Name _____ Period _____

Partner_____ Date _____

Flame Tests

Prelab Questions

1) What is a spectator ion?

2) If you have a positive ion in solution do you also have to have a negative ion with it?

3) Why must the wires be extremely clean? What might happen if you touch them with your fingers?

4) If you use solutions containing both positive and negative ions (or of KNO_3, $NaNO_3$, and KCl), how can you tell which ions contribute to the color you see?

Procedure:

1) Wear safety goggles and follow all lab safety rules.

2) All of the solutions for this experiment are in bottle with platinum wires (inoculating loops) attached. You can share these with the other lab groups.

3) If necessary, clean the wire by dipping it in a test tube that contains 10 drops of 1M HCl (aq) and then heating the wire in the burner flame.

4) Heat the platinum wire in the hottest part of the burner flame until it glows but shows no color above the wire.

5) When the platinum wire is clean, dip the wire in the test tube containing LiCl (aq) solution and hold it in the hottest part of the burner flame.

6) Record your observations in Table 1 on the Report Sheet. Sometimes the color appears for a very short time so it may be necessary to dip the wire in the LiCl (aq) solution and put it in the flame several times.

7) Repeat for KCl (aq) and NaCl (aq), $CuCl_2$ (aq), $CaCl_2$, $SrCl_2$ (aq), and $BaCl_2$ (aq).

8) Test the unknown solutions labeled A-E. Test the solutions the same way you did above and record your observations in Table 2 on the Report Sheet.

9) Before leaving the laboratory, wash your hands thoroughly with soap and water.

Data Table 1

Solution	Observations
LiCl (aq)	
KCl (aq)	
NaCl (aq)	
$CuCl_2$ (aq)	
$BaCl_2$ (aq)	
$SrCl_2$ (aq)	
$CaCl_2$ (aq)	

Data Table 2

Unknown A	
Unknown B	
Unknown C	
Unknown D	
Unknown E	

Post Lab Questions

1) All the solutions you tested were 0.5 M. How would the experimental results differ if the solutions were 0.10 M or 1.0 M?

2) What would you observe if you tested a solution that contained both LiCl and KCl?

3) If solutions of $LiNO_3$, KNO_3, and Na_2SO_4 are used, what different results would you expect?