



## 2-1: Names and Formulas of Ionic Compounds

In this problem, you will go into the virtual laboratory and make a series of ionic compounds containing the cations  $\text{Ag}^+$ ,  $\text{Pb}^+$ ,  $\text{Ca}^{2+}$ ,  $\text{Fe}^{3+}$ , and  $\text{Cu}^{2+}$ ; observe the reactions and identify the color of the compound formed; write the chemical formulas; and write the chemical name.

1. Start *Virtual ChemLab*, select *Reactions and Stoichiometry*, and then select *Names and Formulas of Ionic Compounds* from the list of assignments. The lab will open in the Inorganic laboratory.
2. Drag a test tube from the box and place it on the metal test tube stand (or you can double click a tube and it will move it there). You can then click on the bottle of  $\text{Ag}^+$  ion solution on the shelf to add it to the test tube.
3. Click on the **Divide** icon on the edge of the lab bench four times to make four additional test tubes containing  $\text{Ag}^+$ . With one test tube in the metal stand and four others in the blue rack, click on the  $\text{Na}_2\text{S}$  bottle located on the lab bench. You will be able to observe what happens in the window at the top left. Record your observation in the table on the following page and write a correct chemical formula and name for the product of the reaction. If the solution remains clear, record NR, for no reaction. Drag this test tube to the red disposal bucket on the right.
4. Place a second tube from the blue rack (containing  $\text{Ag}^+$ ) on the metal stand. Add  $\text{Na}_2\text{SO}_4$ . Record your observations and discard the tube. Use the next tube but add  $\text{NaCl}$ , and record your observations. Use the next tube but add  $\text{NaOH}$ , and record your observations. With the last tube add  $\text{Na}_2\text{CO}_3$  and record your observations. When you are completely finished, click on the red disposal bucket to clear the lab.
5. Repeat steps 2-4 for  $\text{Pb}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Fe}^{3+}$ , and  $\text{Cu}^{2+}$ . Complete the table on the following page.

Each cell should include a description of what you observed when the reagents were mixed and a correct chemical formula and name for all solutions that turned cloudy and NR for all solutions that did not react or remained clear. Remember to include roman numerals where appropriate.



	$\text{Ag}^+$	$\text{Pb}^{2+}$	$\text{Ca}^{2+}$	$\text{Fe}^{3+}$	$\text{Cu}^{2+}$
$\text{Na}_2\text{S}$ ( $\text{S}^{2-}$ )					
$\text{Na}_2\text{SO}_4$ ( $\text{SO}_4^{2-}$ )					
$\text{NaCl}$ ( $\text{Cl}^-$ )					
$\text{NaOH}$ ( $\text{OH}^-$ )					
$\text{Na}_2\text{CO}_3$ ( $\text{CO}_3^{2-}$ )					