

Jeavons Wood Primary School – Science Knowledge Organiser

Topic: Light

Year: 6

Strand: Physics

Big Question: How does the way light travels, help us see?

What should I already know?

- Recognise that they need light in order to see things and that dark is the absence of light.
- Notice that light is reflected from surfaces.
- Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.
- Recognise that shadows are formed when the light from a light source is blocked by an opaque object.
- Find patterns in the way that the size of shadows change.

What will I know by the end of the unit?

Light Sources

- *We need light in order to see things.
- *When there is no light we say it is dark – darkness is the absence of light.
- *A light source is something that makes its own light.

Essential Knowledge

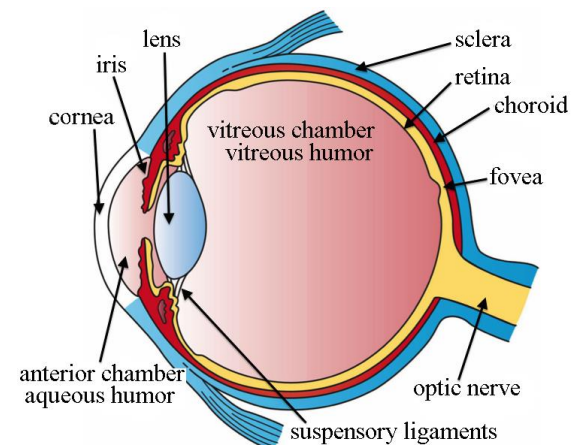
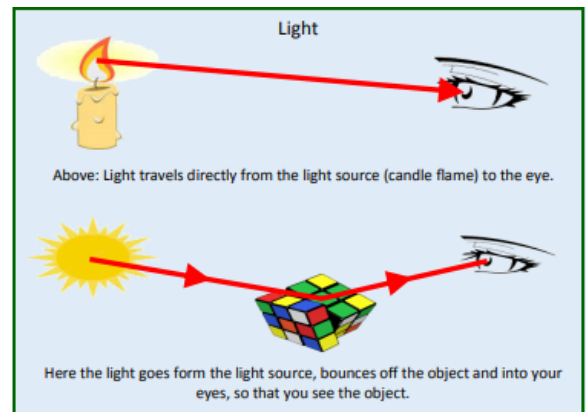
- *Light travels in straight lines
- *Light travels very, very fast - 186,282 miles per second. (that's like travelling around the world over 7 times in a second)
- * It is because light travels in straight lines that objects are seen, as they give out or reflect light into the eye
- * If something gets in the way of light, a shadow is formed.

Shadows

How is a shadow formed?	<ul style="list-style-type: none"> * When light from a source is blocked by an opaque object, you get a shadow. *Because light travels in straight lines, the shadow has the same shape as the object blocking the light.
How does the size of the shadow change?	<ul style="list-style-type: none"> * If an object is moved closer to the light sources, the shadow gets bigger. * If an object is moved further away from the light source, the shadow gets smaller.

Where will my learning go next?

Year 7: Learning about Light waves. Including the speed of light, light waves and the transmission of light through materials. Light refraction and light transferring energy from source to absorber leading the chemical and electrical effects. Colours and different frequencies of light.



Vocabulary

Refraction	When light travels from air into water, it slows down, causing it to change direction slightly. This change of direction is called refraction.
Shadow	A shadow is a dark area where light from a light source is blocked by an opaque object.
Light Source	Light is a form of energy and objects that let off this energy (that enables us to see) are called light sources. These can be categorised into natural and artificial sources.
Darkness	The absence of light.
Light Wave	Light behaves like a wave and can be defined by its wavelength and frequency. The frequency is how fast the wave vibrates up and down.
Reflection	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. Smooth, shiny surfaces reflect light well.
Lens	A lens is a curved piece of glass or plastic that is designed to refract light in a specific way.
Spectrum	White light is made up of different coloured light that together make up the spectrum. If the beam of light is refracted the different coloured beams can be seen.

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Q1: Tick the natural light sources;	Start of unit	End of unit
Sun		
Torch		
Candle		
Mirror		
Light bulb		
Stars		
Moon		

Q2: Darkness is...	Start of unit	End of unit
At night time		
The absence of light		
When light is switched off		
When an object blocks the light		

Q3: Tick the reason why shadows the same shape as the object?	Start of unit	End of unit
Because light travels in straight lines		
Because light can't travel through transparent objects		
Because light can travel through opaque objects		
Because light travels in waves		

Q4: When light bounces off an object into our eye, allowing us to see the it, we say the light is _____ off the object?	Start of unit	End of unit
Refracting		
Reflecting		
Jumping		
Shining		

Q5: A shadow gets smaller when;	Start of unit	End of unit
The light source moves closer to the object		
The light source moves away from the object		
The object moves closer to the light source		
The object moves further away from the light source		