Appendix 3: Observing Continuous Spectra and Line Spectra

Questions:

1. Draw the spectra of an incandescent light bulb and of a fluorescent light bulb.

2. What's the difference between a line spectrum and a continuous spectrum? Draw one of each.

3. Based on your observations in the lab activity, what types of materials produce continuous spectra? Line spectra?

4. Give an example of a light source with a) a continuous spectrum b) a line spectrum c) both a continuous and a line spectra

5. Based on your observations, what would you say are some things that all light emitting sources have in common? How can they differ?

6. Explain why a rainbow is considered to be an example of a continuous spectrum.

7. What do the different colours in a line spectrum represent?

8. Why do different substances show different spectra?

9. Sodium vapour lamps emit a characteristic yellow light. What can you assume about sodium atoms, based on this observation?

10. Explain how atoms produce their characteristic spectral lines. Why are there different lines produced instead of just a single line?

11. Which elements produced the largest number of spectral lines? What does this suggest about electron transitions?

12. Spectral lines are fingerprints of elements. Explain what is meant by this statement.