



Year 6 light

Strand: PHYSICS

Big Questions:

Can shadows change shape? Does the amount of light we experience only change a lot at night? Why do shadows change during the day?

What will I learn by the end of this topic?

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.

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.

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.

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.

How does light travel? Light travels in straight lines.

What are shadows? When light is blocked by an opaque object, a dark shadow is 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.

What should I already know?

Certain things produce light, usually by burning (e.g. the Sun) or electricity (e.g. street lights).

Shiny materials do not make light but do reflect it

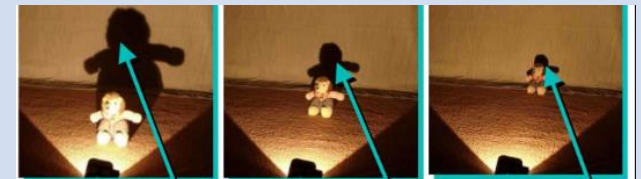
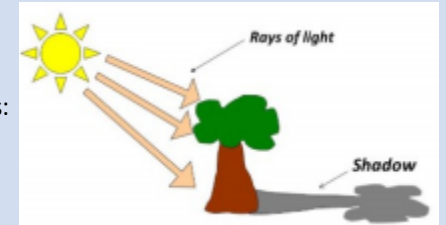
Shadows are caused when certain materials block light.

Diagrams

Sources of light:



Shadows:



LARGE SHADOW
when the toy is
close to the light

SMALLER SHADOW
when the toy is **further** from the light

TINY SHADOW
when the toy is a **long way** from the light

Topic vocabulary	
dark	the absence of light
dull	lacking brightness
bright	a colour that is strong and noticeable, and not dark
angle	the direction from which you look at something
electricity	a form of energy that can be carried by wires and is used for heating and lighting, and to provide power for machines
emits	to emit a sound or light means to produce it
light	a brightness that lets you see things.
mirror	a flat piece of glass which reflects light, so that when you look at it you can see yourself reflected in it
opaque	if an object or substance is opaque, you cannot see through it
reflects	sent back from the surface and not pass through it
shadows	a dark shape on a surface that is made when something stands between a light and the surface



Topic vocabulary	
source	where something comes from
sunglasses	glasses with dark lenses which you wear to protect your eyes from bright sunlight
surface	the flat top part of something or the outside of it
torches	a small electric light which is powered by batteries and which you can carry
translucent	if a material is translucent, some light can pass through it
transparent	If an object or substance is transparent, you can see through it

Light

Key Scientist Patricia Bath

She was an American ophthalmologist, inventor, humanitarian, and academic. She invented an improved device for laser cataract surgery. Her invention was called Laserphaco Probe.

