
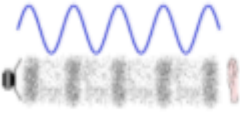
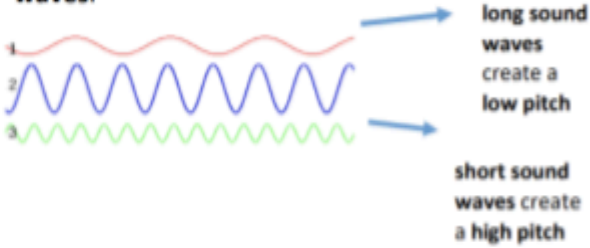
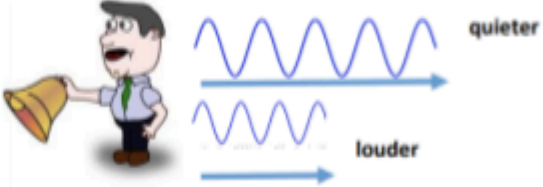


Caroline Haslett Primary School - Science Topic: Sound Year 4

| What should I already know? |
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| <ul style="list-style-type: none"> Hearing is one of my five senses. Sounds can be combined using musical instruments. What the word vibration means. |

| What will I know by the end of the unit? | |
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| What is a sound? | A thing that can be heard. The object that makes the sound is called the source . |
| How is a sound made? | <ul style="list-style-type: none"> When objects vibrate, a sound is made. The vibration makes the air around the object vibrate and the air vibrations enter your ear. These are called sound waves. If an object is making a sound, a part of it is vibrating, even if you cannot see the vibrations.  |
| How do sounds travel? | <ul style="list-style-type: none"> Sound waves travel through a medium (such as air, water, glass, stone, and brick). For example, if somebody is playing music in the room next door, the sound can travel through the bricks in the wall. |
| How do we hear sounds? | <ul style="list-style-type: none"> When an object vibrates, the air around it vibrates too. This vibrating air can also be known as sound waves. The sound waves travel to the ear and make the eardrums vibrate. Messages are sent to the brain which recognises the vibrations as sounds.  |
| How do sounds change? | <p>Pitch:</p> <ul style="list-style-type: none"> The pitch of a sound is how high or low it is. <ul style="list-style-type: none"> A squeak of mouse has a high pitch. A roar of a lion has a low pitch. <p>Volume:</p> <ul style="list-style-type: none"> The volume of a sound is how loud or quiet it is. When a sound is created by a little amount of energy, a weak sound wave is created which doesn't travel far. This makes a quiet sound. <ul style="list-style-type: none"> A small tap of a hammer is used with small amounts of energy and so creates a quiet noise. A vibration with lots of energy makes a powerful sound wave and therefore a loud sound. <ul style="list-style-type: none"> A powerful, smashing tap of a hammer is used with lots of energy and so creates a loud noise. |
| How do we measure sound? | <ul style="list-style-type: none"> Amplitude measures how strong a sound wave is. Decibels measure how loud a sound is. Frequency measures the number of times per second that the sound wave cycles. |

| Diagrams |
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| <p>Pitch:</p> <ul style="list-style-type: none"> High pitch sounds are created by short sound waves. Low pitched sounds are created by long sound waves.  <p>long sound waves create a low pitch</p> <p>short sound waves create a high pitch</p> <p>Volume:</p> <ul style="list-style-type: none"> The closer you are to the source of the sound, the louder the sound will be. The further away you are from the source of the sound, the quieter the sound will be.  |

| Vocabulary | |
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| amplitude | a measure of the strength of a sound wave |
| decibel | a measure of how loud a sound is |
| electricity | a form of energy that can be carried by wires and is used for heating and lighting, and to provide power for devices |
| energy | the power from sources such as electricity that makes machines work or provides heat |
| frequency | a measure of how many times per second the sound wave cycles |
| medium | something that makes possible the transfer of energy from one location to another |
| pitch | how high or low a sound is |
| power | Power is energy, especially electricity, that is obtained in large quantities from a fuel source and used to operate lights, heating, and machinery |
| sound waves | invisible waves that travel through air, water, and solid objects as vibrations |
| source | where something comes from |
| transmit | to pass from one place or person to another |
| travel | how something moves around |
| vibrations | invisible waves that move quickly |
| volume | how loud or quiet a sound is |

| Investigate! |
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| <ul style="list-style-type: none"> Fill identical jars with different volumes of water. Which one creates the highest pitch? Which material would make the best sound defender? How can you investigate this? Make musical instruments using different length strings. How do their pitches differ? |

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| Working scientifically | <p>An observation involves looking closely at objects, materials and living things.</p> <p>Ask relevant scientific questions, independently, about the world around them and begin to identify how they can answer them.</p> <p>Scientific enquiries can be set up and carried out by following or planning a method.</p> <p>Begin to independently plan, set up and carry out a range of comparative and fair tests, making predictions and following a method accurately.</p> <p>A prediction is a statement about what might happen in an investigation, based on some prior knowledge or understanding.</p> <p>A fair test is one in which only one variable is changed and all others remain constant.</p> <p>Observations can be made regularly to identify changes over time.</p> <p>Begin to choose which observations to make and for how long and make systematic, careful observations and comparisons, identifying changes and connections.</p> <p>Take accurate measurements in standard units, using a range of equipment eg. data loggers plus sensors, timers (seconds, minutes and hours), thermometers (°C), and metre sticks, rulers or trundle wheels (millimetres, centimetres, metres). Gather, record, classify and present observations and measurements in a variety of ways (pictorial representations, timelines, diagrams, keys, tables, charts, labelled diagrams, and graphs).</p> <p>Use scientific vocabulary to report and answer questions about their findings based on evidence collected. Draw simple conclusions and identify next steps, improvements and further questions.</p> <p>Results are information, such as data or observations, that have been found out from an investigation.</p> <p>A conclusion is the answer to a question that uses the evidence collected.</p> |
| Sound | <p>When an instrument is played, the air around or inside it vibrates.</p> <p>These vibrations travel as a sound wave.</p> <p>Sound waves travel through a medium, such as air or water, to the ear.</p> <p>Explain how sounds are made and heard using diagrams, models, written methods or verbally.</p> <p>Pitch is how high or low a sound is.</p> <p>Parts of an instrument that are shorter, tighter or thinner produce high pitched sounds.</p> <p>Parts of an instrument that are longer, looser or fatter produce low pitched sounds.</p> <p>Compare and find patterns in the pitch of a sound, using a range of equipment, such as musical instruments.</p> <p>Volume is how loud or quiet a sound is.</p> <p>The harder an instrument is hit, plucked or blown, the stronger the vibrations and the louder the sound.</p> <p>Sounds are louder closer to the sound source and fainter as the distance from the sound source increases.</p> <p>Compare how the volume of a sound changes at different distances from the source.</p> |