

ANALYSIS

1. Based on your observations, what are the identities of your two unknowns? Justify your answer.

2. Use the following equations for light to complete Table 2 for the persistent spectral lines of lithium.

$$c = \lambda \nu \quad (\text{Eq. 1})$$

$$E = h\nu \quad (\text{Eq. 2})$$

where

c = the speed of light, 3.0×10^8 m/s

h = Planck's constant, 6.626×10^{-34} J·s

λ = wavelength, measured in m

ν = frequency, measured in sec^{-1} or hertz (Hz)

Table 2. Spectral Lines of Lithium			
Wavelength		Frequency	Energy
nm	m	Hz	J
460.29			
610.37			
670.79			

3. Write a statement that generalizes the relationship between the wavelength and energy of photons.