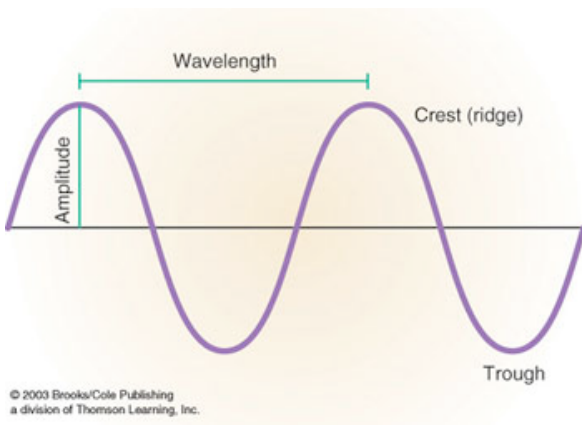


## Revision Summary: WAVES

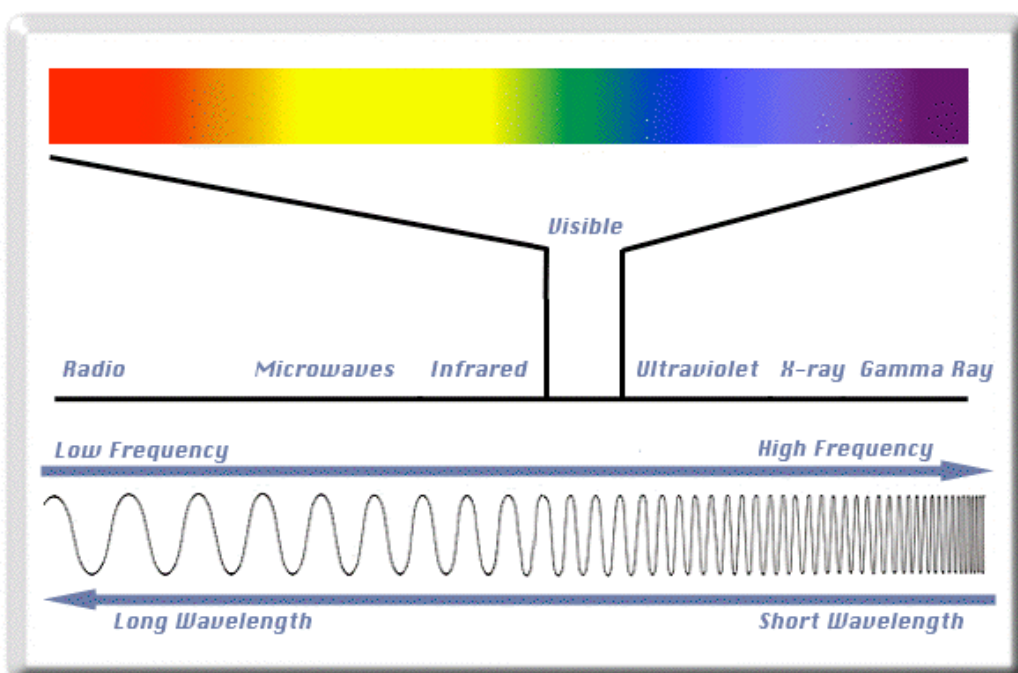


- Wavelength: distance between 2 peaks/troughs
- Amplitude: distance from middle to top of peak/bottom of trough
- Frequency: how many waves per second in Hertz or Hz
- Speed: how fast they travel in m/s

Speed=Wavelength(m) x Frequency (Hz)

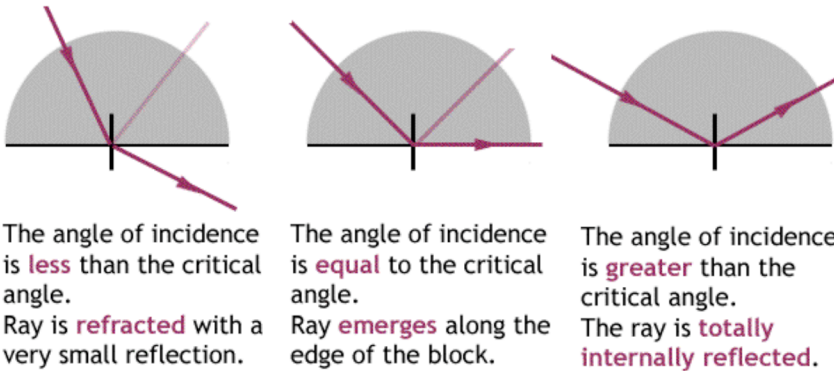
OR

Speed= $\frac{\text{distance(m)}}{\text{time (s)}}$

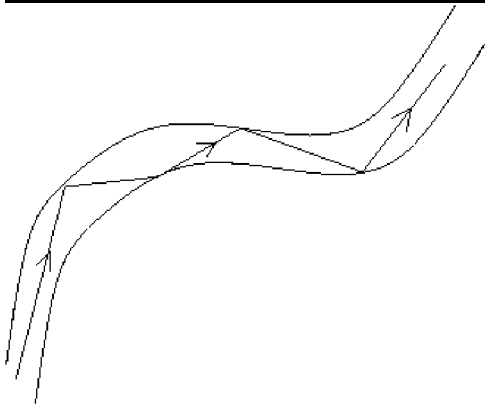


## Electromagnetic Spectrum

1. Gamma Rays - high frequency/short wavelength
2. X-Rays
3. Ultra- Violet
4. Visible Light - used in fibre optic cables
5. Infra-Red - used in fibre optic cables
6. Microwaves - used in satellite communication and mobile phones, may be harmful but NO SCIENTIFIC PROOF
7. Radio Waves - TV, radio and communication



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## Fibre Optic Cables

- Light reflects along the inside
- It does this because of Total Internal Reflection
- When light is greater than the critical angle it reflects back inside
- Critical Angle - if light is at smaller angle it passes through, if angle is greater then it reflects back inside



### **Geostationary Satellites**

- Orbit in 24hours
- Always above same point on surface of Earth
- Aerial can be in a fixed position

### **Mobile Phones**

- No evidence of risk
- Warm the brain up by 1°C - jogging can do this too
- More potential risk with children - thinner skulls, smaller heads so waves penetrate further into brain