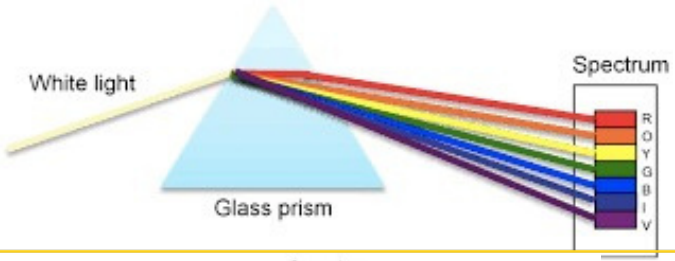
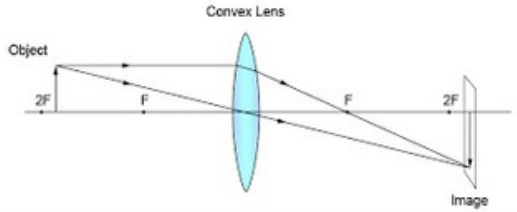
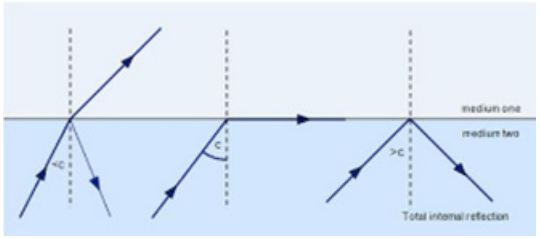
1	Whenwaves are reflected, the angle of reflection is equal to the angle of incidence. This is called the law of reflection.
2	Lighttravels at different speeds in different materials.
3	When a rayof light moves into a material where it travels at a different speed, it usually changes direction. This is called refraction.
4	The angle of incidence (i) and the angle of refraction (r) are both measured from the normal.
5	When the angle of incidence is equal to the critical angle, therefracted light passes along the boundary.
6	When the angle of incidence is greater than the criticalangle, the light is completely reflected inside. This is known as total internal reflection.
7	A luminous object is one that emits (givesout) light. An example of a luminous object is the sun.
8	A non-luminous object does not emitlightbut it may reflect light. An example of a non-luminous object that reflects light is the moon.
9	White light is a mixture of different wavelengthsknow as the visible light spectrum.
10	The coloursof visible light can be remembered by using the term 'ROY G. BIV' red, orange, yellow, green, blue, indigo and violet.
11	Red light has the longest wavelengthof the visible light spectrum.
12	Violet light has the shortestwavelength of the visible light spectrum.
13	Colourfilters work by absorbingall other wavelengths of visible light and reflecting thecolouryousee. For exampleabluefilter willabsorb red, orange, yellow, green, indigo and violet wavelengths of visible light but will reflect blue.
14	A lens is a piece of transparent (allows light to pass through) mateial shaped to refract light in particular ways.



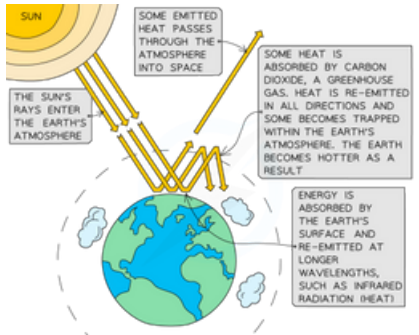


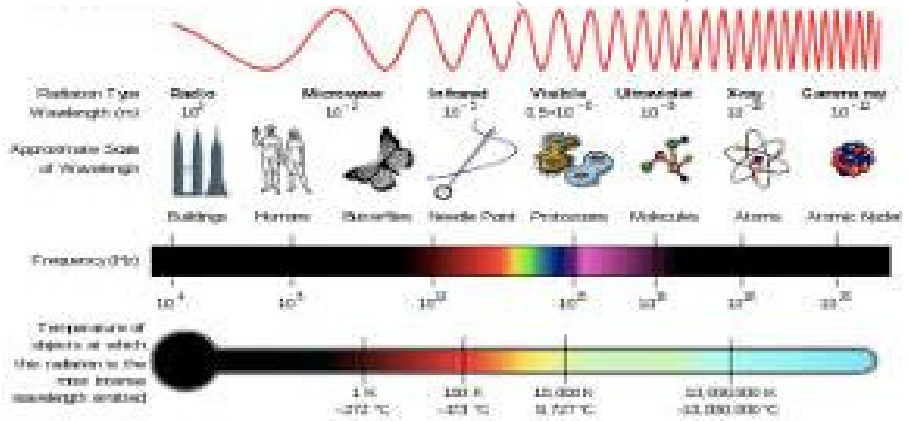


15	The power of a lens tellsyou how much it bends light that passes through it. The more powerful a lens is, the more it bends the light.
16	A converging (convex) lens is fatter in the middle than at the edges.
17	A diverging (concave) lens is thinner in the middle thanat the edges.
18	The focal length is the distancebetween the focal point and the centre of the lens. It is the point at which the rays seem to be coming from after passing through the lens.
19	An image thatcan be focused onto a screen is called a real image.
20	An image thatcannot be projected onto a screen is known as a virtual image.

Knowledge Organiser: physics, Cp5b

1	Allelectromagnetic waves are transverse waves.
2	All electromagnetic wavestravel at the same speed in a vacuum (3 x 108 m/s). This is often referred to as the 'speed of light'.
3	Some animals are able to detect electromagnetic waves with higher or lower frequenciesthan visible light. For example, birds can detect UV light and snakes can detect infrared.
4	William Herschel discoveredinfrared by using a prism to split sunlight into a spectrum and placing a thermometer in each of the coloursand just beyond the red end of the spectrum.
5	The waves that make up the electromagnetic spectrum are radio waves, microwaves, infrared,visible light, ultraviolet, x-rays and gamma rays.
6	Radio waves have the longest wavelength(and therefore lowest frequency) of all the EM waves in the spectrum.
7	Gamma rayshave the highest wavelength (and therefore the highest frequency) of all the EM waves I the spectrum.
8	Most telescopesuse curved mirrors to focus the EM radiation onto a central sensor. (higher only)
9	The type of material usedfor the mirror and the size of the telescope depend on the wavelength of the radiation being studied.
10	Radio waves are produced by oscillations (variation in current and voltage)in electrical circuits.
11	A metal rod canbe used as an aerial to receive radio waves. The radio waves are absorbed by the metal rod and cause oscillations in the electrical circuit connected to the aerial.
12	Someradio waves and all microwaves pass through the ionosphere (a region of charged particles in the atmosphere). Some frequencies of radio waves are refracted by the ionosphere.
13	.The intensity of radiation emitted increases with temperature.
14	





15	The higher the temperature, the shorter the wavelength.
16	For the temperatureon Earth to stay the same , the Earth must radiate energy into space at the same average rate it is absorbed.
17	Some gases in our atmosphere (such as carbon dioxide) naturally absorb some energy, keeping the Earth at a higher temperaturethan if there were no atmosphere. This is known as the greenhouse effect.
18	EMwaves with shorter wavelengths (Gamma, X-rays and UV) are known as ionisingradiation.
19	Ionisingradiation has the ability to cause mutations in your DNA which can kill cells or sometimes lead to cancer.