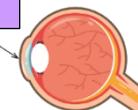


Light

Science Knowledge Organiser Year 6 Term 2



Key vocabulary

Absorb – to take in or soak up.

Incident ray – a ray of light that hits the surface.

Iris – coloured part of the eye which controls the size of the pupil.

Light source – something that emits light; these can be natural (the sun, stars, fire etc) or artificial (light bulb, torch, phone etc).

Opaque – you cannot see through it

Periscope – a device used to look at things from a hidden position, using light, prisms and mirrors.

Perpendicular – at an angle of 90 degrees.

Pupil – in charge of how much light enters the eye.

Reflected ray – a ray of light that has bounced back after hitting a surface

Reflection – light bounces off a surface, changing the direction of a ray of light

Refraction – the bending of a ray when it passes through a medium (from air through water, glass or plastic).

Retina – converts images received by the lens.

Translucent – some light can pass through

Transparent – allows light to travel through the object easily, meaning you can see through.

Key Questions

- How does light travel?
- What is the relationship between light sources and shadows?
- How are objects seen by the eye?
- Why do shadows have the same shape as the objects that cast them?

Key People

Isaac Newton – (1642 – 1726/27) the first to understand the rainbow by refracting white light with a prism, revealing its component colours: red, orange, yellow, green, indigo and violet

Key Knowledge

What I should already know...

Year 3

- 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 I will know by the end of the unit...

- 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
- A shadow is formed when the light is blocked
- 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
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

More Key Knowledge...



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.

The angle of reflection is the angle between the normal line and the reflected ray light.

The angle of incidence is the angle between the normal line and the incident ray of light.

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.

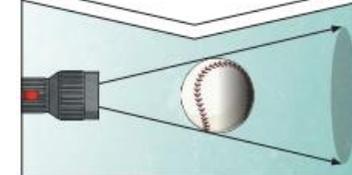


The spoon in this water looks as if it is bent. This is because light bends when it moves from air to water. When light bends in this way, it is called **refraction**.

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**.



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.



Useful web links:

<https://www.bbc.co.uk/bitesize/topics/zbssgk7>

<https://wowscience.co.uk/resource/light-absorption-reflection-refraction/>