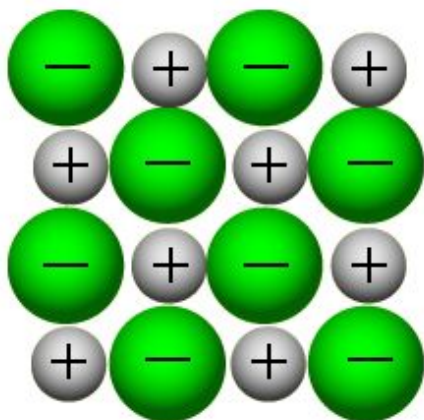


3. When looking at ionic bonds and crystal lattice structures, the smallest unit of the structure is called a **formula unit**. This unit is represented by the **chemical formula**. Given the diagram to the right for Sodium chloride (NaCl), draw one **formula unit** of **NaCl** in the space below:

Formula Unit for Sodium chloride:

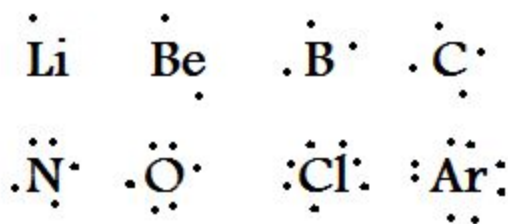


4. Below is a simple diagram of an ionic lattice structure. It is added to water and **dissolved**. Draw what the **particles** look like in the beaker now that it has dissolved in water.



Lewis (Electron) Dot Diagrams:

Below you will find eight (8) **electron dot diagrams** for common elements. The dots around the element's symbols represent a certain **type** of electrons.



- What **type** of electrons possessed by an atom in its **outermost** energy level do the dots represent?
- Why do you think these electrons in Carbon, Nitrogen, and Oxygen (especially) are **spread out** in the way that they are?
- If Chlorine has 7 dots, how many more can it possibly **gain**? _____
- If Oxygen has 6 dots, how many more can it possibly **gain**? _____
- What is the **correlation** between **open electron spaces** and possible **bonds formed**?

Practice:

1. Write the electron dot diagram for each of the following elements:

a. Hydrogen -	d. Magnesium -
b. Barium -	e. Oxygen -
c. Krypton -	f. Chlorine -
2. Use electron dot diagrams to show the **transfer** of electrons in each of the following Ionic bonds. Then, write the formula for each combination - Cation(s) first!

a. Potassium and Chlorine	c. Rubidium and Oxygen
b. Beryllium and Fluorine	d. Calcium and Sulfur