LAB: Spectral Analysis of Light

The purpose of this activity is to observe and record the spectra of different light sources.

Directions: Use a spectroscope to observe the spectrum of each light source. Record what you see in the boxes below, using colored pencils, markers, or crayons.

Hydrogen Lamp #1

Helium Lamp #2:

Neon Lamp #3:

Sun Light #4:

Analysis Questions:

1. What is the order of colors in the sunlight? ________________________________

2. Do different light sources have different orders of colors? _____

3. Why do colors separate in a spectroscope?

4. What is light?

5. How are waves that produce red light different from waves that produce blue light?
Use the emission spectra chart and the spectrograph shown below to answer the following.

![Spectrograph Image]

Analysis

1. The above spectrograph is a mixture of gases. Compare it to the chart and determine which gases are present. Record the gases below.

   _______________________________
   _______________________________
   _______________________________

2. Which type of spectrum is shown, emission, absorption, or continuous?

   _______________________________

3. Write a paragraph explaining how spectral analysis of stars can help identify their composition?

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4. Which type of spectrum would be most useful in identifying gases in a nebula? Why?

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5. Which type of spectrum would be most useful in identifying the composition of stars? Why?

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