Sci 9 **Flame Test Lab** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Partners: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Purpose:** To observe the characteristic flame color of known solutions containing metals and to identify the unknown solution(s).

**Materials:** Safety goggles, Bunsen burner, flint lighter, wire loop/wooden splint, spot plate, hydrochloric acid (HCl) solution, various solutions, .

**Procedure**: Refer to p225 of your text book.

**Observations:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Name | Formula | Flame Colour |
| A |  |  |  |
| B |  |  |  |
| C |  |  |  |
| D |  |  |  |
| E |  |  |  |
| F |  |  |  |
| G |  |  |  |
| H |  |  |  |
| Unknown 1 |  |  |  |
| Unknown 2 |  |  |  |

**Questions:**

1. Did each solution have a unique flame colour? If not, which solutions had the same (or similar flame colours?
2. Based on your flame colours, identify and write the names and formulas of the unknown solutions.
3. Why do you think nitrate compounds were used for all the solutions?
4. How could the test to identify one of the two unnamed solutions as sodium nitrate be improved to make identification easier?
5. In your own words, explain how are electrons “excited” in this part of the experiment? What does it mean when the electrons are “excited”? (If you are not sure, read the intro on p224 again.
6. Why do different chemicals emit different colors of light?
7. Why do you think the chemicals have to be heated in the flame first before the colored light is emitted?
8. Explain how you might determine if an unknow white solid was sodium chloride (table salt) Notes that a taste test is never recommended.