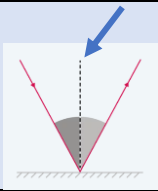


Autumn 1: Science Knowledge Organiser – Energy – Light and Reflection



Colin Webb is a British physicist who specializes in lasers. His research was pioneering, and today helps with high-speed imaging and laser micro-machining technology, helping the computing and agricultural industry.

Question for Learning: How does light travel? - Light sources can be classified by: artificial or natural; different colours; different intensities or brightness; the position. - Light travels in straight lines and can change direction when it interacts with different surfaces and materials. - Reflection is when light bounces off a surface and changes direction. A shiny material reflects light uniformly, whereas a rough surface scatters the reflected light rays.	 Identifying, grouping and classifying
Question for Learning: How do we see light? - If an object can be seen, at least some light is being reflected, day or night. - Our pupils in our eyes are an entry point for light, allowing us to see objects. - The colour of an object is determined by which colours of light are absorbed and which are reflected into our eyes.	 Using secondary Research
Question for Learning: What affects the size and shape of a shadow? - Shadows are the result of light being blocked by an opaque object. - The greater the distance between an object and the surface the shadow is cast on, the larger the shadow. - The smaller the distance between an object and the surface the shadow is cast on, the smaller the shadow.	 Comparative test
Question for Learning: How can we measure and record light reflections? - The law of reflection states that the angle of the incoming ray (the incident ray) is equal to the angle of the reflected ray. - Protractors and ray diagrams can be used to help measure how light travels. - Reflection is measured from an imaginary perpendicular line. 	 Comparative test
Question for Learning: How do periscopes work? - Trench periscopes were used during World War 1 to observe the ground in front of trenches without the risk of being seen. - Mirrors were installed at 45° angles at either end of a long box or tube. - White light comprises the full spectrum of colours, which can be demonstrated by passing light through a prism. As the light moves through the glass/plastic, each colour wavelength bends at a different angle, separating the colours.	 Using secondary research
Question for Learning: How do mirrors help us? - Jobs that use mirrors include: Drivers: use mirrors to check if it is safe to move. Hair stylists: use mirrors to show the customer the back of their head. Dentists: use mirrors to look at inaccessible surfaces of teeth.	 Using secondary Research

Key Words

Light ray	A narrow beam of light.
Luminous	Something that gives off light.
Incoming ray	The ray of light travelling towards a surface.
Pupil	The hole at the front of the eye where the light enters.
Ray diagram	A scientific diagram to show the pathway of light.
Mirror	A smooth surface that reflects light uniformly so a clear reflection can be seen.

