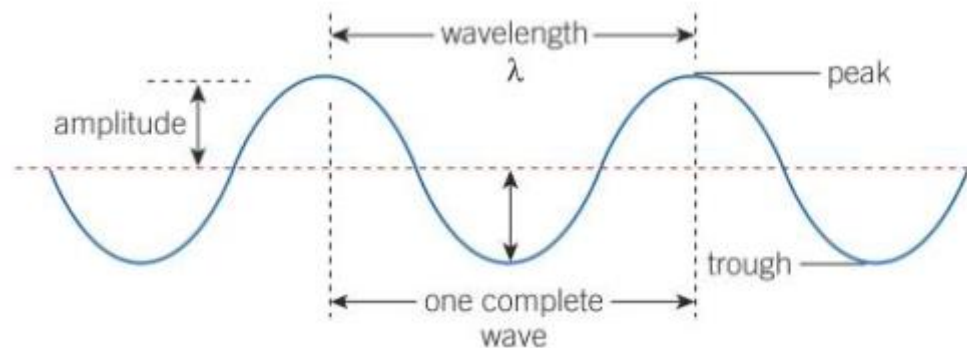


## Wave Properties

Key terms	
Wave	Any disturbance that transmits energy through matter or space
Medium	A solid, liquid or gas that is vibrated
Transverse	The oscillations are perpendicular to the direction of energy transfer
Longitudinal	The oscillations are parallel to the direction of energy transfer
Wavelength	The distance between any adjacent crests or compression in a series of waves
Rarefaction	Part of a longitudinal wave where the air particles are spread out
Compression	Part of a longitudinal wave where the air particles are close together
Time period	Period = 1/frequency. Period- $t$ in seconds, Frequency-Hz
Frequency	The number of waves produced in a given time, unit is Hertz, Hz
Wave speed	Wave speed= frequency x wavelength. Wave speed- m/s, Frequency-Hz, Wavelength-m
Diffraction	The bending of waves around a barrier or opening
Reflection	Obeys the law of reflection, the angle of incidence is equal to the angle of reflection
Refraction	Waves pass through a different medium and change direction due to their change in speed
Decibel	The unit used to express loudness, dB
Vacuum	Space with no matter
Oscillation	A motion that repeats itself, example vibration
Ultrasound	Frequencies above 20000Hz
Sonar	When an ultrasound pulse is emitted and timed how long it takes to return
Seismic Waves	Produced by earthquakes, P waves are longitudinal and S waves are transverse
Amplitude	The height of a wave crest or trough from the rest position

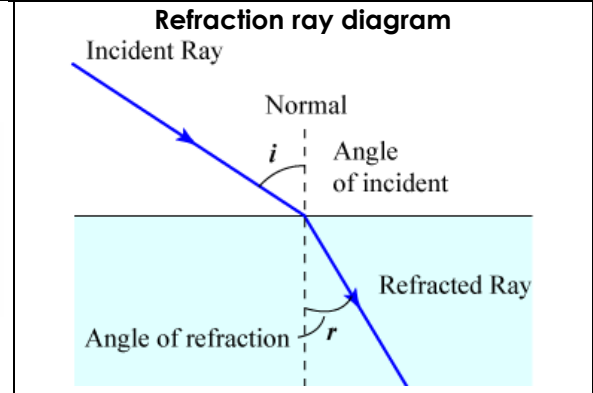
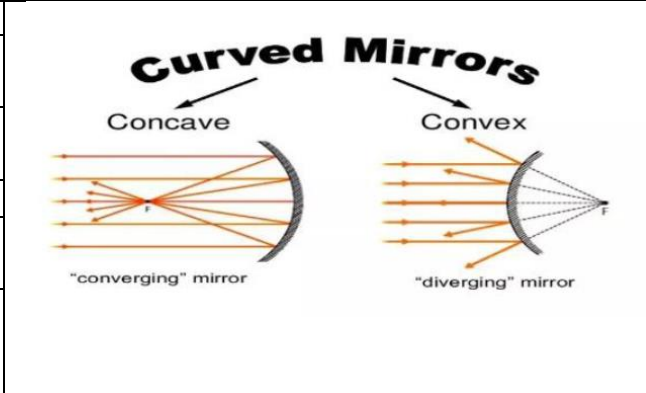
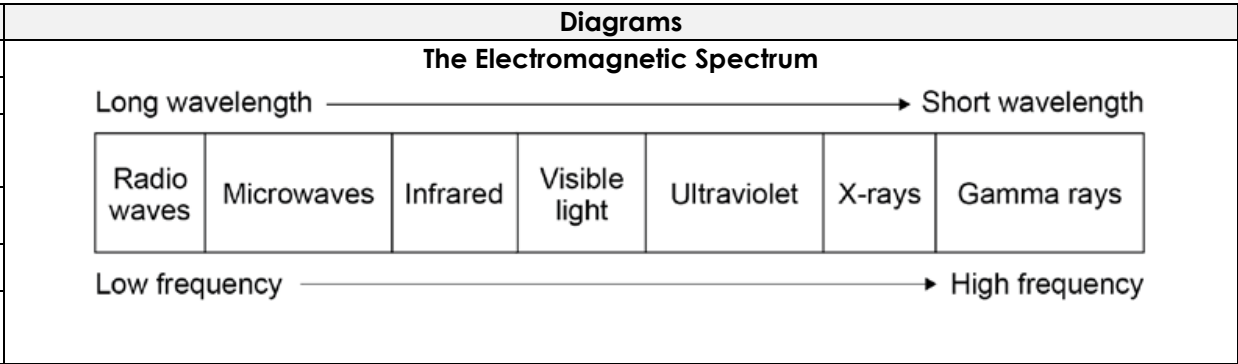
### Wave diagram



EM Waves		
1	Radio waves	television and radio
2	microwaves	satellite communication and cooking
3	infra-red	infra-red cameras, cooking food, heaters
4	visible light	fibre optic communication
5	ultraviolet	energy efficient lamps, sun beds
6	x-rays and gamma rays	medical imaging and treatments

Dangers of Electromagnetic spectrum		
1	ultraviolet	Sun burn, premature skin ageing and skin cancer
2	x-rays and gamma rays	Ionising radiation. Can cause the mutation of genes and cancers

Higher Tier only		
1	Radio wave production	Radio waves are produced by oscillations in electrical circuits
2	Radio wave absorption	When radio waves are absorbed they create an alternating current in the same frequency as the wave itself
3	Transmit	Allow radiation to pass through
4	Absorb	Stop radiation from passing through and take the energy in
5	Reflect	Throw back radiation without absorbing it
6	Refract	Make radiation change direction when it enters at an angle



**Drawing image through convex lens**

