

# Double Replacement Reactions: an Investigation

Given several solutions to test\*, you are to design an experiment to determine whether a reaction will occur when the solutions are mixed two at a time. You will have the following materials to work with:

- Well plates
- Ionic compound solutions
- Other materials as requested by your group

## Write up requirements

Before you begin, you will need to think about how you plan to carry out these tests. Be sure to consider the following information:

- the objective of the lab*
- safety considerations ( Silver nitrate ( $\text{AgNO}_3$ ) will react with organic substances to leave a permanent black stain. This includes paper, clothes, and skin. Explain how you intend to protect yourself from contact with this solution. )*
- the methods that you will use –these should be designed to meet your objective*
- data that you will collect and a system for recording that data (see below)*

\* We will be testing three compounds,  $\text{AgNO}_3$ ,  $\text{Pb}(\text{NO}_3)_2$ , and  $\text{BaCl}_2$  for reaction with eight other compounds as shown.

	KI	NaCl	NaOH	$\text{FeCl}_3$	$\text{K}_2\text{SO}_4$	$\text{ZnSO}_4$	$\text{Na}_2\text{CO}_3$	$\text{CuSO}_4$
$\text{AgNO}_3$								
$\text{Pb}(\text{NO}_3)_2$								
$\text{BaCl}_2$								

**DO NOT MIX COMBINATIONS OF SOLUTIONS OTHER THAN THE ONES SHOWN!**

## Data Collection

1. Make complete observations about each of the reactions. Someone who did not see the results at all should be able to get a good picture of what happened based on what you write.
2. Write a balanced chemical equation for each combination of solutions.
3. Name the products in each of the reactions.
4. Some of these reactions resulted in solids being formed. Circle the product in each reaction that you think is the solid that was formed.