

Energy Levels Laboratory: Veatta Berry

Students' Guide

Goals

- To relate period numbers with energy levels in atoms
- To show evidence of how scientists have learned about energy levels of electrons

The Laboratory

In this laboratory, you will conduct flame tests, in order to gather evidence about the electronic energy layers of the different atoms. You will then try to identify atoms in an unknown solution.

Materials for Each Group

- A Bunsen burner and matches
- Wood splints soaked with metal solutions such as Na^+ , Ca^{+2} , Ba^{+2} , Sr^{+2} , Cu^{+2} , Li^+ , and K^+
- A solution of an unknown salt

SAFETY

Wear goggles at all times during the laboratory.

When working with fire, take care not to burn your hands or equipment, and work away from flammable and explosive chemicals.

Instructions

Light the flame, and get started.

Pick up one of the soaked splints, and briefly put it in the flame. Be careful not to burn the wood.

See the color and describe it. Draw the color with pencils.

Relate the different metal ions with the colors in the table:

Metal	Color	Description/Drawing

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Try an unknown solution. Describe what you see: _____

Identify which metal ion it is. Explain: _____

Arrange the metal ions by width of energy levels from their color: _____

Explain the chemistry behind it: _____
