



Subject: Science

Year group: 3

Term: Autumn

Unit name: Light

Prior Knowledge -

Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)
Describe the simple physical properties of a variety of everyday materials. (Y1 - Materials)

Scientific enquiry

Classifying	Based on the children's own criteria: classify light sources (leading to man-made/natural) classify materials (leading to reflective/non-reflective, transparent/translucent/opaque).
Observing over time	Not relevant (NB Do not look at how shadows in the playground change throughout the day.)
Pattern seeking	Not relevant
Comparative/fair testing	Test materials for reflectiveness. Test materials for transparency. Investigate shadows (size of shadows, shape of shadows).
Researching	Not relevant

Spiritual Development *Isaiah 43:19*

"See, I am doing a new thing! Now it springs up; do you not perceive it? I am making a way in the wilderness and streams in the wasteland."

National curriculum:

- 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

Key vocabulary

Light	matt
light source	surface
dark	shadow
absence of light	reflect
transparent	mirror
translucent	sunlight
opaque	dangerous
shiny	

Assessment for learning

Recapping prior knowledge- beginning of unit- what do children already know?

Beginning of each lesson- focus on recall of previous learning (quick quizzes)

Key Learning- what will the children know by the end of the unit?

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.

To answer the question: what is a light source?

A light source is something that emits light by burning, electricity or chemical reactions. Burning light sources include the Sun, flames from a fire and stars. We must never look directly at the Sun as the light produced is very bright and can be harmful to our eyes. This is why we wear sunglasses.

Electric lights include lamps, car headlights and street light. Lights that are caused by chemical reactions are much less common. This happens when different chemicals react and light is a product of that reaction. Examples can include glow sticks and fire flies.



To answer the question: what are not sources of light?

The Moon is not a source of light even though we can see it in the dark. This is because the Sun's light reflects on the surface of the Moon making it appear as though the Moon emits light. Shiny things are not light sources - they appear to be sources of light as they are bright.

To answer the question: why do we need light?

We need light so that we are able to see in the dark. This is because the dark is the absence of light. The Sun and stars always give us light but we can only see the stars when it is dark. At night time we cannot see the Sun's light as the Earth turns and our part of the Earth is not lit up by the Sun at night.

When we are driving, we need car headlights or street lights to help us. If we are walking or out in the dark, we would need torches to help us see. You should not look directly into the torch as this is dangerous.

To answer the question: how does light travel?

Light travels in straight lines. When light is blocked by an opaque object, a dark shadow is formed.

To answer the question: how are shadows formed?

When light is blocked by an opaque object, a dark shadow is formed. An opaque material blocks light so we can't see through it and shine a light through it. When light is shone onto a transparent object, the light travels through it, we can see through it and it makes a very faint shadow. When light is shone onto a translucent object, some of the light travels through it, we can see bright light sources through it and it makes a fairly dark shadow. The size of a shadow changes as the light source moves. The further away the light source is, the smaller the shadow is. The closer the source of the light, the bigger the shadow.

