

Y4 Science – Sound

Targets to be covered:

- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it
- recognise that sounds get fainter as the distance from the sound source increases

Learning Ladders:

- I can identify how sounds are made.
- I can describe how sounds travel to their ears e.g. vibrations through the air.
- I can recognise patterns between the volume of a sound and the strength of the vibrations that produced it.
- I can recognise patterns between the pitch of a sound and the features of an object that produced the sound.
- I can describe what happens when you move away from the source of a sound.
- I can recognise that sounds get fainter as the distance from the sound source increases.

Working Scientifically

- Ask relevant questions and use different types of scientific enquiries to answer them.
- Set up simple practical enquiries, comparative and fair tests.
- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Identify differences, similarities or changes related to simple scientific ideas and processes.

Key Vocabulary

sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud

Week	Order of Study
1	Pre-assessment quiz LI: I can identify how sounds are made. Type of Scientific Enquiry – Starter – Discussion: What is sound? How is it made? How does it travel to us? Teach – Look at BBC bitesize information and the PowerPoint information about how sound is made: How are sounds made? - BBC Bitesize How are sounds detected? - BBC Bitesize Talk about voice vibrations with the children – children to put two fingers on their throat and then talk, they will feel the vibrations from their voice box. Plenary – Children to record learning sentences about how sounds are made. Resources needed: How are sounds made? - BBC Bitesize How are sounds detected? - BBC Bitesize PowerPoint on how sounds are made Key terminology – sound, travel, detect, vibrate, air waves
2	LI: I can describe how sounds travel to my ear e.g. vibrations through the air. Starter – Show children how rice moves when you bang a drum. Discuss what happens and why they think it is. Main lesson – Look at the PowerPoint on sound. BBC bitesize information too: Sound - Year 3/4 - P4/5 - Science Collection - Home Learning with BBC Bitesize - BBC Bitesize

	Task – Make a yoghurt pot telephone – children to use white plastic cups and string to make a telephone. Go onto the playground to find out: How does the sound travel along the string? Different sized string so children can swap and try shorter/longer. Plenary – Go back to the classroom and discuss findings. Children to record in their books what happened. Resources needed: Rice, drum or a video of this, Sound - Year 3/4 - P4/5 - Science Collection - Home Learning with BBC Bitesize - BBC Bitesize, PowerPoint on sound, plastic cups (make holes in the bottom), string Key terminology – sound, travel, detect, vibrate, air waves
3	LI: I can describe what happens when you move away from the source of a sound. LI: I can recognise that sounds get fainter as the distance from the sound source increases. Type of Scientific Enquiry – Comparative and Fair Testing – Investigating what happens to the sound of the drum as you move further away from it. Starter – Present children with the question: What happens to the time it takes to hear a sound as we get further away from the source? Discuss their thoughts Main lesson / task – Children to carry out and write up experiment. Write equipment, diagram, prediction, method, results in their books. <u>Method</u> 1) Teacher will stand with the drum in her hand. 2) The class will arrange themselves in a horizontal, straight line in front of the teacher but facing away from them. The line will be one metre away from the teacher. 3) The teacher will hit the drum with one hand once. The TA will start the timer as soon as the teacher hits the drum. If the children hear the sound the drum makes, they will put their hand in the air. If they don't hear the sound, they will keep our hands by their sides. The TA will stop the timer as soon as the first child puts their hand in the air. 4) The TA will then write down the result on a piece of paper. 5) The class will then step five metres away from the teacher, using the trundle wheel to measure. The class will still face away from her. They also need to maintain our straight, horizontal line. 6) Repeat steps 3, 4 and 5 until the class are 50 metres away from the teacher. 7) After the experiment, they will all go inside and record the data in a table in their Science books. Plenary to do after the lesson – Present the children with a line graph of the results to show the distance from the source and time it took to hear the sound. Children to analyse the results. Resources needed: drum, beater, trundle wheel, timer, paper, pen, line graph of results Key terminology – drum, sound source, fainter, louder, distance, further, closer, trundle wheel
4	LI: I can recognise patterns between the pitch of a sound and the features of an object that produced the sound. Type of Scientific Enquiry – Comparative and Fair Testing – Investigating what happens to the pitch of a sound when we reduce the amount of air in a container. Starter – Refer to computing/music lessons – what is pitch? How is it different to volume? Main lesson – Share the following info with children: Music / Science KS2: How drums make sound - BBC Teach, then do an experiment on pitch using cups and water. Make a prediction first then find: 'what happens to the pitch of a sound when we reduce the amount of air in a container?' Plenary – Discuss the findings. Resources needed: Music / Science KS2: How drums make sound - BBC Teach, cups, string

	Key terminology – pitch, volume, louder, quieter, higher, lower, container, air
5	LI: I can recognise patterns between the pitch of a sound and the features of an object that produced the sound. LI: I can recognise patterns between the volume of a sound and the strength of the vibrations that produced it. Type of Scientific Enquiry – Identifying and Classifying – How would you group these instruments based on how they produce sound? Starter – Show children the instruments they will be looking at and check their understanding of them and how they produce sound. Recap key vocab – volume and pitch. Main lesson – Have a look at the instruments on the table. How does each one create sound? How can you change the pitch? How can you change the volume? Ask the children to consider how they would group the instruments based on how they produce sound. Task – Children to complete the table by going round the classroom and having a go at changing the volume/pitch of each instrument. Plenary – Discuss: how would you group the instruments based on how they produce sound? Also discuss: which is the most popular instrument in the class? Make a tally chart and then produce a bar chart to show the results. Draw bar charts in books. Answer the questions in learning sentences: 1. What was the most popular instrument? 2. What was the least popular instrument? 3. What is the difference between the guitar and the violin? 4. What was the total amount of votes? Resources needed: different instruments – violin, guitar, triangle, drum, maracas Key terminology – pitch, volume, louder, quieter, higher, lower, instruments, string
6	Assessment time – Children complete the quiz to review understanding.