

<p>Scientific Model (KS2): Energy Transfer Model</p> <ul style="list-style-type: none"> - Ensure the children understand that sound is a type of energy by referring to it as sound energy throughout the unit. Reinforce the idea that energy is not created from scratch but is instead transferred from one form to another. 	<p>Scientific Skills Applied:</p> <p>ASK</p> <ul style="list-style-type: none"> - To ask relevant questions - To decide when to use secondary sources to find answers - To make simple predictions based on knowledge of science <p>BREAKDOWN</p> <ul style="list-style-type: none"> - To set up simple tests - To decide what equipment to use - To learn how to use new equipment <p>CAPTURE</p> <ul style="list-style-type: none"> - To observe carefully - To measure accurately using standard units - To measure using a range of equipment - To gather data and record in different ways - To make systematic observations - To identify differences, similarities and changes <p>DESCRIBE</p> <ul style="list-style-type: none"> - To draw simple conclusions - To present data in different ways - To explain what they have found out using correct scientific language - To record finding using correct language in varied ways - To answer questions based on evidence orally and in writing - To suggest improvements to tests
<p>Scientific Investigations:</p> <ul style="list-style-type: none"> - Researching Using Secondary Sources - Comparative and Fair Testing 	
<p>Scientists:</p> <ul style="list-style-type: none"> - Audiologists – School Nurse discussing hearing checks. - Miller Reese Hutchison – created the first electronic hearing aid. 	





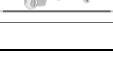
<p>Prior Learning:</p> <ul style="list-style-type: none"> - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans) - Understand how particles are arranged in a solid, liquid and gas (Y4 - States of Matter. This unit should always be taught after the States of Matter unit)
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Curriculum	Learning Intention	Knowledge and Key Vocabulary
<p><u>Making links to learning and discuss the model (if needed)</u></p> <ul style="list-style-type: none"> - Ensure the children understand that sound is a type of energy by referring to it as sound energy throughout the unit. Reinforce the idea that energy is not created from scratch but is instead transferred from one form to another. 	<p>What is sound energy?</p> <ul style="list-style-type: none"> • Use the particle model to explore sound energy • Describe different ways of making sounds 	<p><u>Knowledge:</u></p> <ul style="list-style-type: none"> - Sound is s type of energy. - Sound energy passes through materials in waves. <p><u>Vocabulary:</u></p> <ul style="list-style-type: none"> - Sound, sound energy, sound wave, vibration, energy, particles, solid, liquid, gas.
<p><u>Knowledge and skills through investigations</u> Pupils should be taught to:</p>	<p>How do we hear sound energy?</p>	<p><u>Knowledge:</u></p> <ul style="list-style-type: none"> - Explain how the ear converts vibrations into messages that the brain interprets as sound.

<ul style="list-style-type: none"> - 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. <p>Notes and guidance (non-statutory)</p> <ul style="list-style-type: none"> - Pupils should explore and identify the way sound is made through vibration in a range of different musical instruments from around the world; and find out how the pitch and volume of sounds can be changed in a variety of ways. <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> - finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. - They might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. - They could make and play their own instruments by using what they have found out about pitch and volume. 	<ul style="list-style-type: none"> • Use particle model to describe how sound travels through the air to the ear. • Study the structure of the ear and how this allows us to hear sounds. <p>What changes the pitch of a sound energy?</p> <ul style="list-style-type: none"> • Identify and describe high and low sounds. • Observe and describe patterns between the pitch of a sound and features of the object that made the sound. • Explore ways to change the pitch of a sound <p>What changes the volume of a sound energy?</p> <ul style="list-style-type: none"> • Investigate what changes the volume of a sound. • Identify how sounds change over distance. • Identify sounds at a distance. <p>How can we protect our ears from loud sound energy?</p> <ul style="list-style-type: none"> • Explain that sound needs something to travel through. • Investigate ways to insulate sound • explain why some materials absorb sounds • Discuss how sound insulation is used to protect ears from loud noises. <p>What would life be like without sound energy?</p> <ul style="list-style-type: none"> • Discuss the importance of our hearing and members of the community who must find ways to live without it. • Research ways to look after our hearing and the work of audiologists who work to help us with this. 	<ul style="list-style-type: none"> - Explain how the speed of the vibration alters the pitch. - Explain how the size of a vibration alters the volume. - Name 3 sound absorbing materials. - Understand how to protect ears. <p>Vocabulary:</p> <ul style="list-style-type: none"> - Sound; sound energy; volume; pitch; vibration; medium; conduct; conductor; insulate; insulator; amplify; tuning fork; decibel; high; low; natural; man-made; echo; vacuum; sound waves; sonar; soundproof; outer ear; auditory canal; ear drum; cochlea; auditory nerve; voice box; vocal chords; larynx; tongue; hammer; anvil; stirrup.
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Application and Assessment Activity

How Sound is Made
1. How is sound made by a guitar string?
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2. Write an explanation for each picture showing how a sound gets to your ear.
Write on this side what is happening in each picture.

Thinking Deeper:

How do dolphins use sound to hunt?

- Echolocation.
- Use the idea of an ultrasound scan to demonstrate how this might look for a dolphin.
- Why are loud sounds dangerous? Look at why people in many careers need to use ear defenders to protect their hearing.

Links to other subjects:

Subject Specific links – Music – how to create sounds of different pitches and volumes

Personal Development – working cooperatively in a team

SMSC –

Cultural Capital – Appreciate different types of music made by different instruments

Careers – Nurses/audiologist and scientist (Miller Reese Hutchison)

British Values – Developing mutual respect for and understanding of those with different skills and abilities/disabilities

Equality – Developing awareness of those with hearing impairments