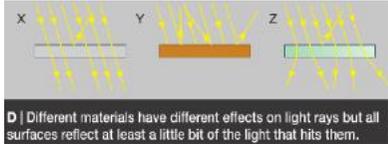
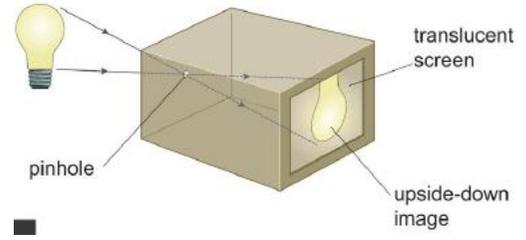
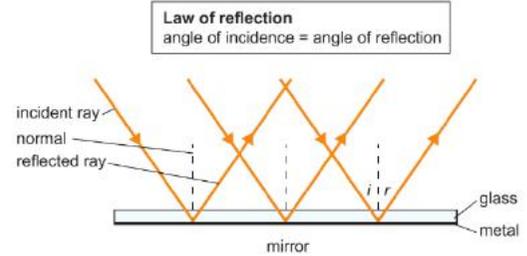


Year 8 Autumn Term – 8J: Light

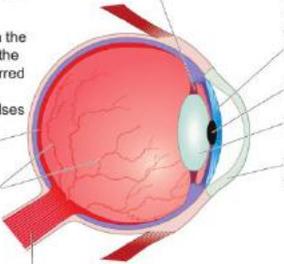
Section A: Key Vocabulary	
Keyword	Definition
Reflected	To bounce off a surface instead of passing through it or being absorbed.
Translucent	Material that lets light through but scatters it. You cannot see things clearly through translucent materials.
Scattered	When something is scattered, parts of it go off in many different directions.
Transparent	A material that light can travel through without scattering.
Diffuse reflection	Reflection from a rough surface, where the reflected light is scattered in all directions.
Refraction	The change in direction when light goes from one transparent material to another.
Sensor	An instrument that detects something. In a digital camera, the sensors detect light and change it to electrical signals.
Cone cells	A cell in the retina that detects different colours of light.

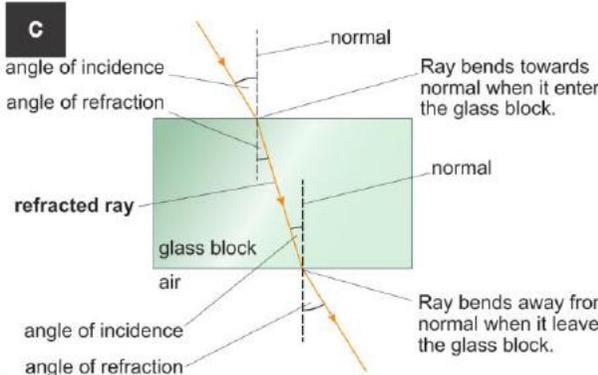
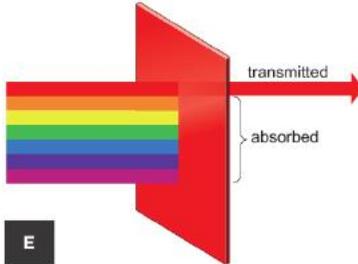
Section B: Content	
Light on the move	
<ul style="list-style-type: none"> Light is a ways of transferring energy from one place to another. Light travels faster than sound. Light can travel through a vacuum (empty space), which sound cannot. Light can pass through transparent materials = light is transmitted. On an opaque material, some light is reflected and some is absorbed. A translucent material (frosted glass) allows light through but the rays leave the glass in many different directions. – They are scattered. 	
 <p>D Different materials have different effects on light rays but all surfaces reflect at least a little bit of the light that hits them.</p>	
Reflection Vs Refraction	
<ul style="list-style-type: none"> Diagram D shows how we see an image in a plane mirror. Rays of light spread out in all directions from a source of light. However, when we draw ray diagrams we only draw a few rays, to keep the diagram simple. The image in a plane mirror: <ul style="list-style-type: none"> Is the same size as the object Is the same distance behind the mirror as the object is in front of it Has left and right swapped over. 	

Section C: Diagrams		
Light on the move		
	Light	Sound
Type of wave	transverse 	longitudinal 
Speed	300 000 000 m/s in air	330 m/s in air
Travels through:	vacuum, gases, some liquids, some solids	matter (solids, liquids and gases)
		
Reflection		
<p>Law of reflection angle of incidence = angle of reflection</p> 		

Year 8 Autumn Term – 8J: Light

Section A: Key Vocabulary	
Keyword	Definition
Frequencies	The number of vibrations (or the number of waves) per second. Different frequencies of light have different colours.
Prism	A block of clear, colourless glass or plastic. Usually triangular.
Spectrum	The seven colours that make up white light.
Dispersion	The separating of the colours in light, for example when white light passes through a prism.
Interface	The boundary between two materials.

Section B: Content	
Cameras Vs Eyes	
<p>There are two different types of specialised cell in the retina. The outer parts of the retina contain many rod cells, which can detect quite faint light, but do not detect different colours. The centre of the retina has mainly cone cells. There are three types of cone cells, which detect red, green and blue light. These three colours are the primary colours of light. All the other colours we see are mixtures of these three colours. Photo C shows the secondary colours we see when two different primary colours are combined. All three primary colours mix to form white light (a tertiary colour).</p> <p style="text-align: center;">Lenses bend light as light passes through them. This change of direction of light is called refraction. Refraction happens whenever light travels from one transparent substance to another. It only takes place where two substances meet (at their interface). If the light passes through the interface at 90° it does not change direction.</p>	
Cameras and Eyes	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Muscles can change the shape of the lens so that the eye can focus on objects at different distances.</p> <p>Special cells in the retina change the energy transferred by light into electrical impulses called nerve impulses.</p> <p>blood vessels</p> <p>Nerve impulses are sent to the brain along the optic nerve.</p> </div> <div style="width: 45%;"> <p>The iris is the coloured part of the eye. It has a hole in the middle called the pupil. The iris can change the size of the pupil to control the amount of light entering the eye. This helps to prevent damage to the eye if the light is very bright.</p> <p>The lens also helps to focus the light.</p> <p>The transparent covering of the eye is called the cornea. It focuses the light.</p> </div> </div> 	

Section C: Diagrams	
Refraction	
 <p>C</p> <p>angle of incidence</p> <p>angle of refraction</p> <p>refracted ray</p> <p>glass block</p> <p>air</p> <p>normal</p> <p>normal</p> <p>Ray bends towards normal when it enters the glass block.</p> <p>Ray bends away from normal when it leaves the glass block.</p> <p>angle of incidence</p> <p>angle of refraction</p>	
Colour	
 <p>E</p> <p>transmitted</p> <p>absorbed</p>  <p>D</p> <p>reflected</p> <p>absorbed</p>	