FLAME TEST/ SPECTROSCOPY LAB

MATERIALS:

24 well multi-well plate	Barium salt	Lithium salt
Aluminum foil	Copper salt	Potassium salt
Cotton swabs (7 or 8)	Sodium salt	Unknown salt
2 small beakers of water	Strontium salt	

PROCEDURE:

1. To keep the chemicals straight, make a list of the compounds you will use and assign each a number that can correspond to a number on your multi-well plate. It is important to know which metal produces which color.
2. Obtain samples of each of the metals (about the size of a small pea - DO NOT GET TOO MUCH).
3. Place a sheet of aluminum foil (approximately 10 - 12 inches square-*ish*) under your Bunsen burner.
4. Light the burner and obtain a clean, blue flame about 3 inches high. Record the color of the flame in the data table. View the flame through the spectroscope. Record your observations in the data table.
5. Thoroughly wet one end of a cotton swab in a small beaker of water. Dip the cotton swab in the first chemical. Place the cotton swab at the side and base of the flame. Record your observations. Be specific in the description of the color that you see.
6. View the flame through a spectroscope and record the bright line colors you see. *(You will only record the flashes of colors, you probably won't be able to read the numbers.)*
7. After observing the flame, dip the used cotton swab in a second beaker of water to insure that it is thoroughly doused.
8. Repeat the procedures in steps 5 - 7 with each of the metallic salts, being careful to keep each sample separate from the other.
9. Repeat the procedures in steps 5 - 7 with the unknown. Record your observations. Based on your observations, determine the identity of the metal present in the unknown salt.
10. Throw the excess chemicals, used cotton swabs, and the aluminum foil into the chemical trash can.
11. Wash the multi-well plate with a solution of soapy water, scrubbing each well that you used with a test tube brush or cotton swab. Do no put soap directly into the plate. Rinse the plate thoroughly and turn it upside down in your drawer to let it air dry.

OBSERVATIONS: *(Write the name of the metal from the compounds in advance, but you will record the exact compound on the day of the lab.)*

COMPOUND	METAL	FLAME COLOR	SPECTROSCOPE COLOR(S)
Unknown			

QUESTIONS:

1. Why do some metals produce colors when heated?

2. Why do different metals produce different colors?

3. What was the identity of the metal in the unknown? Explain your reasoning.