Year 4: Sound

This list consists of lesson plans, activities and video clips to support the teaching of sound at Year Four. It contains tips on using the resources, suggestions for further use and background subject knowledge. Possible misconceptions are highlighted so that teachers may plan lessons to facilitate correct conceptual understanding. Designed to support the new curriculum programme of study it aims to cover many of the requirements for knowledge and understanding and working scientifically. The statutory requirements are that children are taught to:

• 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.

Visit the [primary science](http://www.stem.org.uk/primary-science)webpage to access all lists.

Links and Resources

[Sound: listen up](https://www.stem.org.uk/resources/elibrary/resource/35351/sound-listen)

CATEGORY:[SCIENCE](https://www.stem.org.uk/subject/science)

Finding out what children already know establishes a basis for their continued learning. Session A aims to do this through a carousel of activities in which sound is produced. Identify how musical instruments make sounds, look at how the shape of an ear affects how we hear sounds and describe different sounds. In each case ask children what is vibrating to produce the sound.

Session B looks at how sounds are produced when objects vibrate but that vibrations are not always directly visible. Showing example where vibrations cannot be seen e.g. feeling the larynx as they speak, is important to illustrate this point.

Light is blocked by an opaque object and a shadow is formed but vibrations from sound sources require a medium (solid, liquid or gas) through which to travel. The activities in this session allow children to explore this.

publication year  
2010 to 2019

16 files

[0](https://www.stem.org.uk/resources/elibrary/resource/35351/sound-listen#comment)

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[Assembly on Sound](https://www.stem.org.uk/resources/elibrary/resource/25818/assembly-sound)

CATEGORY:[SCIENCE](https://www.stem.org.uk/subject/science)

Carrying out a class survey on sounds is a great way of working scientifically to find out about the world. Try out the ideas on page 4.

Another idea is to play some different sounds and talk about children's favourite sounds. Choose six then ask the class to vote on them and to create a living bar chart with children as the bars, showing which is the most popular. This could be repeated for the least favourite sound. This is a good way of representing data without having to write it down.

Linking to music - children could listen to various instruments and decide which ones they prefer. Discuss higher and lower pitch sounds and ask children in groups to explore the instruments and order them from low to high.

publication year  
2000 - 2009

1 file

[0](https://www.stem.org.uk/resources/elibrary/resource/25818/assembly-sound#comment)

2.75

[Sound](https://www.stem.org.uk/resources/elibrary/resource/33019/sound)

CATEGORY:[PHYSICS](https://www.stem.org.uk/subject/physics)

Slides 16,17,18 and 19 look at the various animals and the pitch of the sounds they produce, larger animals making lower pitched sounds and smaller ones higher pitched sounds. It then goes on to look at the size of various instruments. Children could look at a range of drums and predict the pitch of the sound they will produce. This could be repeated with other musical instruments.

A great way of showing this is by having a child blow through a straw and snipping it as they blow and hearing the change in pitch as the straw becomes shorter. An activity detailing this is described in the straw oboes activity below.

publication year  
2010 to 2019

2 files

[0](https://www.stem.org.uk/resources/elibrary/resource/33019/sound#comment)

4

[What factors affect the pitch and the volume of sound?](https://www.stem.org.uk/resources/elibrary/resource/315610/what-factors-affect-pitch-and-volume-sound)

CATEGORY:[SCIENCE](https://www.stem.org.uk/subject/science)

This resource provides a set of videos and a practical investigation aimed at supporting working scientifically in the classroom and relating science to real world experiences. In the first video Professor Brian Cox joins a teacher to find out how to set up and run an investigation to find out what affects the pitch and volume of a sound. Children build instruments out of every day equipment, including elastic bands and pots, twanging rulers and beans in pots. They change the length and width of elastic bands and the length of the ruler to see what difference that makes to the sounds. Further videos show Brian Cox meeting a composer to find out how sound can be used to convey different emotions in films and a scientist using sound waves to levitate small objects.

publication year  
2010 to 2019

1 file

[0](https://www.stem.org.uk/resources/elibrary/resource/315610/what-factors-affect-pitch-and-volume-sound#comment)

4.5

[Straw Oboes \*suitable for home teaching\*](https://www.stem.org.uk/resources/elibrary/resource/29563/straw-oboes-suitable-home-teaching)

CATEGORY:[SCIENCE](https://www.stem.org.uk/subject/science)

A short demonstration and teachers' notes on making straw oboes to explore how pitch may be changed in a wind instrument.

An alternative to cutting the straw as you blow could be to challenge children to create an instrument on which the pitch may be changed. They can do this by cutting the straws to different lengths and perhaps fastening them together to create  'Pan Pipes'

Children could explore ways of making other instruments on which pitch could be changed such as bottles with various water levels.

The notes on this activity are on page 7 on the pdf.

publication year  
2010 to 2019

2 files

[0](https://www.stem.org.uk/resources/elibrary/resource/29563/straw-oboes-suitable-home-teaching#comment)

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[Datalogging in the Environment](https://www.stem.org.uk/resources/elibrary/resource/25826/datalogging-environment)

CATEGORY:[SCIENCE](https://www.stem.org.uk/subject/science)

Page 9 contains two investigations on sound, the first explores how sound travels through different materials better than others. Children learn how to measure sound in decibels using a data logger. Take three readings each time and discuss the importance of repeated measurements for accuracy. Children could then look at the average value of their results, perhaps focussing on the median value at this age.

The second investigation looks at the materials which muffle sound the best. This provides an ideal opportunity for children to carry out a fair test.

publication year  
2000 - 2009

2 files

[0](https://www.stem.org.uk/resources/elibrary/resource/25826/datalogging-environment#comment)

2

[Sound Survey](https://www.stem.org.uk/resources/elibrary/resource/32212/sound-survey)

CATEGORY:[BIOLOGY](https://www.stem.org.uk/subject/biology)

Watch a short film about a child with Treacher Collins syndrome who has hearing difficulties and ask children to consider how the boy would feel in their school. Then ask children to come up with a set of survey questions to assess the noisiest places in school. Children work in small groups to survey the school and map their findings.

This is a great opportunity to consider how we are all different and develop an awareness of the needs of others. Remember that this topic may affect certain children in the class personally so should be adapted to suit individual class needs.

publication year  
2010 to 2019

1 file

[0](https://www.stem.org.uk/resources/elibrary/resource/32212/sound-survey#comment)

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External link

[BBc Bitesize Sound](https://www.bbc.com/bitesize/articles/zstr2nb)

Animations, clips and guidance on all things relating to sound at Year 4.

[Sounds Like Science](https://www.stem.org.uk/resources/elibrary/resource/34404/sounds-science)

CATEGORY:[CROSS CURRICULAR](https://www.stem.org.uk/subject/cross-curricular)

This pack contains twenty activities which explore the links between science and music. Activities investigate: how vibrations travel through different materials, making instrument on which the notes may be changed, creating animal noises using voices and instruments, muffling sound, amplifying sound, investigating rhythm and making a speaker.

publication year  
2010 to 2019

1 file

[2](https://www.stem.org.uk/resources/elibrary/resource/34404/sounds-science#comment)

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[Classroom Sound Monitor](https://www.stem.org.uk/elibrary/resource/36036)

CATEGORY:[COMPUTING](https://www.stem.org.uk/subject/computing)

This cross curricular activity includes science content from Year Four of the primary curriculum. It introduces programming and control, linked to the outside world through sensors - in this case, the computer's built-in microphone or a peripheral microphone. Programs are written using Scratch (online or offline) after a short design activity. Links to physical computing devices, such as Lego WeDo, are highlighted.

publication year  
2010 to 2019

12 files

[0](https://www.stem.org.uk/elibrary/resource/36036#comment)

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[Music to the Ears: Designing and Creating a Sound Generator](https://www.stem.org.uk/resources/elibrary/resource/35624/music-ears-designing-and-creating-sound-generator)

CATEGORY:[DESIGN AND TECHNOLOGY](https://www.stem.org.uk/subject/design-and-technology)

In this design and technology project children design and make their own simple stringed instrument, so they can make a soundtrack for a movie clip. This enables them to learn and experience properties of sound and discover more about the work of sound engineers throughout the process. It provides a great way of allowing children to be creative and apply their scientific knowledge in a practical context.

publication year  
2010 to 2019

2 files

[0](https://www.stem.org.uk/resources/elibrary/resource/35624/music-ears-designing-and-creating-sound-generator#comment)

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[Sound and Music Teachers’ Guide (Ages 7-12)](https://www.stem.org.uk/resources/elibrary/resource/27244/sound-and-music-teachers%E2%80%99-guide-ages-7-12)

CATEGORY:[PHYSICS](https://www.stem.org.uk/subject/physics)

This booklet is a great guide for teaching all spects of sound at upper primary. It includes useful teaching strategies, ideas for how to plan with children’s ideas in mind and assess their prior knowledge. It also includes samples of children's work to help with assessment and progression of ideas.