**Lesson Plan Title: Flame Test**

**Teacher’s Name: Mr. Gomez Subject/Course: Chemistry**

**Unit: Electron Configuration and Periodicity Grade Level: College Prep**

**Overview of and Motivation for Lesson:**

**Scientists can use a flame test to determine a certain compound or element.**

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| **Stage 1-Desired Results** |
| **Standard(s):*** HS-PS1-1. Use the periodic table as a model to predict the relative properties of main group elements, including ionization energy and relative sizes of atoms and ions, based on the patterns of electrons in the outermost energy level of each element. Use the patterns of valence electron configurations, core charge, and Coulomb’s law to explain and predict general trends in ionization energies, relative sizes of atoms and ions, and reactivity of pure elements. Clarification Statement: \* Size of ions should be relevant only for predicting strength of ionic bonding. State Assessment Boundary: \* State assessment will be limited to main group (s and p block) elements.
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| **Aim/Essential Question:*** Why do compounds emit different wavelengths when put under the flame?
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| **Understanding(s):***Students will understand that . . .** Each compound/ element emits different colors under a flame
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| **Content Objectives:** *Students will be able to . . .* * Test different compounds and record observations from flame test
 | **Language Objectives:**ELD Level 2 *Students will be able to . . . in English** Match each compound with the color emitted

ELD Level 4 *Students will be able to . . . in English** Compare and contrast the emitted colors for each compound
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| **Key Vocabulary*** none
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| **Stage 2-Assessment Evidence** |
| **Performance Task or Key Evidence*** Students can match color to correct compound
* List observations of flame
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| **Key Criteria to measure Performance Task or Key Evidence*** Students identify unknown compounds correctly using observations from known compounds
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| **Stage 3- Learning Plan** |
| **Learning Activities:**Do Now/Bell Ringer/Opener: Check Homework and give a recap of what was mentioned and important to today’s labLearning Activity 1:Explain the safety procedures for the flame test and demonstrate an example of what one should look likeLearning Activity 2:Flame Test Lab in pairsApplication **Flame Test leads the path to start talking about electron configuration**Summary/Closing**Ask the essential question and try to guide them to the answer which is electron configuration.****Multiple Intelligences Addressed:**

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| [x]  Linguistic | [ ]  Logical-Mathematical | [ ]  Musical  | [x] Bodily-kinesthetic |
| [ ]  Spatial  | [x]  Interpersonal | [ ] Intrapersonal | [ ] Naturalistic  |

**Student Grouping**[ ] Whole Class [ ]  Small Group [x]  Pairs [ ]  Individual**Instructional Delivery Methods**[x] Teacher Modeling/Demonstration [ ]  Lecture [ ]  Discussion[ ]  Cooperative Learning [ ]  Centers [ ]  Problem Solving[x]  Independent Projects |
| **Accommodations**None | **Modifications**None |
| **Homework/Extension Activities:**None |
| **Materials and Equipment Needed:*** Compounds
* Bunsen Burners
* Wooden sticks
* Worksheet
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**Adapted from Grant Wiggins and Jay McTighe-*Understanding by Design***