Our Lady's Catholic Primary School – Knowledge Organiser

Science	Light	Year 6

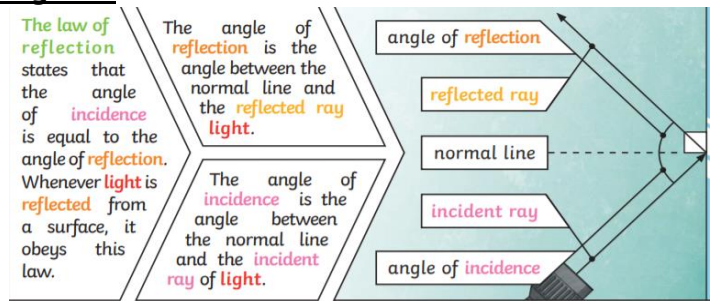
- **Vocabulary & Explanation**

- Incident ray – a ray of light that hits a surface
- Light – a form of energy that travels in a wave from a source
- Light source – an object that makes its own light
- Prism – a prism is a solid 3D shape with flat sides. The two ends are an equal size and shape. A transparent prism separates out visible light into all the colours of the spectrum.
- Reflected ray – a ray of light that has bounced back having hit a surface
- Reflection – reflection is when light reflects back from a surface, changing the direction of a ray of light
- Refraction – this is when light bends as it passes from one medium to another e.g. from air to water
- Shadow – an area of darkness where light has been blocked.
- The law of reflection – the law states that the angle of the incident ray is equal to the angle of the reflected ray.
- Visible spectrum – light that is visible to the human eye

What I should already know

- We can see objects because our eyes can sense light.
- Darkness is the absence of light.
- A material that is completely see through so all the light can pass through is transparent
- A material that lets some light through but not all of it is translucent
- A material that light cannot pass through is opaque. You cannot see through it.

Images / Diagrams



Key facts & Information

- We need light to see things. Light waves travel out from sources of light in straight lines. These lines are often called rays or beams of light.
- Light from the sun travels in a straight line and hits an object. The light ray is then reflected off the object and travels in a straight line to our eyes enabling us to see the object.
- Light can travel through a vacuum – a completely airless space.
- Shadows can 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.
- 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 the light travelling from a light source, it will block the light rays that hit it, while the rest of the light can continue travelling.

Investigation

D raw a small image on a piece of paper. Then place an empty glass over the picture. Look at your picture through the top of the glass. As you watch the picture, slowly fill the glass with water. When the glass is full, cover the top of the glass with water. What do you predict will happen?

Significant Scientists

Abu Ali al-Hasan (Alhazen) (965-1040)

Alhazan was an Iranian mathematician, astronomer and physicist. He was the pioneer of modern optics. He carried out experiments with pinhole cameras and candles and explained how the image is formed by rays of light travelling in straight lines.

Isaac Newton

In the 1660s, English physicist and mathematician Isaac Newton began a series of experiments with sunlight and prisms. He demonstrated that clear white light was composed of seven visible colours. … He identified the ROYGBIV colours (red, orange, yellow, green, blue, indigo, and violet) that make up the visible spectrum.