

## Wavelength, Frequency, and Energy

1. A laser will emit light with a wavelength of 650 nm. What is the frequency of this light?
2. The frequency of radiant energy is  $5.55 \times 10^{14}$  Hz. In what region of the electromagnetic spectrum is this? What is the color of the light? (Hint: Calculate the wavelength)
3. What is the energy, in kJ, of a photon that has a wavelength of  $2.46 \times 10^2$  m?
4. Some sunburn occurs when exposed to light with a wavelength of 325 nm. What is the energy of 1.5 moles of these photons? How many photons are in a 1.50 mJ burst of this radiation?
5. The work function,  $\Phi$ , is 437 kJ/mol for copper. What is the threshold frequency? What wavelength does this correspond to?