
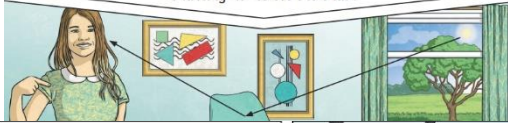


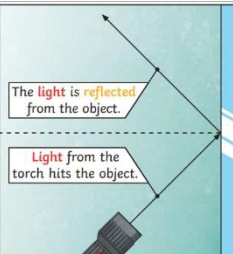
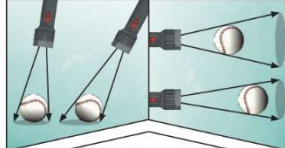
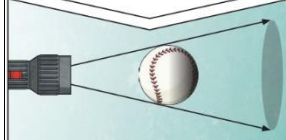



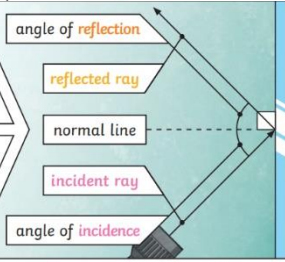








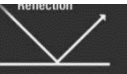
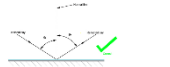
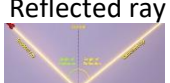
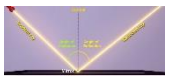
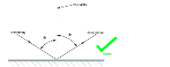


Year 6 - Light and Sight - Why do shadows have the same shape as the objects that cast them?

Key Vocabulary		Prior knowledge		Sticky Knowledge	
<p>Refraction</p> 	<p>This is when light bends as it passes from one medium to another.</p>	<p>In year 3 we :</p> <ul style="list-style-type: none"> Recognised that they need light in order to see things and that dark is the absence of light Noticed that light is reflected from surfaces Recognised that shadows are formed when the light from a light source is blocked by a solid object and that light from the sun can be dangerous and that there are ways to protect their eyes Found patterns in the way that the size of shadows change. 		<p>We need light to be able to see things. Light waves travel out from sources of light in straight lines. These lines are often called rays or beams of light.</p> <p>Light from the sun travels in a straight line and hits the chair. The light ray is then reflected off the chair and travels in a straight line to the girl's eye, enabling her to see the chair.</p>  <p>Light travels as a wave. But unlike waves of water or sound waves, it does not need a medium to travel through. This means light can travel through a vacuum - a completely airless space.</p> 	
<p>Visible</p> 	<p>Light that is visible to the human eye. It is made up of a colour spectrum.</p>	<p>We need light to be able to see things. Light travels in a straight line. When light hits an object, it is reflected (bounces off). If the reflected light hits our eyes, we can see the object. Some surfaces and materials reflect light well. Other materials do not reflect light well. Reflective surfaces and materials can be very useful...</p>  <p>The light is reflected from the object.</p> <p>Light from the torch hits the object.</p>		<p>A shadow is always the same shape as the object that casts it. This is because when an opaque object is in the path of light travelling from a light source, it will block the light rays that hit it, while the rest of the light can continue travelling.</p>  <p>Shadows can also be elongated or shortened depending on the angle of the light source. A shadow is also larger when the object is closer to the light source. This is because it blocks more of the light.</p> 	
<p>Prism</p> 	<p>A prism is a solid 3D shape with flat sides. The two ends are an equal shape and size. A transparent prism separates out visible light into all the colours of the spectrum.</p>	<p>opaque</p>  <p>hi-vis jacket</p> <p>transparent</p> 		<p>The law of reflection states that the angle of incidence is equal to the angle of reflection. Whenever light is reflected from a surface, it obeys this law.</p> <p>The angle of reflection is the angle between the normal line and the reflected ray light.</p> <p>The angle of incidence is the angle between the normal line and the incident ray of light.</p> 	
<p>Shadow</p> 	<p>An area of darkness where light has been blocked.</p>	<p>When the light source is directly above the object, the shadow will be directly underneath.</p>  <p>midday</p> <p>When a light source is to one side of an object, the shadow will appear on the opposite side. The shadow will also be longer.</p>  <p>sunset</p> <p>translucent</p> 		<p>Isaac Newton shone a light through a transparent prism, separating out light into the colours of the rainbow (red, orange, yellow, green, blue, indigo and violet) - the colours of the spectrum. All the colours together merge and make visible light.</p> 	
<p>Light</p> 	<p>A form of energy that travels in a wave from a source.</p>	<p>Knowledge and Assessment</p> <ul style="list-style-type: none"> Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes Recognise that light appears to travel in straight lines. Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. 		<p>The spoon in this water looks as if it is bent. This is because light bends when it moves from air to water. When light bends in this way, it is called refraction.</p> 	
<p>Light source</p> 	<p>An object that makes its own light.</p>	<p>Reflection</p> 		<p>The law of reflection</p> 	
<p>Reflected ray</p> 	<p>A ray of light that has bounced back after hitting a surface.</p>	<p>Incident ray</p> 		<p>The law of reflection</p> 	

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