Science – Year 3

Summer 2	Year 3 – Light					
Prior learning	EYFS – Light topic					
Lesson objective	Identify the difference between light sources and non light sources	Explore the light that comes from the sun and how to stay safe	Explore materials which are reflective	Discover how shadows are formed	Investigate how shadows change throughout the day	Investigate how you can change the size of a shadow
Key vocabulary	light source natural artificial reflect	vitamin D ultraviolet rays sunburn exposure protection	fluorescent high visibility reflective surface materials	shadow opaque sundial rays blocks	position cast opposite direction length	size shape closer further puppet
Creative context						
Substantive knowledge	Recognise that they need light in order to see things and that dark is the absence of light	Recognise that light from the sun can be dangerous and that there are ways to protect their eyes	Notice that light is reflected from surfaces	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	Find patterns in the way that the size of shadows change
Disciplinary knowledge	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Identifying differences, similarities or changes related to simple scientific ideas and processes Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

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Recorded learning	Sort images and place them into 2 groups - light sources and non-light sources. Write a sentence which explains the difference between natural sources of light and artificial sources of light. Challenge Task: Write a sentence which explains why certain objects are sources of light and why some are not.	Investigate the impact of sunlight on ultraviolet beads and the effectiveness of using suncream. Make a prediction and record their observations. Challenge Task: Write a conclusion to the experiment that explains why it is important to use a suncream with a high SPF value.	Carry out an investigation that explores the reflectiveness of different materials. Record findings in a table. What impact does a rough or smooth surface have on the reflective surface? What do they notice about the objects that reflected the most light? Challenge Task: Identify a range of jobs which use reflective clothing. Explain why they think wearing reflective clothing is needed.	Use a light source to cast an object's shadow onto a piece of paper and draw around the outline. Move the torch 5cm back and draw around the shadow again. Repeat. Observe changes in the shadow. What do they notice about the shadow? Write an explanation about how a shadow is formed. Challenge Task: Why does the size of the shadow change when you move the torch?	Using the measurements from the investigation, record results in a table. Present the data in the form of a bar graph, with the time on the x-axis and the length of the shadow on the y-axis. Write up a conclusion that explains what happened to the shadow of the stick and why. Challenge Task: Would the shadow have been different in another season?	Prepare and perform shadow puppet show. Use the handout (Developing Experts) to guide their practice which prompts them to explore what happens when they move the puppet closer or further away from the light source. Challenge Task: Explain why the size of the shadow changes when the object is moved closer or further away from the light source.
Future learning	Year 6 – light topic					