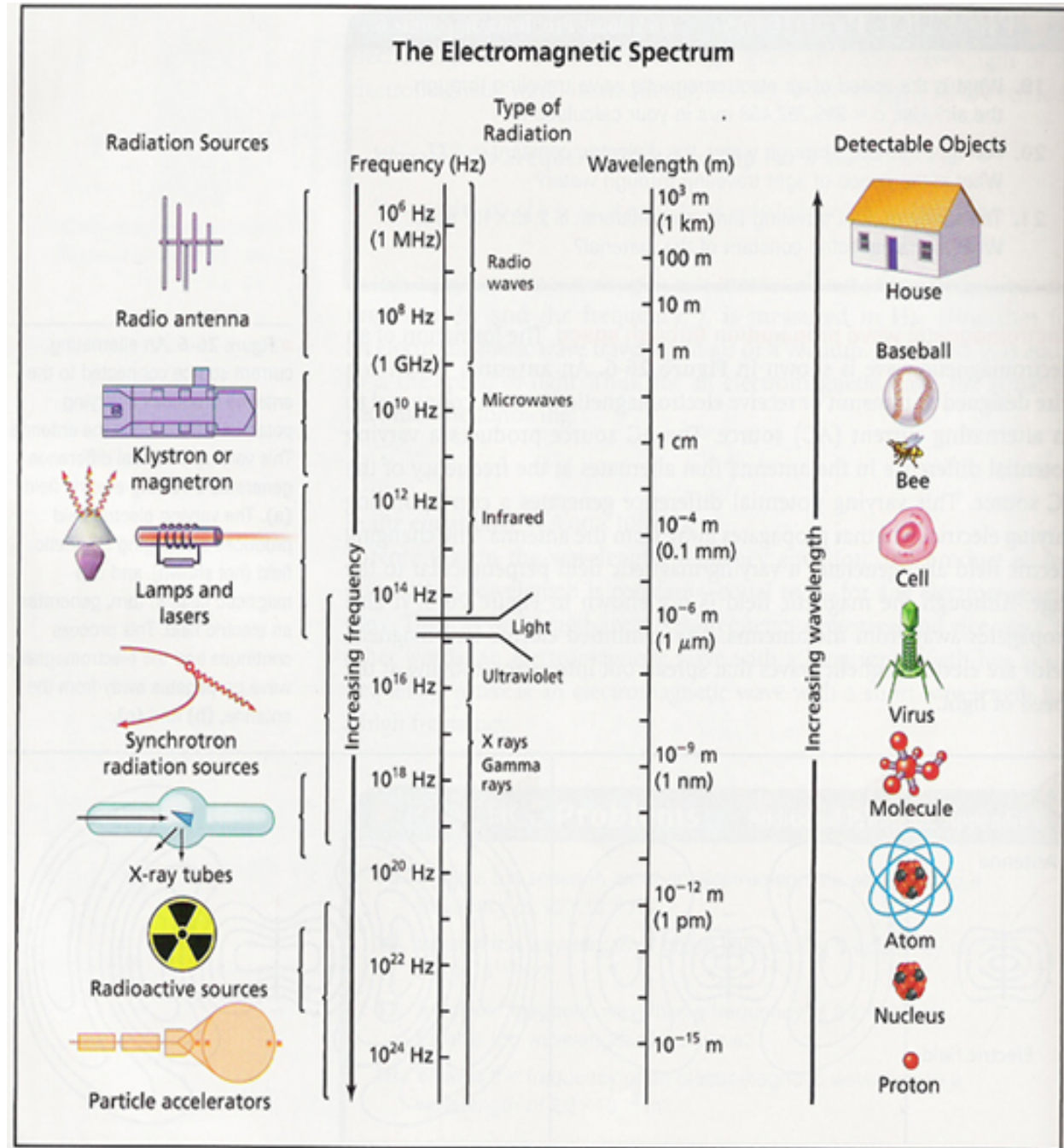


# 15 Light

Visible light is only a tiny segment of what is called the Electromagnetic Spectrum.



Speed of light:

1. Galileo's Experiment
2. Romer's Observation
3. Fitzeau's Experiment

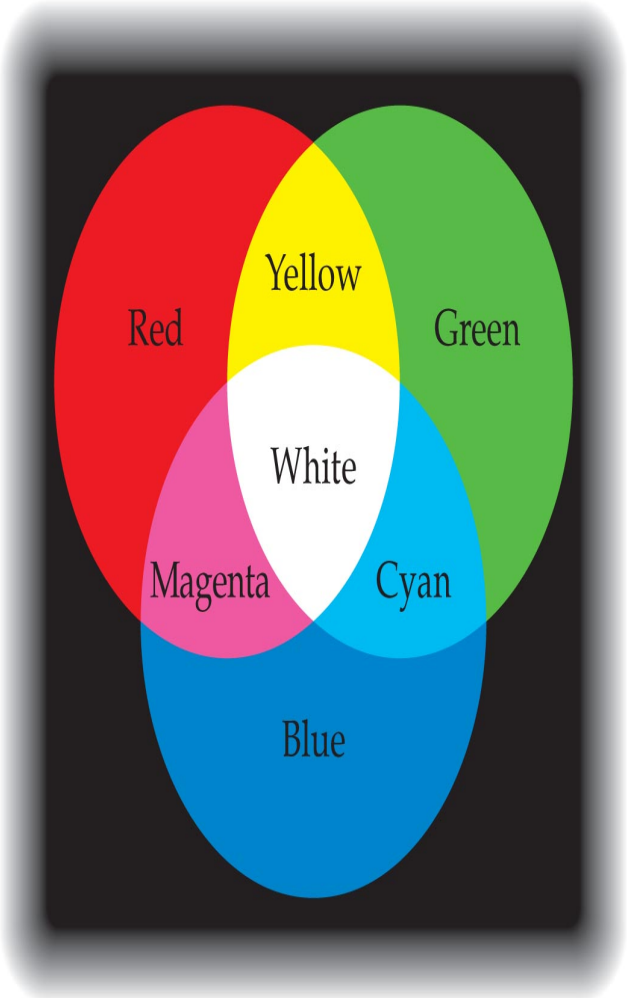
$$c=299,792,458 \text{ m/s}$$
$$= 3.00 \times 10^8 \text{ m/s}$$

Doppler effect applies to light

Light behaves like a wave, and also like a particle!

$v=f\lambda$  applies to light also.

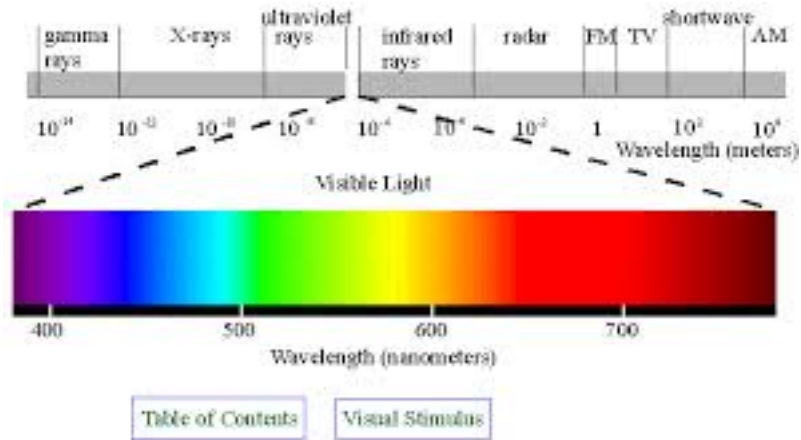
Colors are just different wavelengths.



Colors: Different colors correspond to different I's

White: addition of all colors.

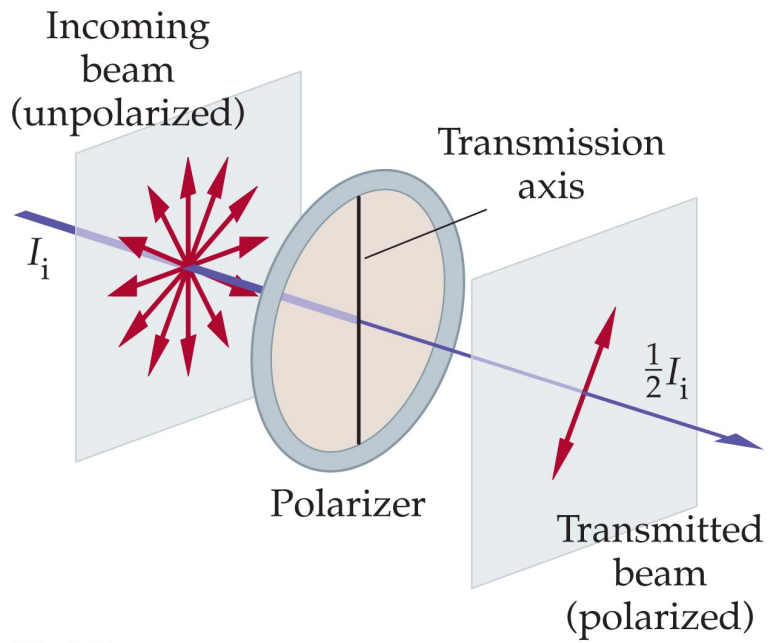
Black: absence of radiation.



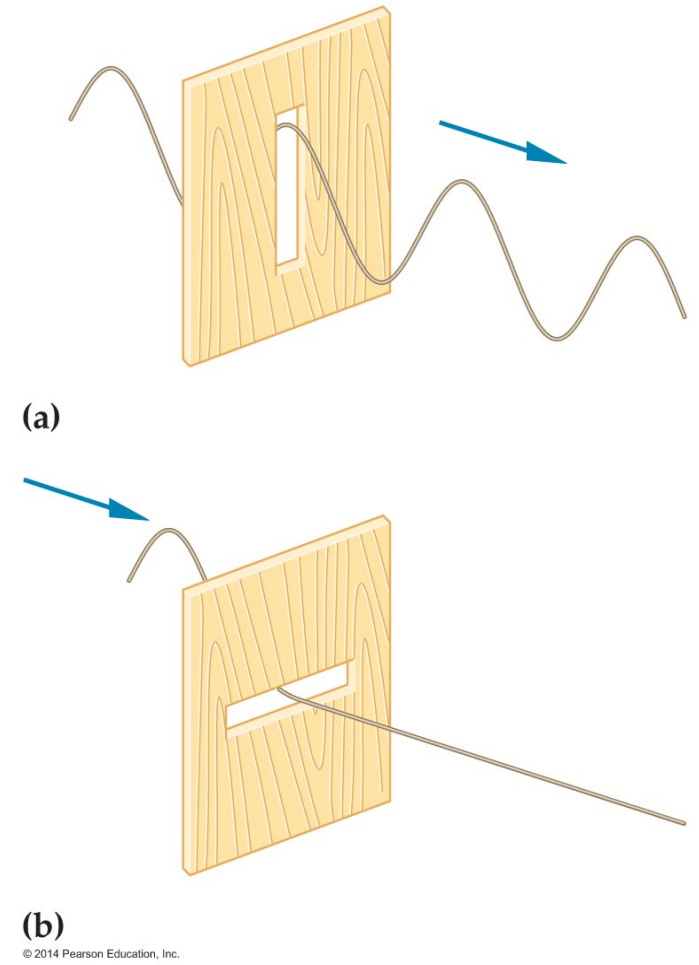
<http://www.ionaphysics.org/ntnujava/image/rgbColor.html>

[http://www.ionaphysics.org/ntnujava/color/color\\_e.html](http://www.ionaphysics.org/ntnujava/color/color_e.html)

Polarization:  
Limiting the plane of oscillation of a wave.  
(Only transverse waves can be polarized.)



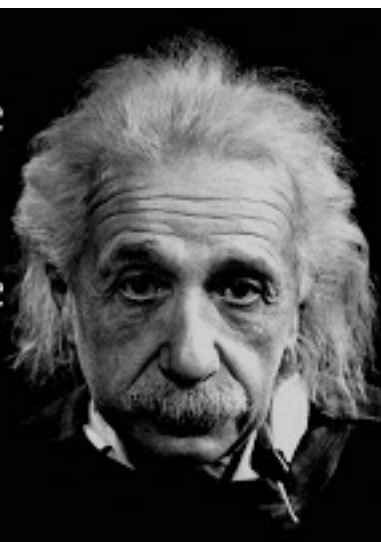
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"Two things are  
infinite. The universe  
and human stupidity.

...and i'm not so sure  
about the universe."



The speed of light is the same for all inertial observers. You can be moving toward the source, or away from it, or not at all. You will always come up with the same number for the speed of light in a vacuum.

Light travels in straight lines except:  
When it is reflected, refracted, diffracted  
(Those will be covered in subsequent chapters.

