

## More About Light

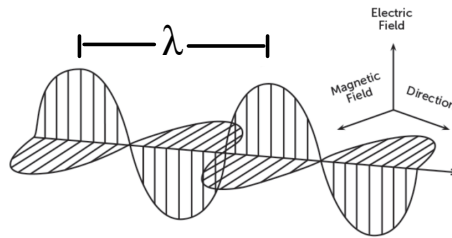
Frequency and wavelength are two physical quantities associated with light.

The frequency ( $f$ ) of light is the rate at which a vibration occurs in an electromagnetic field.

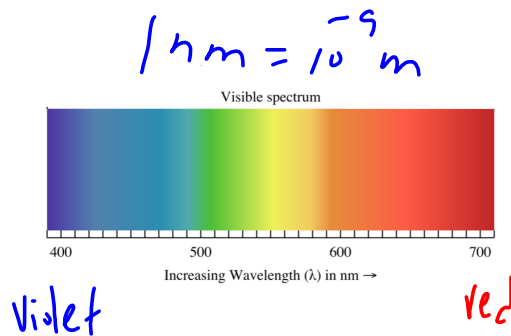
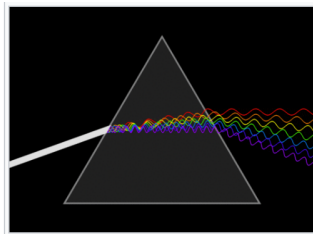
$$f = \frac{\text{\#vibrations}}{\text{time}}$$

unit  $\rightarrow$   $s^{-1}$  or Hz (hertz)

Wavelength ( $\lambda$ ) is the distance between successive crests of a wave. The unit of wavelength is the meter.



The diagram below shows a triangular prism dispersing a beam of white light.



## Universal Wave Equation

$$v = f\lambda$$

$v \rightarrow$  wave speed (m/s)

$f \rightarrow$  frequency (Hz)

$\lambda \rightarrow$  wavelength (m)

Note: The variable  $c$  represents the speed of light,  $3.00 \times 10^8$  m/s.

$$c = f\lambda$$



## Quantum Theory

Quantum theory is the theoretical basis of modern physics that explains the nature and behavior of matter and energy on the atomic and subatomic level.

### Quantum Physics Documentary

 [https://www.youtube.com/watch?v=CBrsWPCp\\_rs](https://www.youtube.com/watch?v=CBrsWPCp_rs)