Emission Spectra Activity

# Objective

* Observe and record emission spectra of fluorescent lights and several elements.

# Data

Part I

Fluorescent – what colors did you see? Were there a few bands of color that stood out?

Part II

Element **\_\_\_\_\_\_H\_\_\_\_\_\_\_\_\_**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| R | O | Y | G | B | V |
|  | | | | | |

Element **\_\_\_\_\_\_\_He\_\_\_\_\_\_\_\_**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| R | O | Y | G | B | V |
|  | | | | | |

Element **\_\_\_\_\_\_\_\_Hg\_\_\_\_\_\_\_\_\_\_**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| R | O | Y | G | B | V |
|  | | | | | |

Element \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| R | O | Y | G | B | V |
|  | | | | | |

Calculations:

1. Calculate the frequencies for a and b, energies for b and c, and masses of c and d based on the following wavelengths of the hydrogen bright-line spectra.
   1. 410nm b.434nm c. 486nm d. 656nm

Questions:

1. How can bright-line spectra help us identify elements?
2. From the bright-line spectra, what element is likely to be present in fluorescent lights in a fairly large quantity?
3. Why are the bright-line spectra of different elements so different?
4. What is happening to the electrons in the elements that allows you to see the bright-line spectra?
5. What can you conclude about the energy and mass of the photons as the wavelength increases?