Mr. V. Chan Name : ________________

Spectra of Light Sources

Purpose

In this activity, you will observe the spectra of various light sources. (Spectra is the plural of spectrum)

Procedure

1. Your teacher will set up and identify several light sources, including an ordinary frosted light bulb and discharge tubes containing various gases.
2. Look through the spectroscope at the first light source set up in the darkened room. In your notebook, draw and label a neat diagram of the spectrum that you observe. (See below as an example)

(b) helium

3. Repeat step two for all other light sources.

Observations

1. Sunlight bulb
   Appearance to the naked eye : ______________________
   Appearance through the spectroscope:

2. Fluorescent light
   Appearance to the naked eye : ______________________
   Appearance through the spectroscope:

3. Hydrogen discharge tube
   Appearance to the naked eye : ______________________
   Appearance through the spectroscope:

4. Mercury discharge tube
   Appearance to the naked eye : ______________________
   Appearance through the spectroscope:

5. Neon discharge tube
   Appearance to the naked eye : ______________________
   Appearance through the spectroscope:

Mr. V. Chan Name : ______________

Spectra of Light Sources

Discussion (Full Sentence Answers)

1. Look at the spectrum of sunlight vs. fluorescent light. How is the spectrum of sunlight different from that of fluorescent light? How are they similar? (list at least one for each)

Differences: ____

____

Similarities: ____

____

2. In the single element gas discharge tubes, a high current was passed through and caused the electrons to 'jump' to another orbit. And when the electrons come back down to their original orbit, they release the energy as form of light

   Why do think different elements have different spectra? (hint: Draw the Bohr model for hydrogen and neon)

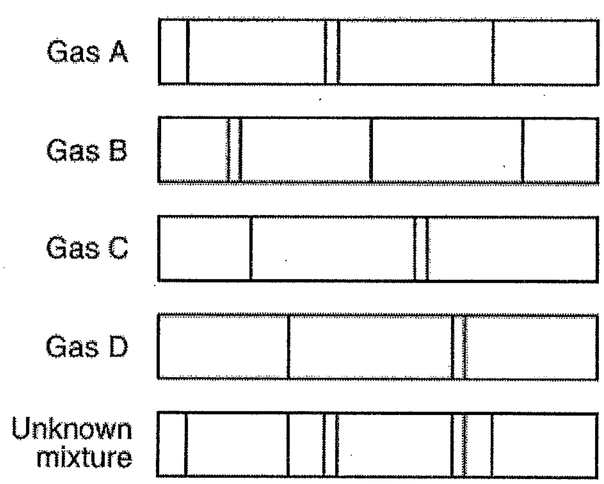
Hydrogen	Neon

Explanation: ____

____

____

3. Scientists use atomic spectra to identify unknown compounds and mixtures. Looking at the spectra below, determine which of the 4 gases (A, B, C and/or D) make up the mixture and explain how you made that decision.



Unknown: ______________________

Reason: ______________________

____

____

____

____

____