Year 6 - Science - Unit 2 -Light

Knowledge you already have

In year 3:
- I recognised that light is needed in order to see things and that dark is the absence of light.
- I noticed that light is reflected from surfaces.
- I recognised that light from the sun can be dangerous and that there are ways to protect their eyes.
- I recognised that shadows are formed when the light from a light source is blocked by an opaque object.
- I found patterns in the way that the size of shadows. change.

In year 5:
- I compared and grouped together everyday materials on the basis of their properties, including their transparency.

Future Knowledge

Later in year 6:
- I will associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.
- I will explain how a circuit operates to achieve particular operations, such as to control the light from a torch with different brightnesses.

In KS3, I will look at the similarities and differences between light waves and waves in matter. I will study how light transfers energy from source to absorber leading to chemical and electrical effects.

New Knowledge

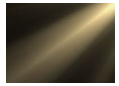
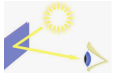
During this unit:
- I will recognise that light appears to travel in straight lines.
- I will use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.
- I will explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.
- I will use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Scientific Enquiry

Comparative and fair tests:
- I will be exploring different ways to demonstrate that light travels in straight lines e.g. shining a torch down a bent and straight hose pipe, shining a torch through different shaped holes in card.
- I will be able to explain how evidence from enquiries shows that light travels in straight lines.
- I will make predictions, explore and explain with diagrams and models, the uses of the behaviour of light, reflection and shadows, such as in a periscope design, rear view mirrors and shadow puppets.
- I will predict and explain, with diagrams or models, how the shape of shadows can be varied.

Key Ideas and Vocabulary

Light appears to travel in straight lines, and we see objects when light from them goes into our eyes. The light may come directly from light sources, but for other objects some light must be reflected from the object into our eyes for the object to be seen. Objects that block light (are not fully transparent) will cause shadows. Because light travels in straight lines the shape of the shadow will be the same as the outline shape of the object.

light rays 	Light travels in a straight path called a ray.
light source 	Makes light. Natural light sources are the sun and stars. Lamps provide artificial light.
opaque 	Not able to be seen through.
reflect 	To throw back light without absorbing it.
shadow 	A dark area or shape produced by something coming between rays of light and a surface.
translucent 	Not see-through but clear enough to allow rays of light to pass through.
transparent 	Allows light to pass through. See-through.