

<u>Session</u>	<u>Objectives</u>	<u>Content and Activities</u>	<u>Resources</u>	<u>Assessment</u>
1	To establish children's existing level of knowledge and understanding about light and sound.	Discussion with children: What is light? What is sound? How does sound/light travel? Link to the topic of Space - Shadows, light travelling from stars. Demonstrate how to make a concept map. Children to complete one using these words: (<i>LIGHT- sun, day, night, straight lines, eyes, seeing</i>) (<i>SOUND - vibration, wave, pitch, ear, hear</i>)	Topic Books and Glue Vocabulary for Concept Map Plain A4 paper	What do the children already know? What do they need to learn?
2	To explore and describe different sounds. To investigate how different sounds are made.	Tell the children that they are to begin their topic studying sounds. Discuss sounds they can hear around them in the classroom environment. Discuss which noises are pleasant to listen to and which noises are not. Ask them to give reasons for these differences. Independently children complete the worksheet listing sounds they like/dislike. Extn: Draw a picture of the source of the sound and the sound reaching the ear.	Topic Books and Glue Annoying Noise Sheet	Which children can describe sounds using vocabulary such as <i>high, low, soft, pitch</i> ?
3	To further investigate how sounds are made. To make careful observations of instruments and tuning forks. To draw conclusions about how sounds are made. To learn that sounds are made by vibrations.	Give children a selection of tuning forks and musical instruments. Ask them to find out how the sound is made. Allow each group time to describe one of the sound makers to the rest of the class. Ask them to describe the sound and how they think it is created. Write Up the findings under the headings: What is Sound? How is Sound made? SEN: Worksheet	Topic Books and Glue What is Sound information sheet. Selection of musical instruments Tuning forks	Can the children describe how their sound is made? Are the children able to draw conclusions?

4	<p>To understand that the term 'pitch' describes how high or low a sound is.</p> <p>To know that high and low sounds can be loud and soft.</p>	<p>Listen to a tape of an orchestra. Pick out certain sounds and ask the children to identify whether they are high or low sounds. Tell the children that we describe this difference as pitch.</p> <p>Also focus on the loudness and softness of different instruments of both high and low pitch.</p> <p>Look at a tambour, xylophone, hand-chimes and a recorder. Discuss what kinds of instruments make low/high sounds and discuss reasons for this difference. Draw up a class list of findings on the board. Children to copy them and add own information.</p>	<p>Topic Books and Glue</p> <p>Recorder, xylophone, tambour, hand-chimes</p> <p>Orchestra music tape</p> <p>Tape player</p> <p>Pitch information sheet (teacher's notes)</p>	<p>Can the children identify the differences between high and low sounds?</p> <p>Can they understand that high and low sounds can also be loud or quiet?</p>
5 homework	<p>To understand the basic function of the ear.</p>	<p>Look at an OHP of the ear. Describe to the children how sound vibrations are collected by the ear and travel down the ear canal in waves. Briefly describe how the sound waves are communicated to the brain and translated into sound.</p> <p>Extn: Use a water tray to show ripple wave effect.</p> <p>For homework, children to reorder statements about the ear to describe the hearing process.</p>	<p>OHP of ear</p> <p>Hwk Sheets (not to be stuck into hwk books!)</p>	<p>Have the children managed to put the statements in the correct order? Do they understand how we hear sounds?</p>
6	<p>To plan a test to observe and measure how well sound travels along a piece of string.</p> <p>To draw conclusions and be able to describe why sound can travel along the string.</p>	<p>Discuss telephones with the class. Ask the children how they think the sound travels from one phone to another.</p> <p>Tell the children that they are going to conduct an experiment to see make a telephone to see how sound travels along a string. Show the children the equipment they can use. Ask the children for initial ideas. Focus on length/tautness of string. In pairs, use the laminated planning grids to plan the activity.</p>	<p>Yoghurt pots</p> <p>Laminated planning grids</p> <p>String</p> <p>Scissors</p>	<p>Which children are able to conduct a fair test?</p> <p>Which children were able to draw conclusions from their evidence?</p>

		They then carry out the test and record their observations and draw conclusions. Explain to the rest of the class what they found out and what their evidence was. Discuss fair testing.		
7	To understand that vibrations from sound travel through different materials to the ear. To make careful observations to identify the types of materials through which sound will travel.	Recap how sound travels. Discuss the findings from the telephone lesson. Look at how sound can travel through materials, e.g. the sounds from the corridor can be heard in the classroom. Discuss how sound is usually vibrations in the air. Get the children's ideas about which materials they think will carry sound the best. Record some predictions. Describe to the children the different experiments they are going to undertake using materials around the playground – railings, bricks etc. Children work in pairs to follow the experiment sheet and find some answers. Come back as a class and discuss their findings. Which material carries sound vibrations the best? How do we know that? Discuss reasons why certain materials are better than others.	Worksheets/ Clipboards Playground time	Are the children able to follow the plan? Can the children carry out a fair test? Are the children able to identify which are the best materials for allowing sound to travel?
8	To be aware that some materials can be used to prevent them from reaching the ear. To plan a fair test to decide which materials muffle sounds the most.	Recap on findings from previous lesson. Look at those materials that prevented sound vibrations to travel through them. Children are to plan an experiment to see which material would be best to be used to soundproof a box. Children to carry out experiment and produce a table of results and a diagram of the experiment.	Shoe boxes Various materials Paper	Can the children find out which materials are best to soundproof a box? Can the children describe

				different sounds?
9	To understand that there are either man-made or natural sources of light. To look at examples of different types of light.	Brainstorm with the children different sources of light. Split these sources into man-made and natural. Children to draw and label examples of both types of light using the brainstormed list and also add their own ideas. Discuss these sources of light and how important they are.	Topic Books and Glue	Can the children identify whether a light source is man-made or natural?
10	To gain a basic understanding of how pictures are seen and interpreted by the brain.	Look at OHP of the eye. Demonstrate how the eye sees images upside down and the images are translated by the brain. Give the children an eye to label. Extn: Look for definitions of the labels to the eye.	OHP of eye Eye worksheets Definitions sheet	Do the children have a basic understanding of how the eye works?
11 homework	To further develop an understanding of how the eye works.	For homework, children complete prose about how the eye works.	Prose sheet	Can the children fill in the missing words using existing knowledge?
12	To understand that light travels in straight lines.	Set up an experiment with a strong torch and two pieces of card with slits in them. Line up the torch-light with the slits in the card and look at the beam of light. Now move the pieces of card so that the slits are not in line and look how the light no longer produces a beam. Discuss why this happens. get the children to draw the conclusion that light travels in straight lines. Copy up the experiment onto the worksheet.	Torch 2 cards with slits in worksheet	
13	To learn that shadows	Set up a clock shadow experiment on the playground.	Shadow making	Do the children

	<p>are created when an object blocks light. To reinforce the knowledge that the Earth spins on its axis and makes the Sun appear to move across the sky throughout the day/ To understand that some objects are transparent and will let light pass through them and that other materials are opaque and light can not pass through them.</p>	<p>Explain to the children that you are going to look at shadows and the movement of them during the day. Look at different materials and discuss opaque and transparent. Ask the children which material they need to produce a shadow. Set up the experiment and ask pairs of children to go and check every half an hour and mark the position of the shadow with the length and time of the shadow. Draw a diagram to show the findings.</p>	<p>equipment Opaque materials and transparent materials Chalk Metre Rule Diagram sheet</p>	<p>understand that certain materials let light pass through them and others do not? Are the able to explain the movement of the shadows?</p>
14	<p>To develop an understanding that dull materials absorb light and shiny materials reflect light. To explore different materials to see which are the best reflectors. Extn: To see whether light can be made to go around corners.</p>	<p>Show the children that some materials reflect light and others absorb light. Discuss the experiment. Tell the children that they are going to shine a torch onto a material and see if the light reflects off onto a piece of white paper. Children to carry out experiment and record their findings in a table. Extn: Use this knowledge to try and make light go around corners using mirrors.</p>	<p>Torches Selection of materials. White paper. Mirrors</p>	<p>Can the children identify that shiny materials reflect light and dull ones absorb light?</p>