



# Chemical Bonds: Student Activity Sheet

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

Date: \_\_\_\_\_

## Part 1: Compounds

1. What do you notice about the electrons for oxygen? \_\_\_\_\_  
\_\_\_\_\_
2. What do you notice about the electrons for hydrogen? \_\_\_\_\_  
\_\_\_\_\_
3. How many oxygen atoms are present in  $H_2O$ ? How many hydrogen atoms are present in  $H_2O$ ?  
\_\_\_\_\_
4. What do you notice about the total number of electrons in the compound  $H_2O$ ? \_\_\_\_\_  
\_\_\_\_\_
5. Record each compound you have made.

6. Explain if the molecule  $NaHCO_3$  could exist based on the balance of electrons. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Part 2: Chemical Reaction

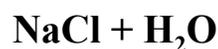
1. Explain how  $NaCl$  can exist based on what you learned in Part 1. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. What do you notice about the number of  $Na$  atoms on the left side of the arrow and the number of  $Na$  atoms on the right side of the arrow? \_\_\_\_\_  
\_\_\_\_\_
3. What do you notice about the number of  $Cl$  atoms on the left side of the arrow and the number of  $Cl$  atoms on the right side of the arrow? \_\_\_\_\_  
\_\_\_\_\_

4. Write down the total number of atoms for each element.



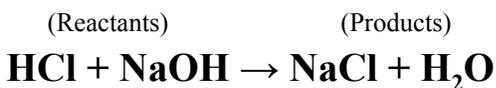
<b>H</b>	
<b>Cl</b>	
<b>Na</b>	
<b>O</b>	

5. Write down the total number of atoms for each element.



<b>H</b>	
<b>Cl</b>	
<b>Na</b>	
<b>O</b>	

6. The chemical equation for the complete reaction is below. The reactants are on the left side of the arrow and the products are on the right side of the arrow.



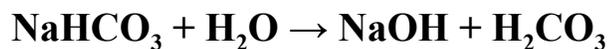
Explain how the equation supports the Law of Conservation of Matter. The Law of Conservation of Matter states that the number of atoms for each element must be the same before and after the reaction.

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7. Look at the following equation.



Based on what we know about electrons explain how each compound ( $\text{NaHCO}_3$ ,  $\text{H}_2\text{O}$ ,  $\text{NaOH}$ ,  $\text{H}_2\text{CO}_3$ ) can exist, and provide evidence that this equation supports the Law of Conservation of Matter.

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