

Light

1. Light is electromagnetic radiation.
2. Ordinary white light can be broken down to ROY G BIV.
3. Wavelength (λ) = distance between crests
4. 1 Angstrom (\AA) = 10^{-10} meters
5. red $\lambda = 7 * 10^{-7}$ meters or 7000 \AA
6. blue $\lambda = 4 * 10^{-7}$ meters or 4000 \AA
7. violet $\lambda = 3.8 * 10^{-7}$ meters or 3800 \AA
8. Light is a wave that can travel through a vacuum, unlike sound, which needs a medium.
9. Light is electric and magnetic.
10. Light carries energy and can act like a particle, called a photon.
11. This is known as the wave-particle duality of light.
12. A photon is a packet of energy and has 0 mass. Each photon has a wavelength associated with it.
13. Visible light is only one type of light; UV, infrared, radio, gamma, and x-rays also exist.
14. Each group has a different wavelength.

Electromagnetic Spectrum

1. William Herschel detected infrared with a thermometer; he noticed that it still read temperature outside of the visible light spectrum.
2. UV was discovered in 1801 by Johann Ritter using silver chloride with a prism. Silver chloride reacts with UV.
3. Microwaves are radio waves.
4. Percy Lebaron Spencer – 1945 – microwave ovens
5. He was working on radar and discovered chocolate melted when exposed to the microwaves.
6. Amount of energy carried by light increases when wavelength decreases.
7. UV can kill bacteria, and is used commonly in medicine to sterilize.
8. Radio waves have the lowest energy.
9. In theory, the spectrum goes on forever.
10. AM radio – 180m to 380m λ
11. FM radio – 2.5 m to 3.5m λ