Determining the Murder Weapon

Below is a table of possible murder weapons (chemicals), and other chemicals they might react with. By creating a table of reactions, you will be able to compare how your murder weapon reacts. This will allow you to determine the murder weapon.

Procedure: you will cross (mix) each chemical with each chemical. The boxes below are where you should record data about whether a combination forms a precipitate, and the colors involved.

1. Using a dropper bottle with the chemical, add **2 drops** of each chemical to each box on the plastic sheet.
2. Make observations in the correct box on your paper.
3. Repeat steps 1-2 for each combination of chemicals until all of them are completed on the chart below.

	$CaCl_2$	$CuCl_2$	$AgNO_3$	KI	$Sr(NO_3)_2$	NaOH	Na_2CO_3	$CuSO_4$
$CaCl_2$								
$CuCl_2$								
$AgNO_3$								
KI								
$Sr(NO_3)_2$								
NaOH								
Na_2CO_3								
$CuSO_4$								

4. Get the unknown liquid (murder weapon) from your teacher.
5. Get a well plate and put 2 drops of the murder weapon (unknown chemical) into 7 different wells
6. Combine 2 drops of the chemicals below into the 7 different wells on the well plate. Record your observations below.

	$CaCl_2$	$CuCl_2$	$AgNO_3$	KI	$Sr(NO_3)_2$	NaOH	Na_2CO_3	$CuSO_4$
Murder Weapon								

7. Rinse your reaction sheet and well plate into the waste container.

8. Using both your new and previous evidence, what chemical is your murder weapon?

Describe your evidence below.

4. What type of reactions are taking place in this test? _____

5. In the space below, write a **balanced chemical equation** for each reaction in which the murder weapon made a precipitate. Use the solubility rules above to identify what product in each reaction is a precipitate. (You will need to look up the solubility rules.)