WODSS SCIENCE Name: _____

SCH 4CI Date: _____

Formation of Ionic Compounds

Ionic bonds are formed when a metallic ion _____ with a positive charge is attracted to a non-metal ion with a negative charge _____.

This attraction between positive and negative ions forms an _____.
The bond that arises from the attraction between two oppositely charged ions is called _____.

At room temperature, ionic compounds form solid _____, where large numbers of cations and anions are arranged in repeating 3D pattern. Ionic crystals are called _____.

One crystal contains many ions. The chemical formula of ionic compounds does not show the number of ions present in each crystal; instead it shows the _____.

Example: A crystal of table salt (sodium chloride or NaCl) contains many sodium and chloride ions in a _____ ratio.
A crystal of magnesium chloride $MgCl_2$ contains many magnesium and chloride ions in a ratio of _____.
This means that there are twice as many _____ions as there are _____ ions.
When soluble ionic compounds are dissolved in water, they _____into positive and negative ions. If the solution is connected to a battery, the _____ will be attracted to the _____ end of the battery, and the _____are attracted to the _____ end of the battery. This movement of ion causes _____ to flow through the solution. Because ionic compounds can conduct electricity in solution, they are said to be _____.

M stands for any metallic cation, X stands for any non-metallic anion.

	cations			**anions**		
	M^{+}	**M^{2+}**	**M^{3+}**	**X^{3-}**	**X^{2-}**	**X^{-}**
Group	**1**	**2**	**13**	**15**	**16**	**17**
	Li^{+}	**Be^{2+}**	**Al^{3+}**	**N^{3-}**	**O^{2-}**	**F^{-}**
	Na^{+}	**Mg^{2+}**		**P^{3-}**	**S^{2-}**	**Cl^{-}**
	K^{+}	**Ca^{2+}**		**As^{3-}**	**Se^{2-}**	**Br^{-}**
	Rb^{+}	**Sr^{2+}**			**Te^{2-}**	**I^{-}**
	Cs^{+}	**Be^{2+}**				

Rules for Writing Formulas for Ionic Compounds

1. The positive ion _____ is given first in the formula. This is a chemistry custom.
2. The subscripts in the formula must produce an _____.
3. The subscripts should be the _____ possible.

Ionic compound formation can be shown in the two methods given below

1. Lewis Dot Diagrams
2. Cross over the number of charges to make them subscripts, reduce if needed and remove all ones.

Write formulas for

a) Al and Cl,

c) Ba and S,

b) Al and O,

d) Li and N