Ionic & Covalent Bond Virtual Lab

Pre-Lab Questions:

1. What are metal atoms? Where are they located on the periodic table?

2. What are non-metal atoms? Where are they located on the periodic table?

3. Define valence electrons.

4. Define ionic bonds.

5. Define covalent bonds.

6. Compare and contrast ionic bonds and covalent bonds.

7. How would you use the periodic table in determining the number of valence electron(s) an atom has?

8. What is net charge? How do you determine the net charge in a chemical bond?

9. Select four atoms from the periodic table and draw a Lewis Dot Structure for them:

Virtual Lab Procedure: Go to http://www.teachchemistry.org/bonding You should see a picture of the Periodic Table on your screen.

Data Table 1

Choose	Element Type	# Valence electrons	Type of bond (Ionic or Covalent)	# of atoms needed for bond & why?	Which element has the positive (+) charger	Which element has the negative (-) charge	Overall charge of the compound?	Compound name and formula
Sodium (Na)								
Fluorine (F)								
Calcium (Ca)								
Chlorine (Cl)								

Data Table 2: Use the Periodic Table simulation to complete the chart below.

Metal	**# of Valence Electrons**	**Atom Charge**	**Non-metal**	**# of Valence Electrons**	**Atom Charge**	**Molecular Formula & Charge**	**Formula Name**
Na	1	1^+	O	6	2^-	Na_2O; 0	Sodium oxide
Mg			Cl				
Ca			N				
Al			S				

Data Table 3

Choose	Element Type	# Valence electrons	Type of bond (Ionic or Covalent)	# of atoms needed for bond & why?	What is the geometry structure of the bond?	Lewis Dot Structure of Compound	Compound name & formula
Fluorine (F)							
Fluorine (F)							
Nitrogen (N)							
Nitrogen (N)							

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Post-Lab Question

1. What are the differences in naming conventions for ionic and covalent compounds? Provide examples in your answer.

2. Based on what you learned in this lab, complete the missing portions in the table below.

Name	Formula	Bond Type
Lithium fluoride		
	H_2O	
Dinitrogen monoxide		
	$Mg(OH)_2$	
Sodium bromide		

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