Flame test

**Chemistry Priority Expectations are highlighted**

**C1.1D** Identify patterns in data and relate them to theoretical models.

**C1.1E** Describe a reason for a given conclusion using evidence from an investigation.

**C2.4a** Describe energy changes in flame tests of common elements in terms of the (characteristic) electron transitions.

**C2.4c** Explain why an atom can absorb only certain wavelengths of light.

**C2.4d** Compare various wavelengths of light (visible and non-visible) in terms of frequency and relative energy.

**C4.8e** Write the complete electron configuration of elements in the first four rows of the periodic table.

**C4.8f** Write kernel structures for main group elements.

**Big Idea-**Core Concepts:

Quantum theory provides a foundation for the atomic model and the understanding of electron behavior and arrangement.

* Electrons are arranged in main energy levels with sublevels that specify particular shapes and geometry.
* Evidence for the movement of electrons between different energy levels can be observed through absorption and emission spectra.

**Investigative Questions:**

1. How can you determine the cation of an unknown solution?
2. Some commercially available fireplace logs burn with a red and/or green flame. What elements could be responsible for these colored flames?
3. Aerial fireworks contain gunpowder and chemicals that produce colors. If you wanted a crimson red color which element might you use?

<http://www.800mainstreet.com/spect/emission-flame-exp.html>

