



## Light and Sound : Cross-Curricular Topic : Year 5/6

### Science

1	Identify natural and artificial light sources.
2	Discover how the Earth's rotation creates night and day.
3	Identify how shadows are formed and explore how shadows fall in relation to a light source.
4	Predict and record how the direction of a shadow will change throughout the day.
5	Explore how a shadow's length will change at different times of day and discuss ways of measuring these changes.
6	Explore how light reflecting off objects enables us to see them.

- Year 3 - asking relevant questions and using different types of scientific enquiries to answer them
- Year 3 - setting up simple practical enquiries, comparative and fair tests
- Year 3 - making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Year 3 - gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Year 3 - recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Year 3 - reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Year 3 - using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Year 3 - using straightforward scientific evidence to answer questions or to support their findings
- Year 3 - recognise that they need light in order to see things and that dark is the absence of light
- Year 3 - notice that light is reflected from surfaces
- Year 3 - recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- Year 3 - recognise that shadows are formed when the light from a light source is blocked by a solid object
- Year 3 - find patterns in the way that the size of shadows change

### Light and Sound

A KS2 cross-curricular topic for Year 3/4

### Computing

1	Explore how to insert sound into a multimedia presentation and the effect that this creates for an audience.
2	Use computers to create a stained glass window using art software.

- KS2 - select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

### DT

1	Design, make and evaluate a musical instrument using a variety of different materials.
2	Create and evaluate a game which includes a bulb and a buzzer.

- KS2 - use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- KS2 - generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
- KS2 - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- KS2 - select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities
- KS2 - investigate and analyse a range of existing products
- KS2 - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- KS2 - understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

### Art

1	Explore the colour spectrum found in white light and find out what primary, secondary and tertiary colours are.
2	Add light and shade to artwork by adding white and black to colours to make shades lighter or darker.
3	Exploring what sound waves look like and use art to represent sound waves through a variety of media.

- KS2 - to create sketch books to record their observations
- KS2 - to improve their mastery of art and design techniques, including drawing with a range of materials
- KS2 - to improve their mastery of art and design techniques, including painting with a range of materials

### Music

1	Identify different kinds of musical instruments and describe their sound.
2	Use everyday objects to create musical sounds.
3	Define 'pitch' and 'volume' and use instruments to identify differences in sounds.
4	Investigate different ways of making sounds for a particular purpose and record using musical notations.

- KS2 - play and perform in solo and ensemble contexts, using their voices and playing musical instruments with increasing accuracy, fluency, control and expression
- KS2 - improvise and compose music for a range of purposes using the inter-related dimensions of music
- KS2 - listen with attention to detail and recall sounds with increasing aural memory
- KS2 - appreciate and understand a wide range of high-quality live and recorded music drawn from different traditions and from great composers and musicians

# Light and Sound

## Teacher's Topic Planner

English

Science  
6 Lessons

PlanBee 

Maths

History

Geography

RE

Computing  
2 Lessons

PlanBee 

Art  
3 Lessons

PlanBee 

DT  
2 Lessons

PlanBee 

PSHE

Music  
4 Lessons

PlanBee 

# Light and Sound : Cross-Curricular Topic : Year 5/6

Teacher's notes:

**Science**

**Art**

**DT**

**Music**

**Computing**



# Light and Sound : Cross-Curricular Topic : Year 5/6

SCIENCE				
	Learning Objective	Overview	Assessment Questions	Resources
<b>Lesson 1</b>	To recognise that we need light in order to see.	Children begin by discussing how we need light to see and that without light, it would be dark. They are introduced to the concept of a light source and define these objects as being able to produce their own light. The children are challenged to find light sources around their school.	<ul style="list-style-type: none"> <li>Do children know that we need light in order to see things?</li> <li>Do children know that dark is the absence of light?</li> <li>Can children identify a variety of light sources?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheet 1A/1B/1C/1D</li> <li>Picture Cards (FSD? activity only)</li> </ul>
<b>Lesson 2</b>	To explore the Sun as a light source and identify the difference between night and day.	Children will identify the Sun as a natural light source and discover its role in creating night and day as the Earth rotates. The children are challenged to define night and day using the language they have learned.	<ul style="list-style-type: none"> <li>Can children define the difference between night and day?</li> <li>Do children know why the Sun rises and sets each day?</li> <li>Do children know that we need light to see and that darkness is the absence of light?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheet 2A/2B/2C</li> <li>Poem Template sheets (FSD? activity only)</li> </ul>
<b>Lesson 3</b>	To investigate what shadows are and why they are formed.	Children will look closely at how shadows are formed and the shapes they create. They will discuss how light travels in a straight line and how this means it can be blocked by different objects, creating shadows. The children learn the terms opaque, translucent and transparent and use shadows to identify these properties in a variety of objects.	<ul style="list-style-type: none"> <li>Do children know that shadows are formed when light is blocked?</li> <li>Do children know the difference between objects that are transparent, translucent and opaque?</li> <li>Can children explore shadows using torches and express their findings?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheet 3A/3B/3C</li> <li>Variety of opaque, transparent and translucent objects</li> <li>Torches</li> <li>Cardboard boxes, card, sticks, greaseproof paper (FSD? activity only)</li> <li>Help Sheet (FSD? activity only)</li> </ul>
<b>Lesson 4</b>	To investigate how shadows behave.	Children will investigate how shadows behave and where they appear in relation to the object casting them and a light source. They will explore how shadows can change and move by moving the light source and discuss and share their ideas on how they can investigate and record these ideas.	<ul style="list-style-type: none"> <li>Do children know that shadows are formed when the light from a light source is blocked by a solid object?</li> <li>Can children use simple equipment to explore how shadows behave?</li> <li>Can children record findings using drawings and diagrams?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheet 4A/4B/4C</li> <li>Variety of small objects</li> <li>Torches</li> <li>Challenge Cards (FSD? activity only)</li> <li>Large sheets of paper (FSD? activity only)</li> </ul>
<b>Lesson 5</b>	To investigate how the size of shadows change throughout the day.	Children conduct an experiment to discover what happens to a shadow cast by the Sun throughout the day. They discuss the different measurements they could take and show their results in a bar graph.	<ul style="list-style-type: none"> <li>Can children explain why shadows created by the Sun change position during the course of a day?</li> <li>Can children plan and carry out an investigation?</li> <li>Can children find patterns in the way the size of shadows change?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheet 5A/5B/5C/5D</li> <li>Shadow stick, ruler and chalk</li> <li>Access to computers (FSD? activity only)</li> </ul>
<b>Lesson 6</b>	To explore how light is reflected from surfaces.	Children discuss how light reflecting off different objects enables us to see them. They are challenged to think of objects which reflect more light than others (e.g. mirrors) and how this affects what we see.	<ul style="list-style-type: none"> <li>Do children know that light travels in a straight line?</li> <li>Do children know that we need light in order to see?</li> <li>Do children know that we see when light is reflected from a surface?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheet 6A/6B/6C</li> <li>Mirrors</li> <li>Challenge Card (FSD? activity only)</li> <li>End of Unit Quiz</li> </ul>

# Light and Sound : Cross-Curricular Topic : Year 5/6

MUSIC				
	Learning Objective	Overview	Assessment Questions	Resources
<b>Lesson 1</b>	To be able to describe what different musical instruments sound like.	Children are challenged to name different instruments that they know of and describe their sounds. They will listen carefully to different pieces of music and identify instruments by their sounds. Alternatively they can investigate different instruments and how they are played.	<ul style="list-style-type: none"> <li>• Can children identify and name some common instruments?</li> <li>• Can children listen to sounds with attention to detail?</li> <li>• Can children describe how different instruments sound using a variety of criteria?</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheet 1A/1B/1C</li> <li>• Recording/video of 'Peter and the Wolf'</li> <li>• Variety of musical instruments (FSD? activity only)</li> <li>• Musical Sounds Templates (FSD? activity only)</li> </ul>
<b>Lesson 2</b>	To be able to use everyday objects to create musical sounds.	Children think about the different types of sounds that instruments make and begin to sort the instruments based on their descriptions. They are challenged to find classroom objects to make similar deep, booming sounds or high, tinkly sounds.	<ul style="list-style-type: none"> <li>• Do children know that everyday objects can be used to create musical sounds?</li> <li>• Can children explore different ways of creating sounds?</li> <li>• Can children describe the sounds they have created using appropriate vocabulary?</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheet 2A/2B/2C</li> <li>• Variety of objects e.g. jam jars, elastic bands, rice, pencils, tin foil, etc. (FSD? activity only)</li> <li>• Large sheets of paper (FSD? activity only)</li> </ul>
<b>Lesson 3</b>	To explore pitch and volume.	Children discuss the terms 'pitch' and 'volume' to come up with a simple definition of both. They experiment with creating different pitches and volumes with their voices and instruments as well as investigating how pitch and volume can be changed while playing a variety of instruments.	<ul style="list-style-type: none"> <li>• Do children know what pitch and volume are?</li> <li>• Can children describe how the pitch and volume can be changed?</li> <li>• Can children sing in unison at the correct pitch, changing the volume of their voices?</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Xylophones</li> <li>• Variety of tuned instruments</li> <li>• Worksheet 3A (FSD? activity only)</li> <li>• Jam jars or glass bottles (FSD? activity only)</li> <li>• Teaspoons (FSD? activity only)</li> <li>• Jugs of water (FSD? activity only)</li> </ul>
<b>Lesson 4</b>	To be able to use different sounds to create a sound story.	Children discuss how sounds can be used to tell a story along with pictures and words. They are given various sentences which they must add sounds to to enhance the storytelling. They think about suitable pitch and volume to use for each part of the sound stories they create.	<ul style="list-style-type: none"> <li>• Can children use sounds to describe what is happening in a story?</li> <li>• Can children combine pitch, volume and sounds to create effects?</li> <li>• Can children rehearse and perform a sound story and evaluate their performances?</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheet 4A/4B/4C</li> <li>• Variety of instruments or objects for creating sounds</li> <li>• Picture Cards (FSD? activity only)</li> </ul>

# Light and Sound : Cross-Curricular Topic : Year 5/6

ART				
	Learning Objective	Overview	Assessment Questions	Resources
<b>Lesson 1</b>	To investigate the colours that are found in visible light.	Children discuss what colour the light we get from the Sun is. They will learn about white light and how it contains all the visible colours. They investigate the colour wheel and how it shows primary, secondary and tertiary colours before trying to mix these colours themselves. Alternatively they can use the colour wheel to learn about complementary colours and create a piece of art based on this learning.	<ul style="list-style-type: none"> <li>Do children know that white light contains all the colours of the rainbow?</li> <li>Can children name primary, secondary and tertiary colours?</li> <li>Can children mix primary colours to make secondary and/or tertiary colours?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheet 1A/1B/1C</li> <li>Red, blue and yellow paint</li> <li>Colour Wheel (FSD? activity only)</li> <li>Example Sheet (FSD? activity only)</li> </ul>
<b>Lesson 2</b>	To be able to add light and shade to artwork.	Children think about how they can create light and dark in their artwork. They begin by discussing the use of pencil pressure and layering to create darker or lighter shades. They are then challenged to think about how they can create light and dark shades when painting. They are challenged to create different shades of a colour by mixing white or black paint to create different shades.	<ul style="list-style-type: none"> <li>Do children know why it is important for artists to be able to portray light and shadow?</li> <li>Can children practise different ways of shading their artwork?</li> <li>Can children use shading in their artwork?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Worksheet 2A/2B/2C/2D</li> <li>Shading Sheets</li> <li>Picture Cards</li> <li>Digital cameras</li> <li>Paints - black, white and colours (FSD? activity only)</li> </ul>
<b>Lesson 3</b>	To be able to represent sound through art.	Children investigate how sound waves are formed and travel. They look at different ways sounds waves are recorded and how this can show the pitch or volume of the sound that created them. They use the skill they have learned to create a piece of artwork to depict a sound wave.	<ul style="list-style-type: none"> <li>Can children describe how sound can be represented through art?</li> <li>Can children create an image to represent sound waves?</li> <li>Can children evaluate their work and describe what they think and feel about it?</li> </ul>	<ul style="list-style-type: none"> <li>Slides</li> <li>Picture Cards</li> <li>White card</li> <li>Wax crayons</li> <li>Black paint</li> <li>Washing-up liquid</li> <li>Paints (FSD? activity only)</li> <li>Wool (FSD? activity only)</li> </ul>



# Light and Sound : Cross-Curricular Topic : Year 5/6

## DT

DT				
	Learning Objective	Overview	Assessment Questions	Resources
<b>Lesson 1</b>	To be able to design, make and evaluate a musical instrument.	Children think about the different types of musical instruments and how they create their sounds. They use these ideas to design and create their own instruments out of recycled materials. They are encouraged to think about how they will join and decorate the different pieces of their instruments. They will evaluate their instruments based on the sound they make and their appearance.	<ul style="list-style-type: none"> <li>• Can children plan and design a musical instrument using a variety of materials and techniques?</li> <li>• Can children make a musical instrument based on a design or criteria?</li> <li>• Can children evaluate their finished instruments?</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheet 1A/1B/1C/1D</li> <li>• Help Sheet A/B/C</li> <li>• Materials as listed on Help Sheets</li> <li>• Picture Cards (FSD? activity only)</li> <li>• Recycled materials e.g. card, tin foil, buttons, plastic bottles, jars, etc. (FSD? activity only)</li> </ul>
<b>Lesson 2</b>	To be able to use bulbs and buzzers in a circuit to create a game.	Children are reminded of how a complete circuit allows electricity to flow around the circuit, making the different components work. They use this concept to design and make a simple game using a bulb and buzzer that work when the circuit is completed. They evaluate their games once they have created them using a variety of materials.	<ul style="list-style-type: none"> <li>• Can children develop ideas for products, thinking about who will use them and what they need in order to be successful?</li> <li>• Can children follow a design to create a game involving a circuit?</li> <li>• Can children evaluate their finished products and say what they think and feel about them?</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Worksheet 2A/2B/2C/2D</li> <li>• Wires, batteries, bulbs, buzzers, switches</li> <li>• Help Sheet (FSD? activity only)</li> <li>• Sculpture wire or tin foil (FSD? activity only)</li> </ul>

## COMPUTING

COMPUTING				
	Learning Objective	Overview	Assessment Questions	Resources
<b>Lesson 1</b>	To be able to insert sound bytes into multimedia presentations.	Children discuss the effects that including sound, images and videos can have on a presentation. They are challenged to create a multimedia PowerPoint presentation on a topic of their choice, including a sound byte of their choice to make their presentation more engaging for their audience.	<ul style="list-style-type: none"> <li>• Do children know what a sound byte is?</li> <li>• Can children insert a sound byte into a PowerPoint presentation?</li> <li>• Can children combine sounds, text and images to create a presentation?</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Presentation Template</li> <li>• Animal Sound Bytes File</li> <li>• MP3 recorders or similar (FSD? activity only)</li> </ul>
<b>Lesson 2</b>	To be able to use ICT to make a stained glass window.	Children investigate stained glass designs and where they are found. They think about the colours that have been used and look carefully at the different designs. They then use art software to create their own design to be printed on acetate.	<ul style="list-style-type: none"> <li>• Can children use painting software to create images?</li> <li>• Can children experiment with effects, colours and shapes?</li> <li>• Can children print and save their work?</li> </ul>	<ul style="list-style-type: none"> <li>• Slides</li> <li>• Acetate sheets</li> <li>• Picture Cards A</li> <li>• Worksheet 2A</li> </ul>