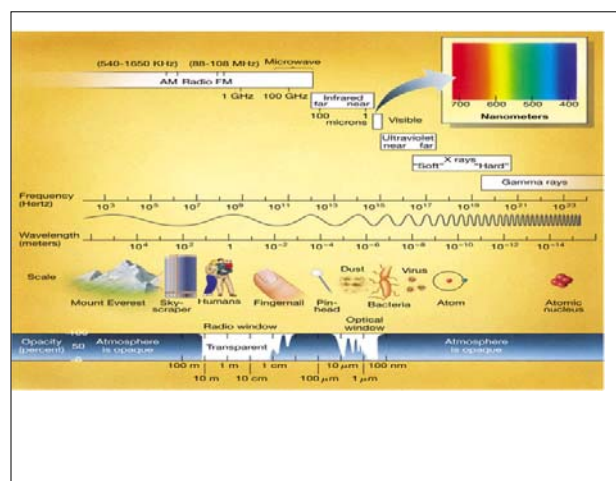


Electromagnetic Radiation – energy that travels in the form of waves (light), travels at 300,000 km/s in the vacuum of space

Electromagnetic Spectrum – type of radiation ranging from gamma rays (short wave, high energy) to radio waves (long wave, low energy)

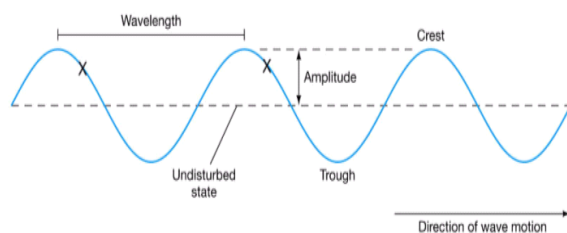
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Two properties of light propagation:

Wavelength – distance between crests of a wave



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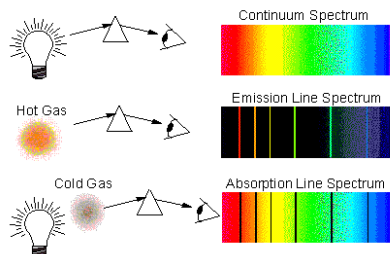
Frequency – number of waves to pass a point in one second, the higher the frequency, the higher the energy

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<http://www.ltsotland.org.uk/resources/s/sound/amplitude.asp?strReferringChannel=resources&strReferringPageID=tcm:4-248291-64>

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- 1) Continuous Spectrum – uninterrupted band of color
 - 2) Dark-line (absorption) Spectrum – a continuous spectrum with dark lines interspersed, where frequencies have been absorbed
 - 3) Bright-line (emission) Spectrum – a series of spaced out bright lines
- * The spectra of most stars are dark-line spectrum



Spectroscope – device used to break up light into its spectrum for study

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Doppler Effect – change in wavelength and frequency of a wave due to motion of the source

- object moving away- increased wavelength, decreased frequency
- object approaching- decreased wavelength, increased frequency

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<http://www.lon-capa.org/~mmp/applist/doppler/d.htm>

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Red Shift – shift in the wavelength of light toward the red end of the spectrum due to movement away from the observer

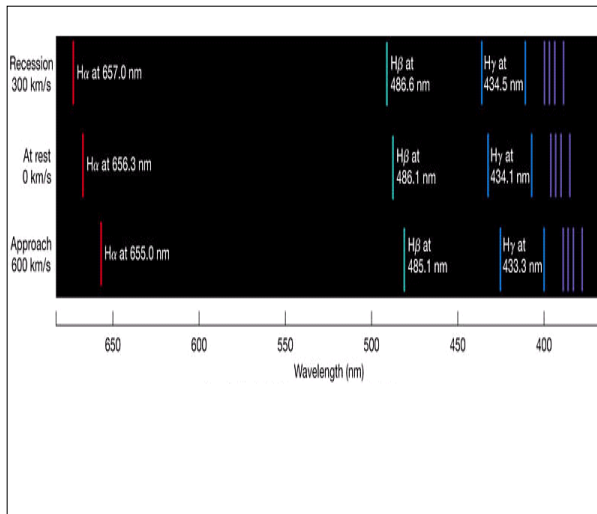
* Greater the red shift, the greater the recessional speed

Blue Shift – shift in the wavelength of light toward the blue end of the spectrum due to movement toward the observer

Movement perpendicular to the observer causes no change in wavelength

*** Most stars in the universe are red shifted, universe is expanding, the farther a star is, the greater its red shift

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<http://www.wwnorton.com/earth/egeo/animations/ch1.htm>

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