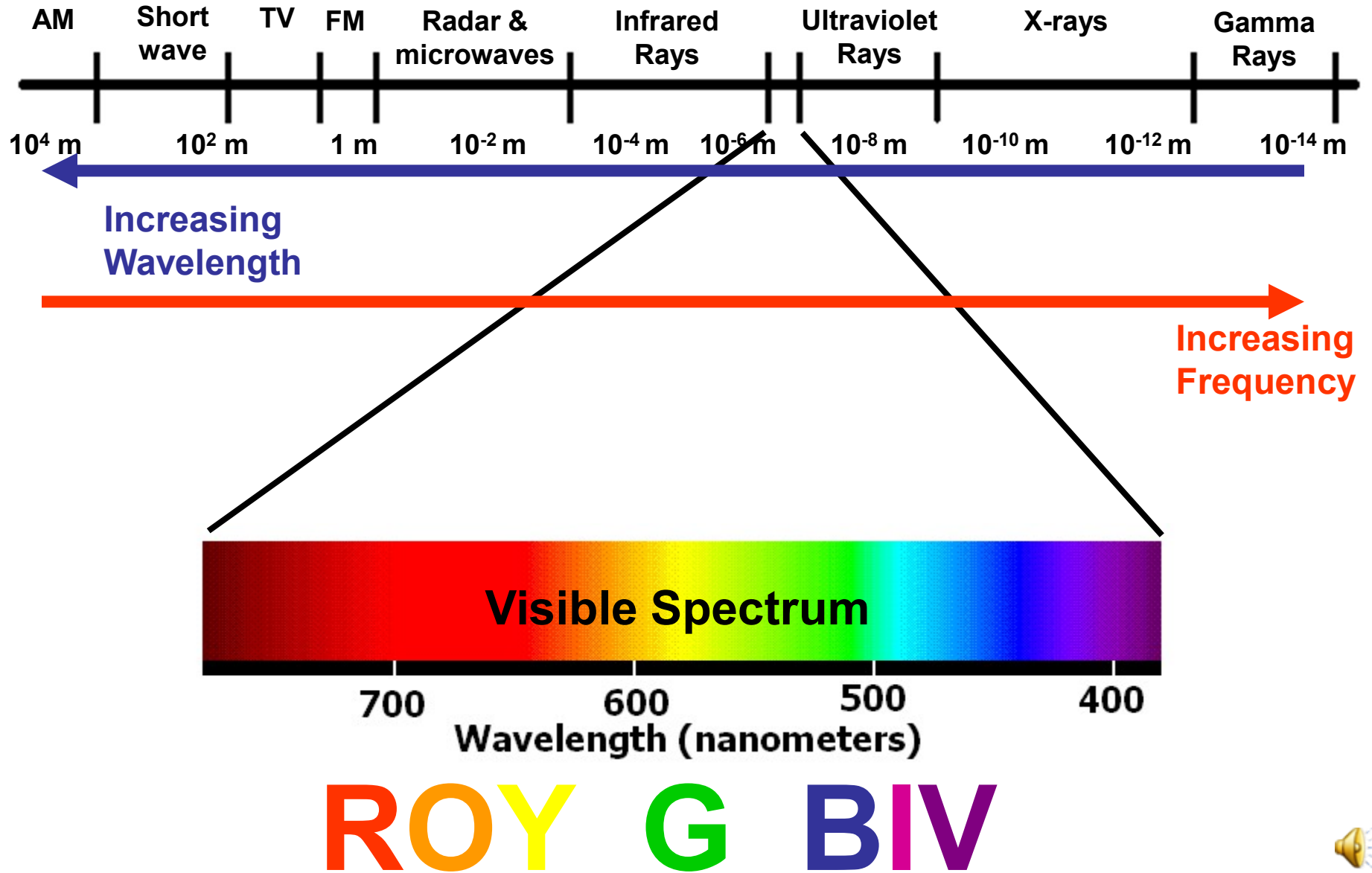


Electromagnetic Spectrum



Light and Energy

The energy of light depends on its frequency/wavelength:

$$E = h \times \nu$$

h = Planck's Constant

$$h = 6.626 \times 10^{-34} \text{ Js}$$

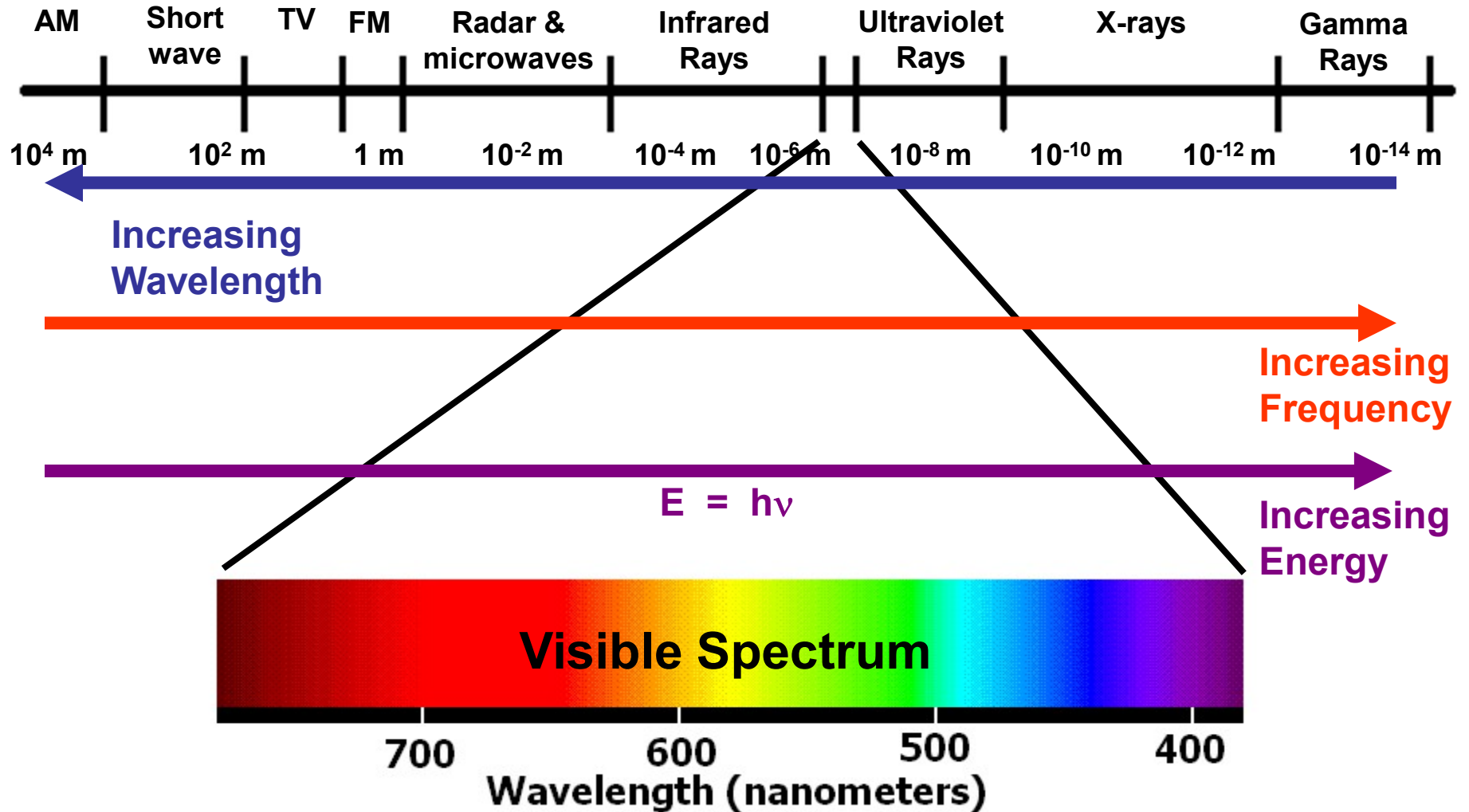
(Know this number!)



Max Planck
1858 - 1947



Electromagnetic Spectrum



ROY G BIV



Energy Comparison

Visible green light:



$$\nu = 6.0 \times 10^{14} \text{ Hz}$$

$$E = h\nu$$

$$E = 6.626 \times 10^{-34} \text{ Js} \times (6.0 \times 10^{14} \text{ 1/s})$$

$$E = 4.0 \times 10^{-19} \text{ J}$$

FM Radio:



$$\nu = 94.5 \times 10^6 \text{ Hz}$$

$$E = h\nu$$

$$E = 6.626 \times 10^{-34} \text{ Js} \times (94.5 \times 10^6 \text{ 1/s})$$

$$E = 6.63 \times 10^{-26} \text{ J}$$

$$E_{\text{FM}} < E_{\text{green light}}$$

