



Knowledge Organiser	Subject: Science	Topic: Light and Shadow	Year: 3
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Key Knowledge

We see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example, the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light. Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective. The light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light. Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface.

Common misconceptions

- We can still see even where there is an absence of any light.
- Our eyes 'get used to' the dark.
- The moon and reflective surfaces are light sources.
- A transparent object is a light source.
- Shadows contain details of the object.
- Shadows result from objects giving off darkness.

Key Learning

- Describe patterns in visibility of different objects in different lighting conditions and predict which will be more or less visible as conditions change.
- Clearly explain, giving examples, that objects are not visible in complete darkness.
- Describe and demonstrate how shadows are formed by blocking light.
- Describe, demonstrate and make predictions about patterns in how shadows vary.

Disciplinary Skills

- Describing differences
- Sorting
- Testing ideas
- Conducting practical investigations
- Making predictions

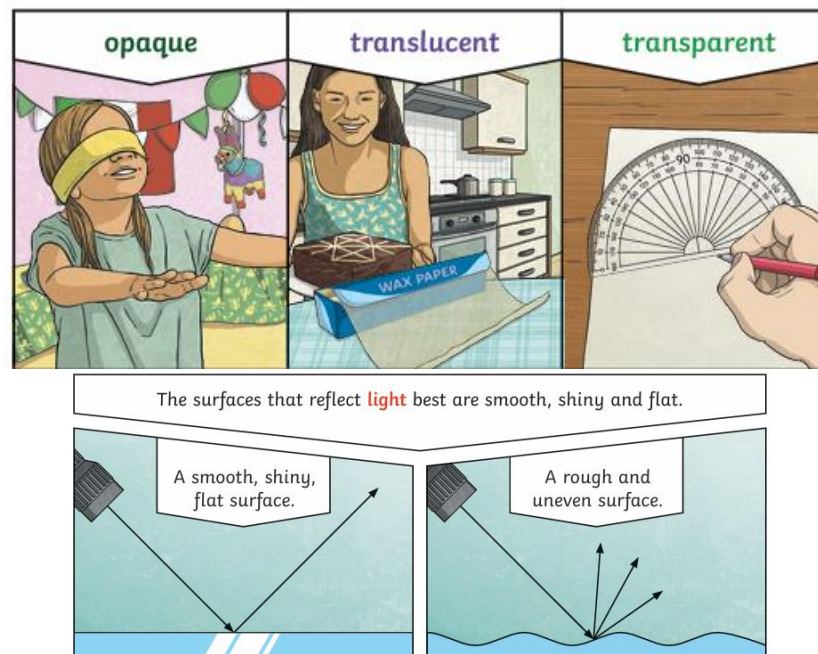
Key Concepts

Light and Visibility In complete darkness, without any light, objects cannot be seen. Light sources make objects visible. Visibility improves with increased light and reflective surfaces, which help objects stand out even in lower light. Objects are not visible in complete darkness, and we can predict the visibility of objects under different lighting conditions.	Light Sources and Eye Safety Light sources can vary in intensity and some can be harmful to our eyes. The Sun's light is strong and can damage our eyes; we should avoid looking directly at it. Sunglasses or sunhats help protect our eyes in bright conditions.	Formation and Characteristics of Shadows Shadows are created when light is blocked by an opaque or translucent object, with the shadow's size and shape influenced by the position of the light source. The position and angle of light sources relative to objects determine shadow patterns. Shadows vary based on the relative positions of the object, light source and surface.
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The Big Question

How does light cause us to see?

Key Vocabulary	
Light	A form of energy that travels in waves from a source
Light source	An object that makes its own light
Sun	A star that is at the centre of our solar system and is responsible for making life on Earth possible
Sunlight	The incoming light to the Earth that originated from the Sun
Dangerous	The possibility of suffering harm or injury.
Dark	The absence of light



Linking Thinking Across Our Learning Journey						
Early Years	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Light Explore how things work. Talk about the differences in materials and changes we notice. Describe what we see, hear and feel whilst outside.	Animals Including Humans Identify which part of the body is associated with each sense (sight). Materials Describe the simple physical properties of a variety of everyday materials.		Light and Shadow			Light Recognise that light travels in straight lines. Explain that light travels from light sources to our eyes or from light sources to objects and then to our eyes. Explain why shadows have the same shape as the objects that cast them.