

Science Knowledge Organisers

Science Focus

Light

Year 3

Spring

Key Knowledge	
What is a light source?	A light source is something that makes its own light
Common sources of light	The sun The stars Flames Electric lights (including car headlights, street lights) Some animals (fireflies and glow worms make their own light)
Things you may think are light sources but are not	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, basically reflect light from a source - they appear to be sources of light as they are bright.
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.
Things you need to know about light	Light travels in straight lines Light travels very, very fast - 186,282 miles per second. (that's like travelling around the world over 7 times in a second) If something gets in the way of light, a shadow is formed.

The Sun

WARNING	IT IS NOT SAFE TO EVER LOOK DIRECTLY AT THE SUN, EVEN WHEN WEARING SUN GLASSES
How is a shadow formed	When light from a source is blocked by an opaque object, you get a shadow
How does the size of the shadow change?	If an object is moved closer to the light sources, the shadow gets bigger. ☐ If an object is moved further away from the light source, the shadow gets smaller

Diagram



Key Vocabulary	
angle	the direction from which you look at something
emits	to emit a sound or light means to produce it
opaque	An object you are not able to see through.
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
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
Warning	Something that is said or written to tell people of danger.
electricity	a form of energy that can be carried by wires and is used for heating and lighting, and to provide power for machines

Possible Experiences

**Experiment to find out how the length of shadows can change with the seasons. (Caused by the earth's tilt).
Can we make a light ray pass from using mirrors?
Shadow puppets theatres with size of shadow changes for bigger characters.**

Diagrams and Symbols

We see things when light from a source enters our eyes.



Above: Light travels directly from the light source (candle flame) to the eye.



Here the light goes from the light source, bounces off the object and into your eyes, so that you see the object.

Greater Depth Thinking

What connections have you made?

Do you need to make changes to the way you are approaching this task?

Is there anything you need to check your understanding of?