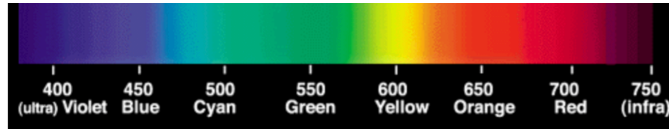
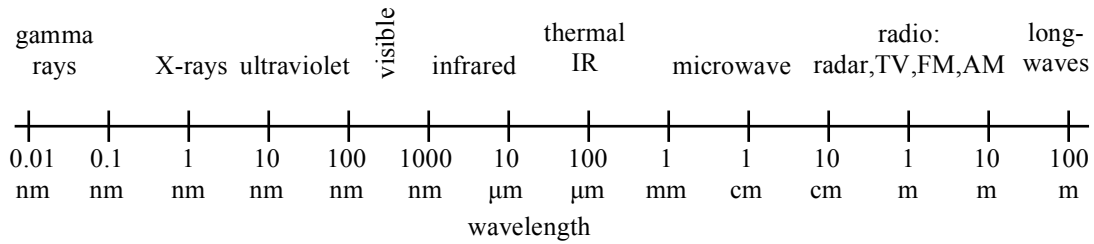


World of Light - Equations and useful information

Electromagnetic spectrum:



Constants:

speed of light in vacuum: $c = 3 \times 10^8$ m/s

speed of sound wave in air: 350 m/s

Planck's constant: $h = 6.62 \times 10^{-34}$ J s

Rydberg constant: $R = 1.097 \times 10^7$ m⁻¹

acceleration due to gravity: $g = 10$ m/s²

Stefan-Boltzmann constant: $\sigma = 5.67 \times 10^{-8}$ W m⁻² K⁻⁴

Equations:

$$v = \frac{\text{distance}}{\text{time}} \quad v = \lambda f \quad v = \frac{c}{n} \quad \text{deep: } v = \sqrt{\frac{g\lambda}{2\pi}} \quad \text{shallow: } v = \sqrt{g \cdot \text{depth}}$$

$$E = hf \quad p = \frac{h}{\lambda} \quad p = mv \quad \frac{1}{\lambda} = 4R \left(\frac{1}{n^2} - \frac{1}{m^2} \right)$$

$$n_1 \sin \theta_i = n_2 \sin \theta_t \quad \theta_c = \arcsin \frac{n_1}{n_2}$$

$$\lambda_{\text{max}} = \frac{2.898 \cdot 10^6 \text{ nm K}}{T} \quad E = \sigma T^4 \quad T (\text{K}) = T (^\circ\text{C}) + 273$$

