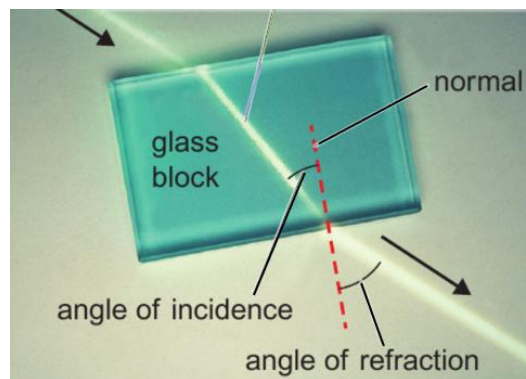
	<h2 style="text-align: center;">CP5 Light and the Electromagnetic waves</h2>
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1. Electromagnetic waves	
Electromagnetic waves	A group of waves that all travel at the same speed (speed of light) in a vacuum, and are all transverse.
Speed of light	300,000,000 m/s (3×10^8 m/s)
Frequency	The number of waves that pass a point every second. One hertz (Hz) is one wave per second.
Wavelength	The distance between a point on one wave and the same point on the next wave.
EM waves	All are transverse, all travel at the speed of light.
Interface	The boundary between two different materials.
Refraction and wave speed	Light travels at different speeds in different materials causing it to refract when hitting the interface at an angle.
Prisms and the colour spectrum	Different wavelengths slow down by different amounts when they hit glass causing each colour to refract differently.
Infrared discovery	Light split into a spectrum. Thermometer placed on every colour plus next to red. Red was hot, next to red was hottest.

2. Other notes	
EM spectrum mnemonic	R ubbish M emories I nclude V isiting U r X Girlfriend
EM Radiation and the atmosphere	Some EM radiation (visible light, radio waves) passes through the atmosphere, most is absorbed.
Space telescopes	For types of radiation absorbed by the atmosphere (eg infra red), a telescope must be placed in space.
Producing radio waves	Oscillating electricity in a metal rod produces radio waves.
Receiving radio waves	Radio waves absorbed by a metal rod cause electrical oscillations.
Fluorescence	Absorbing ultraviolet and re-emitting it as visible light.

3. Core practical – refraction	
Normal	A line at right angles to the interface.
Angle of incidence	Angle between the incident ray and the normal.
Angle of refraction	Angle between the refracted ray and the normal.
CP5 – Aim	To explore how changing the angle of incidence changes the angle of refraction.
CP5 - Variations	Repeat 5 times, from 5 different angles, including head-on.
CP5 - Results	The greater the angle of incidence, the greater the angle of refraction.



4. EM radiation		
Gamma rays	Produced by radioactive sources, used for sterilising medical equipment, killing bacteria and cancerous cells	Mutation of DNA and other damage to cells leading to cancers.
X-rays	Seeing the internal structure of objects eg bones in the human body	
Ultra violet (UV)	Security marking, disinfecting water	Skin cancer
Visible light	Photography, illumination. The only type our eyes can detect.	
Infra red (IR)	All hot objects emit IR. Thermal imaging, cooking, TV remote.	Skin burns
Microwave	Cooking, communication (from satellites and mobile phones)	Internal heating of body cells
Radio wave	Produced by electrons oscillating in an aerial. Broadcasting TV and radio, satellite communications	

