Lab: Flame Tests Name: _____

Purpose: You will use the flame tests to determine the identity of the cation in an unknown solution based off of its characteristic color in flame.

Materials: Bunsen burner, 6 splints with: 0.1M Na^{+1}, 0.1M Ca^{+2}, 0.1M Li^{+1}, 0.1M Cu^{+2} 0.1M K^{+1}, unknown solution

Procedure:

1. Your teacher has salts dissolved on a splint. You will carefully put each splint into the bunsen burner to identify the color of light each cation emits.
2. Using the range of wavelengths found in your reference packet for each color, calculate the average wavelength for each color.

Data:

Cation	Flame Color	Average Color Wavelength
Unknown		

Conclusion:

1. Identify the cation of your unknown and provide an average wavelength (using your reference packet) for the color of visible light of your flame.

2. As the colors of the rainbow go from red to violet the wavelength _____. Justify your answer with data:

3. As the colors of the rainbow go from red to violet the frequency _____. Justify your answer with data:

4. What is the relationship between wavelength and frequency? _____. Draw a picture of a light wave to illustrate this below:

5. Fireworks contain gunpowder and other chemicals to produce the wide array of colors. What element must one include to produce crimson red fireworks? Yellow? Green?