



INSPIRE NURTURE BELIEVE ACHIEVE

Working together to be the best that we can be.

Happiness

Perserverance

Resilience

Kindness

Friendship

Respect

Science: Sound Progression of Skills and Milestones Document

Year 4 Sound

- 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.

Notes:

A sound produces vibrations which travel through a medium from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound.

The loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source. A sound insulator is a material which blocks sound effectively.

Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.

Key Vocabulary

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

Common Misconceptions

Some children may think:

- sound is only heard by the listener
- sound only travels in one direction from the source
- sound can't travel through solids and liquids
- high sounds are loud and low sounds are quiet.

Pitch and volume are frequently confused, as both can be described as high or low.

Activities

- Classify sound sources.
- Explore making sounds with a range of objects, such as musical instruments and other household objects.
- Explore how string telephones or ear gongs work.
- Explore altering the pitch or volume of objects, such as the length of a guitar string, amount of water in bottles, size of tuning forks.
- Measure sounds over different distances.
- Measure sounds through different insulation materials.

TAPS practical assessments to be used at the end of each unit.



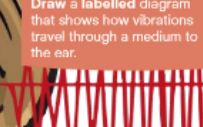
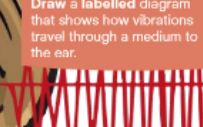

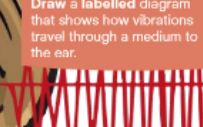
Possible Evidence

- Can name sound sources and state that sounds are produced by the vibration of the object
- Can state that sounds travel through different mediums such as air, water, metal
- Can give examples to demonstrate how the pitch of a sound are linked to the features of the object that produced it
- Can give examples of how to change the volume of a sound e.g. increase the size of vibrations by hitting or blowing harder
- Can give examples to demonstrate that sounds get fainter as the distance from the sound source increases
- Can explain what happens when you strike a drum or pluck a string and use a diagram to show how sounds travel from an object to the ear

- Can demonstrate how to increase or decrease pitch and volume using musical instruments or other objects
- Can use data to identify patterns in pitch and volume
- Can explain how loudness can be reduced by moving further from the sound source or by using a sound insulating medium
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Concept Cartoons' and 'Exit Cards' to be used at the end of lessons to assess understanding.

Y4 Proof of Progress - Working Towards (Basic), Age Related (Advancing) and Greater Depth Expectations (Deep)

| <p>Identify how sounds are made, associating some of them with something vibrating.</p> <table border="0"> <tr> <th data-bbox="129 598 331 638">Basic</th> <th data-bbox="342 598 544 638">Advancing</th> <th data-bbox="555 598 757 638">Deep</th> </tr> <tr> <td data-bbox="129 646 331 710">Listen to and describe a range of sounds from different sources.</td> <td data-bbox="342 646 544 710">Compare and contrast how loud and quiet sounds are made.</td> <td data-bbox="555 646 757 710">Suggest a way to prove the relationship between vibration and pitch.</td> </tr> <tr> <td data-bbox="129 718 331 766">Identify the source of sounds.</td> <td data-bbox="342 718 544 813">Experiment with stringed musical instruments to discover how high and low notes are made and explain your findings.</td> <td data-bbox="555 718 757 782">True or false? Higher notes are louder than lower notes. <small>See example page</small></td> </tr> <tr> <td data-bbox="129 774 331 869">Complete experiments and record findings that demonstrate a tuning fork is vibrating when it makes a sound.</td> <td data-bbox="342 821 544 869">Explain the role of vibration in creating sounds.</td> <td data-bbox="555 805 757 901"></td> </tr> </table> | Basic | Advancing | Deep | Listen to and describe a range of sounds from different sources. | Compare and contrast how loud and quiet sounds are made. | Suggest a way to prove the relationship between vibration and pitch. | Identify the source of sounds. | Experiment with stringed musical instruments to discover how high and low notes are made and explain your findings. | True or false? Higher notes are louder than lower notes. <small>See example page</small> | Complete experiments and record findings that demonstrate a tuning fork is vibrating when it makes a sound. | Explain the role of vibration in creating sounds. |  | <p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <table border="0"> <tr> <th data-bbox="795 598 996 638">Basic</th> <th data-bbox="1008 598 1209 638">Advancing</th> <th data-bbox="1220 598 1422 638">Deep</th> </tr> <tr> <td data-bbox="795 646 996 710">Listen to and describe sounds through a variety of mediums.</td> <td data-bbox="1008 646 1209 710">Compare and contrast the effectiveness of different mediums in transmitting sounds.</td> <td data-bbox="1220 646 1422 726">Suggest reasons why whales and dolphins can communicate over long distances.</td> </tr> <tr> <td data-bbox="795 718 996 845">Draw a labelled diagram that shows how vibrations travel through a medium to the ear.</td> <td data-bbox="1008 718 1209 845"></td> <td data-bbox="1220 726 1422 790">Air is not a very good medium for transmitting sounds. Do you agree? <small>See an example page 136</small></td> </tr> </table> | Basic | Advancing | Deep | Listen to and describe sounds through a variety of mediums. | Compare and contrast the effectiveness of different mediums in transmitting sounds. | Suggest reasons why whales and dolphins can communicate over long distances. | Draw a labelled diagram that shows how vibrations travel through a medium to the ear. |  | Air is not a very good medium for transmitting sounds. Do you agree? <small>See an example page 136</small> | <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <table border="0"> <tr> <th data-bbox="1482 598 1684 638">Basic</th> <th data-bbox="1695 598 1897 638">Advancing</th> <th data-bbox="1908 598 2110 638">Deep</th> </tr> <tr> <td data-bbox="1482 646 1684 742">Observe and describe the differences in the pitch of a sound and the object that produced it.</td> <td data-bbox="1695 646 1897 742">Experiment with, explain and demonstrate the pattern between pitch of sound and the features of the object that produced it.*</td> <td data-bbox="1908 646 2110 742">Relate your understanding of pitch to musical instruments. <small>See an example page 137</small></td> </tr> <tr> <td colspan="3" data-bbox="1482 750 2110 805">*Emphasising continuous variables where the comparative degrees end in <i>er</i>.</td> </tr> </table> | Basic | Advancing | Deep | Observe and describe the differences in the pitch of a sound and the object that produced it. | Experiment with, explain and demonstrate the pattern between pitch of sound and the features of the object that produced it.* | Relate your understanding of pitch to musical instruments. <small>See an example page 137</small> | *Emphasising continuous variables where the comparative degrees end in <i>er</i> . | | |
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End of Lower Key Stage 2 Age Related Expectations

| Milestone indicator | Basic | Advancing | Deep |
|--|---|---|---|
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| <p>Recognise that sounds get fainter as the distance from the sound source increases.</p> | <p>Observe and describe differences in sounds that are close and far away from their sources.</p> | <p>Experiment with, explain and demonstrate the pattern between the volume of a sound and the distance from its source.</p> <p><i>(emphasising continuous variables noted by the use of comparative degrees ending in er)</i></p> | <p>Why might (suggest, reason) a thunderclap sound loud to some and faint to others?</p> |