

Spring Term Overview YEAR 5/6 – Sound

Spring Term Year 5/6	
Unit Title: Science - Sound	
Assessment:	Mini-quiz, teacher assessment during lessons, especially as all children are starting from the same baseline and the NC. Assessment statements for the end of this unit are located in the Science planning folder on Trust Shared.
Links to prior learning:	As stated above, all children will be starting from a similar baseline with little prior knowledge. KS1 national curriculum objectives that should have been covered in Music link to this topic and they include; <ul style="list-style-type: none"> • To use their voices expressively and creatively by singing songs and speaking chants and rhymes • To play tuned and untuned instruments musically • To listen with concentration and understanding to a range of high-quality live and recorded music • To experiment with, create, select and combine sounds using the inter-related dimensions of music.
Links to other learning - cross-fertilisation:	Links to Music as the children will be learning about tempo, pitch and rhythms. History – children can explore the different sounds that people would have heard during WWII and the affect this would have had on their mental health and wellbeing.
Links to future learning:	Children will use the knowledge gained in this unit to support their understanding of the following units across the academic year: <ul style="list-style-type: none"> • Music • Hobbies – playing a musical instrument.
Guide Time: 3 hours	
Very Important Points (VIPs): <ul style="list-style-type: none"> • Sounds are made when objects vibrate. • When the vibrations hit the eardrum, this sends a message to the brain that changes the vibrations into sounds. • Particles vibrate and collide with one another to create sound. • Faster vibrations create high-pitched sounds. • Slower vibrations create low-pitched sounds. • Sound waves can travel through solids, liquids and gases. • The further you are from a sound, the quieter it is. • Sound cannot travel through a vacuum. • Soundproofing is to prevent sound from travelling through something, by using a material to absorb it. 	
Fat Question: How can sounds alert us to danger?	

Character/Wider Development ('50 things', cultural capital, skills)	<p>March 6th – 15th March British Science Week- a ten-day celebration of the innovation that led the United Kingdom to excel in science and technology.</p> <p>11 February International Day of Women and Girls in Science.</p> <p><u>Thematic questions:</u></p> <p><u>Culture</u> How does listening to music from different cultures make you feel?</p> <p><u>World Around Us</u> How does music vary from country to country?</p> <p><u>World Beyond Us</u> Can we hear sound in space?</p> <p><u>Modern Britain</u> How has music in Britain changed over the last 70 years?</p> <p><u>Healthy Body Healthy Mind</u> How can listening to music with differing pitch/tempo impact your mood?</p> <p><u>Technology in Action</u> How has technology improved how we hear sounds?</p>	<p>How were the people of Britain warned about incoming air raids?</p>
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OVERVIEW OF TEACHING SEQUENCE

Sequence	Learning Focus or Key Question	Learning Outcomes	Key Words	Depth of Learning	Misconceptions	Activities
Lesson 1	LO: To identify how sounds are made and understand how sound travels through different media.	To listen to and create a range of sounds using different materials. To observe, explain and record how these sounds are made through vibrations. To describe how a vibration can make sounds. To explain how sound travels through our ears.	Outer ear (pinna and ear canal) Middle ear (ear drum, hammer, anvil, stirrup) Inner ear (cochlea) The Eustachian tube connects the ear to the throat	SEND Labelled diagram provided with the first initial of the scientific vocabulary. GD Use the words on the Knowledge organiser to explain how we hear sounds.	Quieter sounds have a smaller amplitude and louder sounds have a bigger amplitude.	Y5 - Label the diagram of the ear and use the words on the knowledge organiser to explain how we hear sounds. Y6 - Draw and label the diagram of the ear and add some additional diagrams of sound waves.

Lesson 2	LO: To explore pitch.	<p>To understand the definition of pitch.</p> <p>To identify and explain high and low sounds in a variety of instruments.</p> <p>To create my own musical instrument and explain how it makes high and low sounds.</p>	Pitch, amplitude, wave, crest, tuning fork, vibration,	<p>SEND Table provided for start and main task support.</p> <p>GD Write an explanation of amplitude and add a diagram to support your text.</p>	<p>Faster vibrations create high-pitched sounds.</p> <p>Slower vibrations create low-pitched sounds.</p>	<p>Y5 - Create a set of pan pipes and give a detailed explanation about why the pitch changes.</p> <p>Y6 - Create a set of pan pipe and give a detailed explanation about why the pitch changes. Draw a diagram to support your answer and show how the wave length differs when the pitch changes.</p>
Lesson 3	LO: To investigate the best material for absorbing sound.	<p>To understand how distance from a sound affects the volume that we hear.</p> <p>To discuss the benefits of soundproofing.</p> <p>To investigate how effective different materials are at absorbing sound.</p> <p>To write up my investigation explaining why some materials are more effective than others at absorbing sound.</p>	Soundproofing, absorbed, pliable, vibration, particles, air pockets, materials.	<p>SEND Sentence stems provided to help write up the conclusion. Key vocab is also provided.</p> <p>GD Write a conclusion about the experiment using the scientific vocabulary provided.</p>	The best materials for absorbing sound are soft, pliable and contain air pockets, like sponge or bubble wrap. This is because the particles are not as close together in these materials, so the vibrations do not travel as easily.	<p>Y5 - Create your own ear defender's investigation. Investigate the following question: Which material absorbs sound the most?</p> <p>Y6 - Create an experiment to investigate how different materials could have an impact on the amount of sound absorbed.</p>
Lesson 4	To complete a review of learning.					

Context (big picture learning).

Intent: To enhance children's knowledge and understanding of sound. Working scientifically to investigate how sound can travel through different mediums.



Very Important Points (VIPs)

Sounds are made when objects **vibrate**.

When the vibrations hit the **ear drum**, this sends a message to the brain that changes the vibrations into sounds.

Particles vibrate and collide with one another to create sound.

Faster vibrations create high-pitched sounds.

Slower vibrations create low-pitched sounds.

Sound waves can travel through solids, liquids and gases.

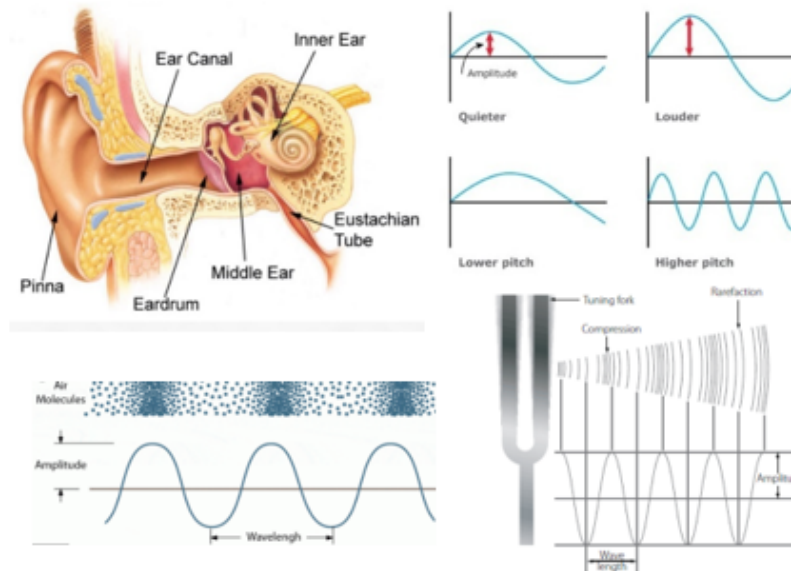
The further you are from a sound, the quieter it is.

Sound can't travel through a **vacuum**.

Soundproofing is to prevent sound from travelling through something, by using a material to absorb it.

Sound

Intent: To enhance children's knowledge and understanding of sound. Working scientifically to investigate how sound can travel through different mediums.



Key vocabulary

Sound - vibrations that travel through the air or another medium and can be heard when they reach a person's or animal's ear.

Vibration - means quickly moving back and forth (or up and down) about a point of equilibrium. The vibration may be periodic (having a pattern) or random.

Ear canal - a pathway running from the outer ear to the middle ear.

Eardrum - a thin flap of skin that is stretched tight like a drum and vibrates when sound hits it.

Air - the invisible gaseous substance surrounding the earth, a mixture mainly of oxygen and nitrogen.

Wave length - the distance between two successive crests or troughs of a wave.

Amplitude - the maximum displacement or distance moved by a point on a vibrating body or wave measured from its equilibrium position.

Pitch - highness or lowness of sound.

Tuning fork - a two-pronged steel device used by musicians, which vibrates when struck to give a note of specific pitch.

Acoustics is scientific study of sound waves.

Vacuum - space devoid of matter

Scientific Enquiry

Variables:

Fair test: A fair test is an experiment where only one variable is changed to determine a cause and effect.

Independent: The variable that is changed.

Dependent: The variable that is measured.

Control: The variables that are kept the same.

Important People:

Pythagoras ascertained that the pitch of notes depends on the rapidity of vibrations. He is also attributed with discovering that a string exactly half the length of another will play a pitch that is exactly an octave higher when struck or plucked.

Da Vinci is credited with discovering that sound travels in waves. Da Vinci was especially interested in underwater acoustics, and discovered this science in 1490 when he inserted a tube into water and was able to detect vessels by ear.

Galileo was an Italian physicist and he was the first scientist to record the relationship between the frequency of the wave to the pitch it produces. Since the sound waves produced by musical instruments vary in pitch, this was a very significant discovery.