

Name: _____

Date: _____

THE FLAME TEST

Introduction

Metallic elements are found on the left side of the 'staircase' on the periodic table. If and when a metal *atom* ionizes, it will give away one or more electrons and become positively charged – it is then called a metal *ion* or metal *cation*. When metal atoms or metal cations are heated, each metal gives off a characteristic flame colour.

Objective

1. To find the characteristic flame colour of several metals.

Materials

Bunsen burner	wire loop	water
sparker	iron metal	magnesium carbonate
lithium carbonate	potassium carbonate	strontium chloride
sodium carbonate	copper (II) chloride	calcium chloride

Procedure

1. Light the Bunsen burner. Never leave a lit burner unattended.
2. Dip the wire loop into the water.
3. Use the wet loop to pick up one of the metals or metal compounds.
4. Hold in the flame and heat to show flame colour.
5. Record metal or metal compound and colour in table.
6. Do steps 2-5 for all remaining metals and metal compounds. Make sure you use the proper wire loop for each. Be careful not to drop any metal or metal compounds into the Bunsen burner.
7. Turn off the Bunsen burner. Make sure all metals and metal compounds are returned to the proper place.
8. Work on lab write-up.

Data and Observations

Table 1 – Characteristic colours of different metals

Element/Compound	Metal Atom or Metal Ion	Flame Colour
Fe	Fe	
MgCO ₃	Mg ²⁺	
Li ₂ CO ₃	Li ⁺	
CuCl ₂	Cu ²⁺	
Na ₂ CO ₃		
K ₂ CO ₃		
SrCl ₂		
CaCl ₂		

Questions

1. Describe step by step how to light a Bunsen burner. What do you do if the Bunsen burner doesn't ignite immediately?
2. Describe how to find the charge on the Metal Ions in Table 1.
3. When a metal or metal cation is burned, what is causing the characteristic colour generated in the flame? Give an in-depth, paragraph answer that **clearly** explains the cause. Think about checking multiple sources for a good understanding before composing an answer. **Hint – has to do with electrons *Hint – google 'flame test' as a key phrase to help you find the answer*

Conclusion

Restate and address the **objective** of the experiment (without using the word 'objective'). Remember, no possessive terms such as 'I', 'me', 'we', 'our' etc. Then guide the reader as to where in the lab write-up the fulfilled objective can be viewed.