Light	**Science** **Knowledge Organiser**	**Learning Lens: Physics** **Class**: Year 3

Previous Knowledge

Certain things produce light, usually by burning or electricity. Shadows are caused when certain materials block light.

Project Hook or 'Wow' memory

Shadow theatre puppet show.

Learning Steps	Key Knowledge (answers)
What provides us with light? Why is it dark? **(Identifying and classifying)**	A light source is something that emits light by burning, electricity or chemical reactions. Burning light sources—Sun and flames from a fire. Electricity—lamps, car headlights etc. Chemical reactions—glow sticks and fire flies. We need light so that we can see. It is dark because of the absence of light.
Which material is the most reflective? (Identifying and comparative testing) How can I use mirrors to reflect light? (Identifying and classifying)	When light hits an object it is reflected (bounces off). If the reflected light hits our eyes we can see the object. The surfaces that reflect light the best are smooth, shiny and flat. If the surface is rough and uneven the light scatters in different directions , resulting in us not being able to see the reflection. Light travels in straight lines and mirrors reflect light very well.so they create a clear image.
Which materials make the best shadows? (Comparative testing)	An opaque object does not let you cannot see through it and light cannot travel through it. It makes a shadow. When light is shone on to a transparent object, the light travels through it and we can see through it. It may make a very faint shadow. When light is shone on a translucent object, some of the light travels through it and we can only see bright light through it. It can make a shadow.
How does the size of the shadow change as the light source moves? (Fair testing)	The further away the light source is the smaller the shadow. The closer the object is to the source of light the larger the shadow..
How does the Sun make light? How can I stay safe in the Sun? (Research)	The Sun makes light because of nuclear fusion where hydrogen is changed into helium. This reaction produces neat and light. To stay safe from the Sun—stay in the shade during the hottest part of the day, use a good sun cream regularly, wear a sun hat and loose fitting clothing and drink plenty of water.
Which part of our school is the darkest? (Observing over time)	The sun rises in the east and sets in the west. The darkest part of the school will change during the day. This is because the side of the school that is facing east will get the morning sun, the midday sun is to the south and the late afternoon sun is to the west. The North side of the school should be the darkest.
How have the ideas on eclipses changed over time? (How ideas have changed over time)	In the ancient world, it was believed that the Sun had been eaten. It was an omen for something bad to happen. It started the study of astronomy. The size and distance of the Moon was calculated. The distance and orbits of the planets were measured and the Sun was studied.

The key skills we want pupils to use during this topic:

Ask relevant **questions** and use different types of scientific enquiries to answer them. Set up simple practical investigations, **compare** things and make **fair tests**. Make careful **observations** and take **accurate measurements** using the right units using a range of equipment.

Gather, record, sort and **present data** in a variety of ways to help in **answering questions**. Record findings using simple **scientific language**, drawings, labelled diagrams and tables.

Report findings by talking and writing about them, displaying or **presenting results** and **conclusions**. Use results to draw simple conclusions, make **predictions**, suggest **improvements** and ask more questions. **Identify differences, similarities or changes** . Use clear **scientific evidence** to answer questions or to support my findings.

Key vocabulary

Reflection	The process where light hits the surface of an object and bounces back into our eyes.
Shadow	An area of darkness where light has been blocked.
Opaque	Describes objects that do not let any light pass through them.
Translucent	Describes objects that let some light through, but scatter the light so we can't see through them properly.
Transparent	Describes objects that let light travel through them easily, meaning that you can see through the object.
Light Source	An object that makes its own light.
Reflective	A word to describe something which reflects (to bounce off) light well.

Statutory Requirements

I notice that light is reflected from surfaces.

I can recognise that I need light in order to see things and that dark is the absence of light.

I can recognise that light from the Sun can be dangerous and that there are ways to protect my eyes.

I can recognise that shadows are formed when the light from a light source is blocked by a solid object.

I can find patterns in the way that size of shadows change.

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