Intro to Final Project - Computing & Spectroscopy

1. Build on top of knowledge and skills gained from Computing and using Raspberry PIs
2. Apply this to the science of Spectroscopy!
3. Light is simply an Electro-Magnetic Spectrum
4. A black body emits light at a prominent frequency proportional to its temperature when it is heated up
5. We can look at the spectrum by passing this light through a prism or a diffraction grating
6. Temperature and chemical composition of the elements of nature determine the spectral lines that show up on the spectrum
7. Star light spectrum shows both dark lines and emission lines - absorption and emission spectrum
8. This is due to the frequency at which elements absorb light and the frequency at which they emit light
9. The spectral lines form a unique fingerprint for each chemical element
10. Why do the spectral lines show up?
11. Discuss what we are doing in this project
    a. Learn theory of the Electro-magnetic spectrum and the spectral lines
    b. Build a digital Spectroscope that is automated using Python running in an embedded Raspberry Pi computer

c. Obtain spectra of different elements using commercially available lamps and discharge tubes
d. Obtain visual, infrared and ultraviolet spectrum
e. Digitally count pixels for each peak in the absorption and emission spectrum
f. Plot the peaks, determine wavelength and frequency
g. Compare with the standard for many elements
h. Determine accuracy of our spectroscope
i. Plan community presentation date for sharing!