

### Science Progression of Skills and Knowledge Sound

**Key to understanding this document: Black = National Curriculum objectives   Red = Knowledge/Skills to be taught   Green = Resources to be used**

<u>Area of Learning</u>	<u>E Y F S</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
<b><u>Sound</u></b>					<p>Working scientifically:  Setting up simple practical enquiries.  Making systematic, careful observations.  Reporting on findings from enquiries.  S1: Identify how sounds are made, associating some of them with something vibrating.  Some of the following activities could be completed by the children to demonstrate sound vibrations.</p> <ul style="list-style-type: none"> <li>• Allow the children to place their fingertips against their throats as they speak.</li> <li>• Place filled balloons between two children. One talks against it and the other places their ear against it.</li> <li>• Place some rice on a piece of paper. Hold this paper a small distance above a drum that has been struck.</li> <li>• Hang a metal coat hanger upside down. Tie a piece of string from each of the two corners and place each one on ear. Someone else strikes the coat hanger.</li> <li>• Hit a tuning fork on a table and then place into a bowl of water.</li> <li>• Tie a metal fork on a piece of string and place one end against the ear. Swing the fork so it hits the table.</li> <li>• Hang a table tennis ball from a length of string. Touch the ball with a vibrating tuning fork.</li> </ul>		

				<p>Working scientifically:  Setting up simple practical enquiries.  Making systematic and careful observations.  Reporting on findings from enquiries.  Using results to draw simple conclusions.</p> <p>S2. Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Children create their own string telephones to recognise sound travels through a medium.</p> <p>Children could design and make their own earmuffs from a variety of materials to see which is the best insulator of sound.</p> <p>Working scientifically:  Setting up simple practical enquiries.  Making systematic and careful observations.  Gathering, recording and presenting data to help answer questions.</p> <p>S3: Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Cross curricular link to music using instruments - Use 'Boomwackers' to demonstrate pitch. Different children each have a Boomwacker which they hit against the table. The class must try to place them in the correct order from lowest to highest sound. Encourage the use of comparative and superlative words. Children could also make a prediction prior to the investigation as to which they think will have the lowest/highest sound and why.</p> <p>Working scientifically:  Setting up simple practical enquiries.  Making systematic and careful observations.  Reporting on findings from enquiries.</p>		
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Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

S4: Find patterns between the volume of a sound and the strength of the vibrations that produced it.

**How can we alter the loudness of a sound?**

This could be set up as a carousel of activities. At each station the children have to try a range of ways to make a sound.

1. Water in a washing up bowl. Provide straws, tuning forks (dry afterwards to prevent rusting), plastic spoons, balloons, etc.
2. Different types of paper (children can tear, scrunch up, blow against, wave in the air, etc.)
3. A range of instruments
4. Plastic bottles of different sizes and beakers of water. The children can fill the bottles with water and then tap them or blow over the necks (provide anti-bacterial wipes for cleaning the opening of the bottles after each child).

Table below taken from Andrew Berry Kent scheme – Children could use this or similar to record their results.

Quietest	Quieter	Quiet	Medium	Loud	Louder	Loudest
Pressing a drum with finger	Scratching a drum	Scrapping a drum	Tapping a drum	Hitting the drum	Hitting the drum hard	Bashing the drum really hard

				<p>Working scientifically:  Setting up simple practical enquiries, comparative and fair tests.  Taking accurate measurements using scientific equipment (e.g. data loggers).  Gathering and recording data in a table.  Use results to draw simple conclusions and make predictions for new values.  S5: Recognise that sounds get fainter as the distance from the sound source increases.</p> <p>Children set up a comparative test with the question - <b>What happens to the sound of the drum when we get further away from it?</b></p> <p>Ask the children how they could set up an investigation to find the answer to this question. Discuss with children what is being changed (distance from the source), and what is being observed (loudness of sound – probably just by ranking it or giving it a score. Alternatively, they could try using a data-logger) and which variables need to stay the same (i.e. how hard we hit the drum, the person doing the hearing, where outside we do the investigation). Using a table, the children could record how loud it was at the different distances. The children could draw the drummer and the listener at different distances from the drummer. They could then place some comparative vocabulary under each of the listener pictures.</p>		
Key Vocabulary				Pitch Sound vibrations Volume Medium Faint Insulator		

Key Resources				Balloons Tuning forks Boomwackers / range of musical instruments Metal coat hanger Plastic bowls Paper or plastic cups and string for telephones Beakers Plastic bottles		
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