YEAR 3 LIGHT PLANNING

Class: **Term: Summer 2** **Subject: Science** **Unit: Light**

Differentiation and support (Detailed differentiation in weekly plans.) SEN: support from more able partners in mixed ability work. Additional adult support. GT: encourage use of technical vocabulary and scientific language and explanations. Support less able peers	English: writing and performing a play, new vocabulary Maths: measuring length, drawing result tables and charts ICT: learning from interactive activities and videos Art and D&T: drawing and annotating diagrams, creating shadow puppets, creating a flip book

W	Learning Objective	Skills/knowledge/activities	Resources	Success criteria	Evaluation
1a	To show what already know about topic of light (15 mins)	Children to complete a mind map with given braches e.g. 'What is a shadow?', 'Sources of light' etc	Mind maps	Formative assessment exercise	
1b	To understand that shadows form when light is blocked To understand that the shape of a shadow depends on the object that it is a shadow of (30 mins)	Intro: Ask children to think of where and when they see shadows Watch the video at http://www.peepandthebigwideworld.com/en/kids/pathways/4/light-and-color/videos/17/shadow-play/ - watch from 2 mins 40 secs to 4 mins 50 secs (if the link does not work, Google 'peep and the big wide world shadow play') Ask the children what they noticed about the shadows: their shapes, how they changed and when they could be seen: • the shadows were the shape of the characters • the shadows changed when the characters moved • the shadows disappeared when the characters stood in the shade of the tree, because the tree blocked the light source What always needs to be present for shadows to form? (a light source) Why are shadows formed? (because objects block light) Use a torch / the IWB light to show how the shape of a shadow changes depending on the shape of the object that is blocking the light Emphasise how shadows do not have any details – they are simply a silhouette Main: Children to draw a shadow for a range of objects Extension: create some of their own examples Plenary: Show the work of one or two children who completed the exercise well, highlighting how their shadows match the shape of the objects	Video open and ready to play Torch Worksheets Objects of different shapes to form shadows	MUST: understand that shadows are formed when light is blocked by an object SHOULD: understand that the shadow will depend on the shape of the object COULD: understand that shadows never include details and are only silhouettes	

2	Describe how a shadow from the Sun changes over the course of a day (2 hours spread over 2 days)	**Needs a sunny day and to be setup before school** Emphasise that we should not look directly at the sun, even when wearing dark glasses, as this can damage our eyes First thing in the morning set up a basic sundial (e.g. a rounders post) and draw a chalk mark where the shadow covers the ground and label this with the time. Explain to the children when they come in what a sundial is and how they will go up in small groups on the hour throughout the day to mark the shadow with chalk and to label the time. Ask children to discuss in partners how they think the shadows will change throughout the day. Take predictions as a class. Encourage children to give reasons for their predictions. Children draw a diagram to show how they think the shadow of the sundial will look at five points in the day between 6am and 6pm. Children need to think about the following aspects when drawing their diagrams: • Size • Shape • Position • Heavy / light shading Throughout the day send children out to mark the shadow and label each line with the time it was drawn. Next day, go to look at the sundial and discuss the pattern of the shadows Discuss why we needed a sunny day to see the shadows on the ground (because the clouds would block the light) Explain how although it looks like the sun is moving, in fact the Earth rotates around the sun. Measure the length of the shadows Children to draw and complete a table of results to show the length of the shadows Children to draw another diagram, this time to show the actual pattern of the shadows In partners / small groups have them discuss their predictions with what they found out (encourage use of comparative connectives e.g. however, whereas, in fact etc) Children to draw a bar graph to represent what we found out Graph	Object for sundial e.g. rounders post Chalk Diagrams to complete Metre sticks	MUST: draw a diagram to predict how the shadow from the sun will change during the day SHOULD: accurately complete a diagram to show how the shadow from the sun changed during the day COULD: correctly draw a bar graph	

3	Know what a light source is 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 Distinguish between man-made and natural light sources, and things that are not light sources (1 hour)	Intro: Watch the video at https://www.bbc.co.uk/bitesize/topics/z3hhvcw/articles/zp23r82 (if the link does not work, Google 'BBC Bitesize what is light') https://www.turtlediary.com/video/light.html (if the link does not work, Google 'Turtle diary What is Light Energy?') Explain that objects that reflect light, such as cats' eyes, reflective clothes and street signs are not light sources – the moon is also not a light source for the same reason; it reflects the light from the sun Watch the video at https://www.bbc.co.uk/programmes/p019yjp8 (if the link does not work, Google 'BBC Science clips Introduction to light sources (clip compilation)') In partners ask children to think of as many light sources as they can and take some examples Revise the terms man-made and natural Explain how: • darkness is the absence of light • the moon is (not a light source) because it reflects light from the sun • how the sun is also a star • how our eyes are not light sources, but they do use light • materials like metal and glass reflect light; they do not generate their own light Explain independent work – items that are both go in the intersecting section and items that do not belong in either oval of the diagram go outside of it Explain what each image represents Main: Children need to place the following items in a Venn diagram with the headings 'Natural' and 'Man-made': light bulb, book, stars, candle, CD, book, sun, glow worm, torch, TV, glass, glow-worm, moon, eyes, fire, fireworks and firefly Extension: Write a sentence to explain why each item you have put outside the ovals is not a light source. Plenary: Go through where each thing should have gone in the Venn diagram. Explain any other ones that children cannot understand why they go where they go in the diagram Children to choose 3 light sources and choose which one is the odd one out (no right or wrong answers – just gives children a chance to justify their choices using scientific reasoning)	Hyperlinks open on IWB Venn diagrams Images to classify in Venn diagram Leave images with tags for what they are on the IWB throughout lesson	MUST: know what a light source is and some examples SHOULD: be able to distinguish between man-made light sources, natural light sources and things that are not light sources COULD: explain why the moon and other reflective materials are not light sources	

To access the complete version of this Year 3 Light planning, and all of the resources to go with it, visit

http://www.saveteacherssundays.com/science/year-3/329/