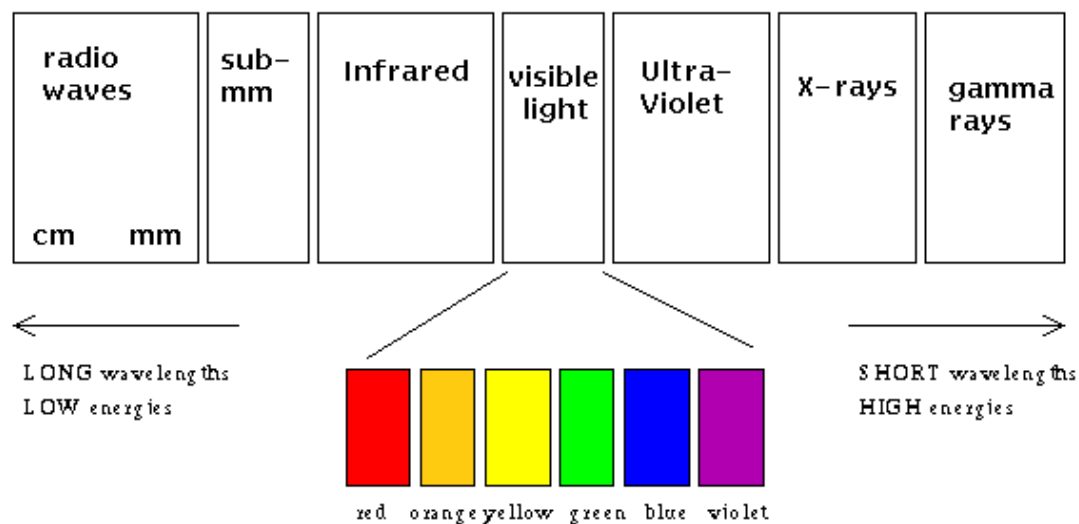


Light has both wave and particle-like properties. The energy of a light wave is inversely-proportional to its wavelength; in other words, low-energy waves have long wavelengths, and high-energy light waves have short wavelengths.

Light waves are classified by their wavelengths. Labeled in increasing energy, the electromagnetic spectrum as shown in the figure below:



(Figure 1<sup>1</sup>)

The visible spectrum is the portion that is visible to the human eye (wavelengths from about 390 to 700 nm).

All objects emit electromagnetic radiation, and the amount of radiation emitted at each wavelength depends on the temperature of the object. Hot objects emit more of their light at short wavelengths, and cold objects emit more of their light at long wavelengths. The temperature of an object is related to the wavelength at which the object gives out the most light. Black-body radiation becomes a visible glow of light if the temperature of the object is high enough. For example, an incandescent light bulb, which produces light through black body radiation, changes color as the light is dimmed and the filament temperature decreases, because the distribution of color shifts toward longer wavelengths and the light appears redder.

<sup>1</sup> "What Is Spectroscopy?" . Web. 13 Sept. 2015.  
[http://loke.as.arizona.edu/~ckulesa/camp/spectroscopy\\_intro.html](http://loke.as.arizona.edu/~ckulesa/camp/spectroscopy_intro.html)