

Spectroscopy Lesson

Lesson Objectives:

1. Students will be able to explain the concepts of emission and absorption.
2. Students will be able to identify the electromagnetic spectrum and its components.
3. Students will be able to discuss three uses for spectroscopy in the field of astronomy.

Standards Addressed:

3.4.10 C

- Identify and analyze the findings of several space instruments in regard to the extent and composition of the solar system and universe
- Explain the “red-shift” and Hubble’s use of it to determine stellar distance and movement.

3.4.10 D

- Describe light effects (e.g., Doppler effect, dispersion, absorption, emission spectra, polarization, interference).

Lesson Activities:

1. Students will be given a pre-test to determine the amount of background knowledge they have on the subject of Astronomy. We will be using the CPS (classroom performance system: class set of remote controls) to assess knowledge.
2. Students will be grouped in fours to complete a POGIL on the basic concepts in spectroscopy. This was developed for my biology I class in order to bring aspects of physical science into the life science classroom. As such, questions bridging the two disciplines through the process of photosynthesis are included at the end of the POGIL .
3. The students will take part in an interactive spectroscopy web lesson in which they will explore these web pages and complete the interactive questions/activities at the end of each section.

Evaluation:

I will assess the students' knowledge of the presented material in three ways.

1. Collection of the pre-test results
2. I will formatively collect information of their understanding as they explore the web pages and will formally collect the answers to those questions.
3. Finally, students will be given a post –test (same as pre-test) using the CPS in order to ensure understanding.