Brough Primary School – Curriculum Intention Plan 2023 - 2024

<table>
<tr><td colspan="2">Subject: Science
Year Group: Year 3/4</td><td>Area of learning: Sound (Year B)</td></tr>
<tr><td>Links to previous work/Remember when</td><td colspan="2">• Knowing some of physical properties of different materials including which make a clear sound.
• Understanding of sound in terms of music, the human voice when singing and different types and groups of instruments.

<u>Working Scientifically</u>
• asking simple questions and recognising that they can be answered in different ways.
• observing closely, using simple equipment.
• performing simple tests.
• identifying and classifying.
• using their observations and ideas to suggest answers to questions
• gathering and recording data to help in answering questions.</td></tr>
<tr><td>Term</td><td>Year 3/4</td><td>Key Skills to be taught</td></tr>
<tr><td>Autumn 2 2023

What the children should know at the end of this series of lessons</td><td colspan="2">• How sounds are made, associating them with something vibrating.
• Recognise that vibrations from sounds, travel through a medium or mediums to the ear.
• Find patterns between the pitch of a sound and features of the objects that made it (Length).
• Find patterns between the volume of a sound and the strength of the vibrations that caused it.
• Recognise that sounds get fainter as the distance from the sound increases.

<u>Working Scientifically</u>
• Ask relevant questions and use different types of scientific enquiries to answer them.
• Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
• Set up simple practical enquiries and 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.
• Gather, record, classify and present data in a variety of ways to help answer questions.
• Identify differences, similarities or changes related to simple scientific ideas and processes.</td></tr>
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Vocabulary
Sound, vibration, vibrate, ears, hear, travel, air, water, solid, source, compression waves, medium, transmit, volume, strength, stronger, weaker, pitch, note, high, low, insulator.

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Sequence of learning	Learning Objectives/Outcomes	suggested Lesson Outline
1	**Learning Objective:** To know how sounds and sounds of different volumes are made. **Key Knowledge:** Sound is produced when an object or objects vibrate; the strength of the vibrations determines the volume. **Enquiry Type:** Asking different questions and using different types of enquires to answer them.	**Recap** – What can you remember about musical instruments and what happens when you play them? For this lesson have a range of musical instruments available for the children to experiment with. At this stage, they do not need to be tuned. Get them to 'feel' what is happening when they 'play' an instrument and what happens when they create a stronger vibration. **How sounds are made** • Vibrations cause sound. • Stronger vibrations cause sounds with more volume. • Weaker vibrations cause sounds with less volume. *Children record sound is made by vibration.* *Children record what is vibrating to create the sound in a variety of musical instruments.*
2	**Learning Objective:** To know how sounds travel from the point they are made to our ears. **Key Knowledge:** Sounds cause the molecules in the air or other medium to vibrate and then are transmitted as compression waves to our ear. **Enquiry Type:** Make systematic and careful measurements.	**Recap** – Can you remember how sounds are made? Which parts of the instruments vibrated to make the sounds from last week? This lesson, discussion question – 'If we know sound is vibrating and something has to vibrate to make a sound how do we hear it?' A good opportunity for group enquiry and discussion. **How sounds travel** • Air molecules vibrate. • Called compression waves because the air molecules compress together. • Sound waves always need a medium (gas, air, liquid like water or a solid) to travel through – so no sound in space. *Children record how sound travels.* *Children record how far away a certain sound could be heard.*
3	**Learning Objective:** To know that sounds get fainter as the distance from the sound source increases.	**Recap** – What can you remember about how sounds travel? How are compression waves caused? What media can you think of that sound will travel through? Why does sound not travel in space?

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	Key Knowledge: As the compression waves travel out from the sound source they lose energy – much like a wave created by a stone dropped in a pond. **Enquiry Type:** • Simple practical enquiries and comparative and fair tests.	Pose an investigation question – How can we measure how far we can hear a given sound? If necessary, lead the children to deciding a bigger space such as the school field would be required – make sure to cover how to keep the test fair. **Why sounds get fainter** • The energy of the compression wave gets smaller the further away from the source you are. • Eventually, vibrations are so small they no longer create a sound. *Children record a number of measurements for the distance they can hear a given sound.* *Children use their findings to draw conclusions about what happens to sound as you get further from the source and why.*
4	**Learning Objective:** To know how sounds of different pitch are produced. **Key Knowledge:** Sounds of different pitch are made when the length of the object vibrating changes. **Enquiry Type:** Report on findings drawing conclusions.	**Recap** – Why do sounds get fainter the further away from the source you are? What can you tell me about the energy of the compression wave as you travel away from the source? Why is this? This is an opportunity for the children to investigate what changes when the length of a vibrating object changes. This could simply be achieved through vibrating a ruler, or through the investigation of regular musical instruments. **Why sounds have different pitch** • Pitch is related to the frequency of the sound wave. • A shorter object produces a higher frequency of vibrations. • A longer object produces a lower frequency of vibrations. • Frequency is simply the number of vibrations per second. *Children record the relationship between the length of an object and the pitch.* *Children use their findings to draw conclusions about how sounds of different pitch are made.*
5	**Learning Objective:** To know that some materials are good sound insulators. **Key Knowledge:**	**Recap** – Does sound stay the same volume no matter how far away from a source you are? How do you know? This is an opportunity to find out how different materials affect how we hear sound. You could place a speaker or other sound source in a box

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	Materials which have lots of spaces in them make good insulators. **Enquiry Type:** Gather, record and present findings.	and record how far away you can hear it, then repeat, wrapping the speaker in different materials such as cotton, bubble wrap, tin foil, tea towel, newspaper etc. **What makes good insulators** • Materials that have lots of empty spaces in them make good insulators. • Sound does not pass through materials which have lots of empty spaces as easily. *Children record measurements for the different materials.* *Children use their results to explain why some materials are better insulators than others.*
6	**Learning Objective:** To demonstrate what has been learnt about sound.	ASSESSMENT LESSON Take part in a quiz on sound that will assess children's learning of all the scientific concepts and vocabulary covered in this block (Yrs3&4). If time the final task could be to design a learning task for others on the subject of sound – see PowerPoint.

Learning Outcome/product
Children have a thorough understanding of how sounds are made (including different pitched sounds), and that sound travels through different mediums, getting quieter the further away you are from the source of the sound.

Assessment records	**List only those children who have not achieved the expected outcomes.**