Nook Lane Junior School: Science Planning Overview

Year	3	Unit	Light

KEY QUESTION

KEY QUESTION 3

Can I develop my scientific knowledge and conceptual understanding of light?

National curriculum:

Recognise that they need light in order to see things and that dark is the absence of light.

Notice that light is reflected from surfaces.

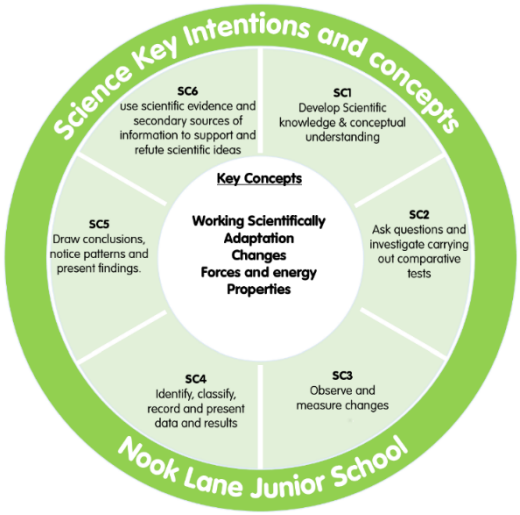
Recognise that shadows are formed when the light from a light source is blocked by an opaque object.

Find patterns in the way that the size of shadows change.

Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.

OUTCOMES

- Children will be able to identify light sources and how light can be reflected from surfaces.
- Children will understand that shadows are formed when the light from a light source is blocked by an opaque object.
- Children will be able to find patterns in the way that the size of shadows change.
- Children will understand how the Ancient Egyptians used the patterns of shadows to tell the time
- Children will recognise that light from the sun can be dangerous and that there are ways to protect their eyes.



Key Question	Links to vision & subject intentions	Key concept	Memory Mapping/ flashback	Learning Sequence	Outcomes	Focus vocabulary
Can I identify light sources?	**C6 S4**	**Working scientifically Forces and energy**		A range of images given to be sorted with no specific criteria. Discussion based around choices made and why. Instructions to sort the images into light sources and not lights sources. Opportunities for discussion regarding more challenging images including reflective surfaces. SEND – mixed ability groupings HOT - The Moon can light things up at night but is not a light source. Can you explain why it appears to emit light?	Children will be able to identify light sources and how light can be reflected from surfaces.	dark, light, light source, reflect
Do I understand how a shadow is formed?	**C3 & 6 S3**	**Working scientifically Forces and energy**	Children to identify light sources from a range of objects. How do we know they are a source of light?	Time spent outside to look at shadows created on the playground. Time to explore shadows in the classroom using torches, hands and objects from around the classroom. Puppets can be made and used for exploration. Discussion based around what is happening when an object is in front of the light source. Which objects create shadows? Do different objects have different effects? Have we made any other observations about the shadows we've created? SEND – simple cloze procedure to be completed with support if needed HOT - Jacob is holding an object in front of a light source but no shadow is being created. Can you explain what could be happening?	Children will understand that shadows are formed when the light from a light source is blocked by an opaque object.	observation, opaque, shadow,
Can I investigate patterns in the way that the size of shadows change?	**C3 & 6 S4 & 5**	**Working scientifically Forces and energy Changes**	Image shared of children creating shadow animal puppets. Can we explain to a partner what is happening?	Predict what will happen if a Lego figure is moved closer to a light source. Discussion about which type of enquiry will be most useful to find out about how shadows change. Carry out enquiry, results recorded accurately. Simple conclusions drawn based on their findings. SEND – Working in mixed ability pairings, shared recording, cloze procedure conclusion HOT - Can you explain why the height of the shadow increases the closer the Lego man is to the light source?	Children will be able to find patterns in the way that the size of shadows change.	direction, pattern, conclusion

How could the Ancient Egyptians have used shadows to tell the time?	**C5** **S5**	**Working scientifically** **Forces and energy** **Changes**	Pictures showing different sized objects, positioned at varying distances from a light source. Which will create the biggest shadows and why?	Link Science learning to the History focus with the investigation question - How could the Ancient Egyptians have used shadows to tell the time? Discussion. Demonstration of how the sun moves through the sky over the course of the day. BBC Science can be used to explore this. Predictions to be made using their understanding of light and shadows. Class demonstration using a torch as the sun and an obelisk to allow predictions to be tested. Report findings through a written conclusion. SEND – shared write HOT - How certain are you that our findings are accurate? How could you improve your enquiry to allow for more certainty?	Children will understand how the Ancient Egyptians used the patterns of shadows to tell the time.	length, prediction, results
How can we keep ourselves safe and protected on sunny days?	**C7** **S6**	**Forces and energy**		*Lesson to be shared during the Summer term when it is more appropriate* Assess prior knowledge/understanding of sun safety. Introduce the effects f UV rays by showing them the effect of coloured paper being left in the sun. Do we know how too much UV could affect our skin? Introduce the damage that can be caused to the eyes when too much light enters the retina Design an outfit that would keep someone protected on a sunny day. SEND – cut and stick items to pack in a suitcase for a summer holiday to keep them safe HOT - Do you think the sun is good or bad? Explain why.	Children will recognise that light from the sun can be dangerous and that there are ways to protect their eyes.	protection, pupil, retina