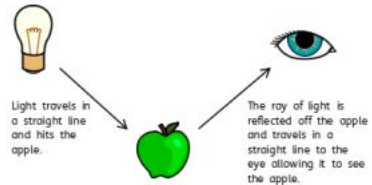


Goonhavern Primary School- SCIENCE

TOPIC: Light

YEAR: 6

STRAND: Physics

What should I know already?	What will I know by the end of the unit?	
<ul style="list-style-type: none"> • Certain things produce light, usually by burning (e.g. the Sun) or electricity (e.g. street lights) • Shiny materials do not make light but do reflect it. • Shadows are caused when certain materials block light. • Light travels in straight lines. When light is blocked by an opaque object, a dark shadow is formed. • The further away the light source is, the smaller the shadow is. The closer the source of the light, the bigger the shadow. 	How does light travel?	<ul style="list-style-type: none"> • Light travels in a straight line. • When you place a torch on a table in a dark room, the beam travels in a straight line. • Reflection is when light bounces off a surface - this changes the direction in which the light travels.
	What is the relationship between light sources and shadows?	<ul style="list-style-type: none"> • Because light travels in straight lines, when there is an opaque object blocking the light, a shadow is formed. • These shadows have the same shape as the objects that cast them. • The size of a shadow changes as the light source moves.
	How do we see?	 <p>The diagram illustrates the process of seeing. On the left, a glowing light bulb emits a ray of light that travels in a straight line towards a green apple. A caption below the bulb states: "Light travels in a straight line and hits the apple." From the apple, another ray of light is reflected in a straight line towards a human eye on the right. A caption below the eye states: "The ray of light is reflected off the apple and travels in a straight line to the eye allowing it to see the apple."</p>

Vocabulary

Angle	The direction from which you look at something.
Dark	The absence of light.
Dim	Light that is not bright.
Electricity	A form of energy that can be carried by wires and is used for heating and lighting, and to provide power for machines.
Emits	To throw or give off light/heat.
Light	A brightness that lets you see things.
Mirror	A flat piece of glass which reflects light, so that when you look at it you can see yourself reflected in it.
Opaque	If an object or substance is opaque, you cannot see through it.
Reflects	When light from an object is reflected by a surface, it changes direction. It bounces off the surface at the same angle as it hits it.
Shadows	A dark shape on a surface that is made when something stands between a light and the surface.
Source	Where something originates from.
Surface	The flat top part of something or the outside of it.

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TOPIC: Light

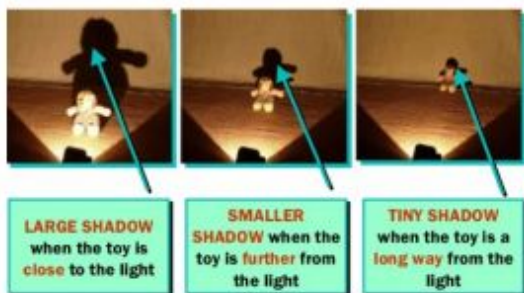
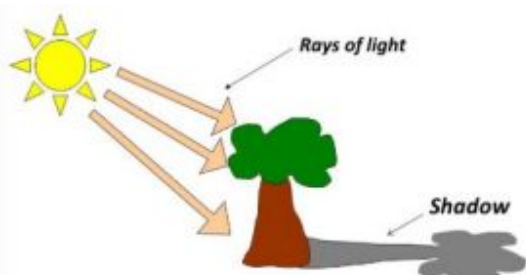
YEAR: 6

STRAND: Physics

Translucent	Some light can pass through it.
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Transparent	You can see through it.
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Image/diagram that helps me to articulate my knowledge/understanding



Investigate!

- What happens when light is reflected from different surfaces? What happens when light is reflected from a mirror? What happens when the angle of the mirror (or light source changes?)
- Draw diagrams to show how light travels and what happens when light is reflected from a mirror.
- Draw diagrams to show how we see.
- Design an experiment to measure shadow length by changing a variable. Show your results in a line graph to show the relationship between distance of light source and shadow length. Explain your findings using scientific vocabulary.
- Create shadow puppets to show how light travels and to demonstrate that a shadow has the same shape as the object that casts them.
- Make a periscope and explain how it works using diagrams and scientific vocabulary. Use the idea that light appears to travel in straight lines to explain how it works.
- Research how mirrors are used in different contexts (e.g. rear view mirrors, on a dangerous bend) and explain why and how they work.
- Explain why objects look bent in water. Explore different contexts in which light travels including rainbows, colours on soap bubbles and coloured filters.

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TOPIC: Light

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Q1	Start of Unit	End of Unit	Q3	Start of Unit	End of Unit
<i>When light bounces off a surface it is...</i>			<i>The word that best describes an object that does not allow light to travel through it is...</i>		
absorbed			transparent		
dissolved			translucent		
reflected			opaque		
bounced					
Q2	Start of Unit	End of Unit	Q4	Start of Unit	End of Unit
<i>Shadows are formed when...</i>			<i>How do we see an object?</i>		
Light is let through an object			Light reflects off the object and enters our eyes		
Light reflects off an object			Light travels from our eyes and reflects off the object		

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TOPIC: Light

YEAR: 6

STRAND: Physics

It is dark				Light reflects off our eyes and enters the object		
Light cannot travel through an object						

Q5

Start of Unit

End of Unit

A child says that a shadow takes the shape of the light source. Is this true or false? Explain your reasoning.

Q6

Start of Unit

End of Unit

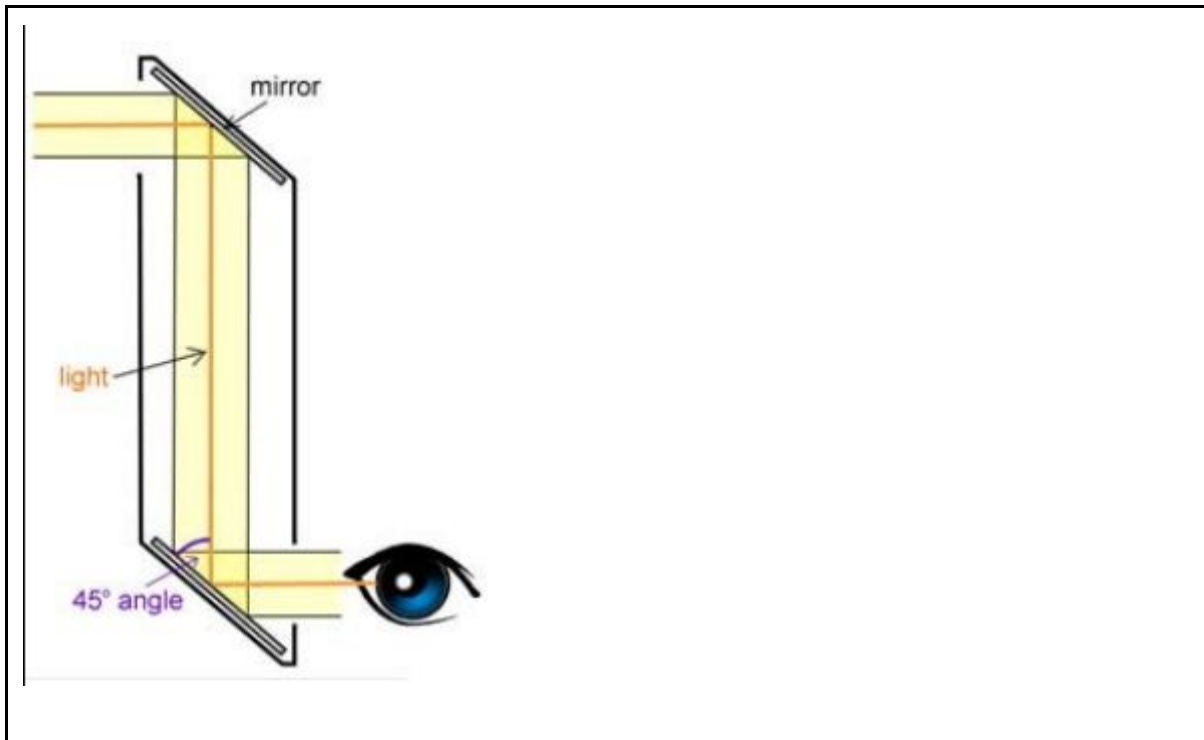
Describe how the mirrors in a periscope allow us to see.

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TOPIC: Light

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STRAND: Physics



Q7

Start of Unit

End of Unit

You design an experiment to test the size of a shadow that is cast by a light source. Name one thing you will keep the same. Name one thing you will change.

Q8

Start of Unit

End of Unit

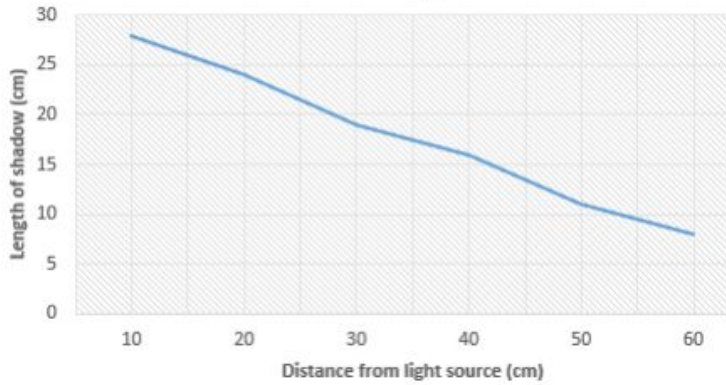
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STRAND: Physics

Shadow Investigation



Q8: Look at the graph above. What was the approximate length of the shadow when the object was 35cm away from the light source?

Q9: Look at the graph above. Approximately how far away from the light source was the object when the length of the shadow was 25cm?

Q10: Write a conclusion about what the line graph is showing using scientific vocabulary.