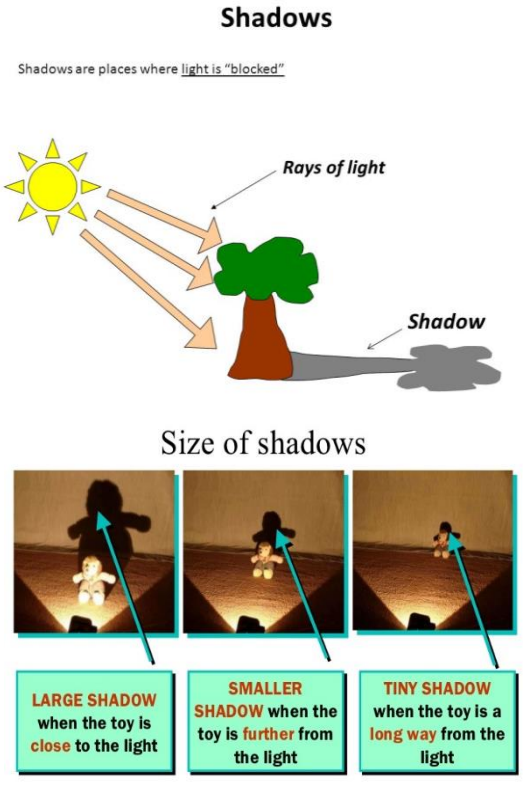
Knowledge Organiser Year 3: Light

Key Enquiry Questions	Key Facts
• What is a light source and why do we need light?	• 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. • Electric lights include lamps, car headlights and street lights. • 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. • 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. • 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. When light is blocked by an opaque object, a dark shadow is formed. 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. • 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.

Key Vocabulary	
angle	The direction from which you look at something.
bright	A colour that is strong and noticeable, and not dark.
chemical reactions	A process that involves changes in the structure of something.
dark	The absence of light.
dim	Light that is not bright.
electricity	A form of energy that can be carried by wires and is used for heating and light, 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.
ray	The straight line in which light travels to a given point.
reflects	Sent back from the surface and not passing through it.
shadows	A dark shape on a surface that is made when something stands between a light and the surface.
solid	Firm and stable in shape, not liquid or fluid.
source	Where something comes from.
sunglasses	Glasses with dark lenses which you wear to protect your eyes from sunlight.
sunlight	Light from the sun.
surface	The outside part or uppermost layer of something.
torch	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.



Investigate (suggestions)

- The brightness of torches - can you put torches in order from brightest to dimmest? What would make it a fair test?
- Why do lights seem brighter in the dark?
- Explore which objects form shadows when light is shone on them.
- How can you change the size and shape of shadows by using the same object?
- What happens when light is reflected from different surfaces?
- What happens when light is reflected from a mirror? What happens when the angle of the mirror (or light source changes?)