Identify the Elements

Name: _____ Date: _____ Period: _____

Purpose*:* To identify a compound by its component elements by observing its reactivity with _____. This is also known as a _____ property of _____.

Research*:* **(Responsibility of the Table Captain to make sure everyone contributes and records information)**

Ions = _____

Metal Ions have a _____ charge because they _____ an electron(s).

Non-Metal Ions have a _____ charge because they _____ an electron(s).

Ionic Bonds = Valence electrons are _____ between _____ and _____ ions.

Materials:

- Metal Wand with Loop
- 7 Test Tubes
- 1 Test Tube Rack
- Rinse Beaker (Plastic)
- Water (100 mL)
- Bunsen Burner
- Paper Towel
- Goggles X4

Experiment: ***Safety Issues:***

You MUST wear safety goggles throughout the entire experiment. NO objects other than the instructed chemicals are allowed in the flame. Take proper fire precautions when around the lit burner. Tie back long hair and roll up sleeves when near open flames. Nonsense behavior will _____ the lab for the entire group and will result in a 0 for the entire group as well. DO NOT SPILL!!!

Procedures*: Remember* ⇧ ***Safety First!!!***

1. **Dip** the "loop" end of the metal wand into the chemical solutions, **hold in the flame**, and **observe** the reaction.
2. **Record your observation** in the data table. Describe in words and use the appropriate colored pencil to represent your observation and be sure to record which **test tube** it came from.
3. **Rinse** the "loop" in the water beaker for the next "dip."
4. **Repeat** steps 1 – 3 using the remaining chemical solutions.
5. Use the "Flame Color Identity Chart" to **identify the correct compound** based on your observation. Record the correct identity of the compound. Complete the analysis and conclusion on the back side of the lab report.

Data Collection:

Test Tube (Letter)	Description of Flame (use words)	COLOR of FLAME (use colored pencils)	Identity of the Compound (Chemical Name)

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Analysis:

1. Is the Chloride Ion causing the change in color of the flame? How do you know? Explain

_____

_____

_____

2. Review your notes on chemical bonds. During the flame test, which types of bonds were being broken? How do you know?

_____

_____

_____

3. What evidence did you observe that supports that a chemical change had taken place?

_____

_____

4. Complete the following table using the Periodic Table of Elements.

Element Symbol	Element Name	Metal, Nonmetal, Metalloid	Atomic #	Atomic Mass	Solid, Liquid, Gas	Period	Group #	Valence Electrons
K								
Li								
Ca								
Co								
Sr								
Cu								
Na								
Cl								

Conclusion:

1. Write the formula or chemical name of each of the different chemical compounds.

Hint: Look at the # of valence electrons transferred to fill the shell and try to predict the correct formula.

a. _____ = $CuCl_2$

b. Lithium Chloride = _____

c. _____ = $CoCl_2$

d. Calcium Chloride = _____

e. Strontium Chloride = _____

f. Potassium Chloride = _____

g. Sodium Chloride = _____

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