Title: Emission and Absorption Spectra
Absorption Spectroscopy Site
Emission Spectroscopy site
Line Spectroscopy Site

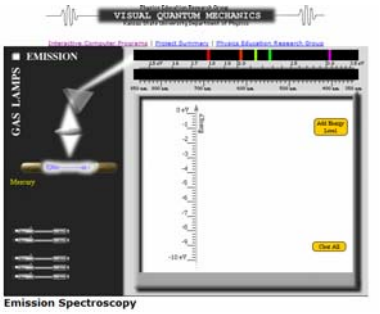
Purpose:

- To observe the absorption and emission spectra of selected elements

Procedure:

Activity1

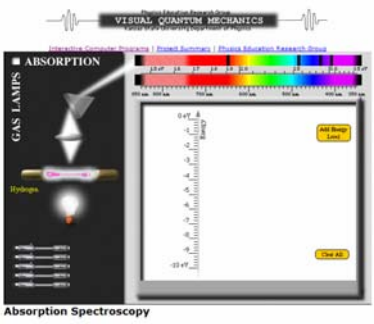
1. Go to the Absorption Spectra Site http://phys.educ.ksu.edu/vqm/html/absorption.html
2. Follow the directions for
    a. observing the actual spectrum of a gas.
    b. creating and manipulating energy levels.
    c. creating transitions between energy levels.
    d. matching trial spectral lines to those of the actual spectrum
    e. identifying an unknown gas
3. Record your results in Data Table 1



Emission Spectroscopy

Activity 2:

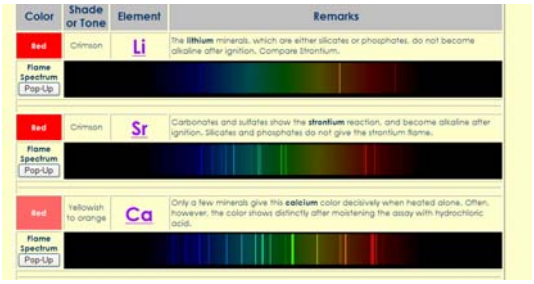
1. Go to the Emission Spectra Site http://phys.educ.ksu.edu/vqm/html/emission.html
2. Follow the directions for
    a. observing the actual spectrum of a gas
    b. creating and manipulating energy levels
    c. creating transitions between energy levels
    d. matching trial spectral lines to those of the actual spectrum
    e. identifying an unknown gas
3. Record your results in Data Table 2



Absorption Spectroscopy

Activity 3

1. Go to Line Spectra Site http://webmineral.com/help/FlameTest.shtml
2. Record the following data for the elements listed in Data Table 3.
    a. flame test color
    b. approximate numbers of lines of each color
3. Click the Flame Spectrum Pop-Up button.
    a. Compare the flame and spark emission spectra.
    b. Record in Data Table 3.



Results:

Data Table 1: Absorption Spectra for Selected Elements						
Element	Approximate Number of Lines					
	violet	blue	green	yellow	orange	red
hydrogen						
helium						
mercury						
lithium						
neon						
unknown =						

Data Table 2: Emission Spectra for Selected Elements						
Element	Approximate Number of Lines					
	violet	blue	green	yellow	orange	red
hydrogen						
helium						
mercury						
lithium						
neon						
unknown =						

Data Table 3: Absorption Spectra for Selected Elements								
Element	Flame Test Color	Approximate Number of Lines						Flame and Spark Spectra
		violet	blue	green	yellow	orange	red	same or different ?
Li								
Sr								
Ca								
Na								
Ba								
Mo								
B								
Tl								
P								
Zn								
Te								
Sb								
Pb								
Cu								
Se								
In								
As								
K								
Rb								
Cs								

Discussion:

1. Summarize what you did.
2. Compare and contrast the emission and absorption spectra for hydrogen, helium, mercury, lithium, neon.
3. Describe what happens to the spectra when you
    a. create and manipulate energy levels.
    b. create transitions between energy levels.
4. How successful were you in matching trial spectral lines to those of the actual spectrum?
5. Describe any patterns in spectral lines that you noted.

Conclusion:

A brief testable statement about emission and absorption lines, based on your data

Reflection:

Personal statement