

Question: How are sounds heard by millions of people around the world?

Why do we hear sounds around us?

National Curriculum Link

Science Y4: Sound

KS2 Science Working Scientifically

IB Learner Profile Links

Inquirers – Nurture skills for research and curiosity

Risk-takers – Approach uncertainty with forethought and creativity / work independently and cooperatively to solve problems

Knowledgeable – Develop conceptual understanding and engage with issues and ideas

Thinkers – Use critical and creative thinking skills

Reflective – Consider the wider world and our own ideas and experience

Prior Skills – EYFS

- Ask questions and decide how they might find answers to them.
- Explore, using the senses
- Make simple predictions
- Use first-hand experience and simple information sources to answer questions.
- Make simple comparisons.
- Make simple predictions
- Observe and name a variety of sources of sound, noticing that we hear with our ears
- Explore different sound and explain how the sounds are different
- Compare sources of sound and how they are different

Prior Skills – Y1

- Describe a range of sounds
- Observe and name a variety of sources of sound, noticing that we hear with our ears
- Explore different sound and explain how the sounds are different
- Compare sources of sound and how they are different
- Ask questions and decide how they might find answers to them.
- Explore, using the senses and make and record observations and measurements.
- Make simple predictions
- Use first-hand experience and simple information sources to answer questions.
- Make simple comparisons.
- Recognise when a test or comparison is unfair
- Make simple predictions and make links to prior learning or something they have observed before
- Communicate findings in a variety of ways including diagrams, pictures, charts, tables and ICT to record their observations

New Skills – Y4

- Identify and explain how sounds are made, associating some of them with something vibrating
- Describe and explain how a sound travels from a source to our ears
- 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.
- Investigate and explain how to change the pitch a sound (louder/softer)
- Investigate how different materials can affect the pitch and volume of sounds
- Take measurements using different equipment and units of measure and record what they have found in a range of ways

		<ul style="list-style-type: none"> • Make accurate measurements using standard units • Explain their findings in different ways (display, presentation, writing) • Find any patterns in their evidence or measurements • Make a prediction based on something they have found out • Record and present what they have found using scientific language, drawings, labeled diagrams, bar charts, keys and tables
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Knowledge, Skills and Understanding for topic area

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Knowledge, Skills and Understanding for Working Scientifically

- Take measurements using different equipment and units of measure and record what they have found in a range of ways
- Make accurate measurements using standard units
- Explain their findings in different ways (display, presentation, writing)
- Find any patterns in their evidence or measurements
- Make a prediction based on something they have found out
- Record and present what they have found using scientific language, drawings, labeled diagrams, bar charts, keys and tables

Challenge

- Can children explain why sound gets fainter or louder according to the distance?
- Can children explain how pitch and volume can be changed in a variety of ways?
- Can children group materials which give the best insulation for sound?

Resources

- selection of musical instruments *eg drum, recorder, triangles, xylophone, castanets, stringed instrument, violin*
- tuning fork or forks
- clamp to attach a ruler to a desk or table
- buzzers/ticking clocks
- variety of materials *e.g foam sheeting, bubble wrap, woollen fabrics, newspaper, furry fabrics*
- video of orchestra/band, or observation of school band/ orchestra
- tuned drum
- wide-necked bottles

secondary sources *eg CD-ROMs, reference books providing information about aspects of sound*

Suggested Quality Texts

Poetry: The Sound Collector by Michael Rosen
Non fiction: How we hear things
Library books available

Website/Apps

http://4learning.co.uk/weblogic/essentials/science/physical/changingsounds_bi.jsp

www.lehigh.edu/zoellner/encyclopedia.html

<http://ngfl.northumberland.gov.uk/music/orchestra/default.htm>

<http://www.bbc.co.uk/learningzone/clips/how-does-sound-travel-through-the-air/11.html>

http://www.sciencekidsathome.com/science_topics/what_is_sound.html

Extended Writing Opportunities

Explanation of how we hear sounds/ how the ear works.

Newspaper report – Noisy neighbours next door. E.g. a new band named...has moved in and making noise in the night etc. including a solution to the problem, soundproofing and an advert for best soundproofing material for a house.

Numeracy Skills

Standard units; ml, l, minutes, seconds. Measure the volume of liquids by reading scales to nearest division labelled and unlabelled. Draw Bar charts 1:1, 1:2, 1:5 & 1:10 scale.

Frequency table. There is a natural link with children's maths work on temperature.

Wow starter/experience

Visit to a sound recording Studio – Liverpool Community Radio

Radio City tour with visit into sound studios.

A violin lesson for all children

Cross Curricular Links/Enquiry time:

ICT: Pupils could use CD-ROMs/ Internet research from given sites by teachers to find out about aspects of sound such as musical instruments/soundproofing.

ICT: Children could use sensors to detect and compare sounds made under different conditions (comparison of sound insulators & comparison of pitch and loudness). Children may investigate how sound changes during the day and overnight.

Music: Explore a range of musical instruments. Explore listening to different sounds from e.g. the triangle through different mediums. Watching rice on an upturned speaker, how is it affected by volume and

DT: Making and testing junk instruments. Challenge children to make the best string telephone with resources provided. Design and make a megaphone.

Literacy – write a mnemonic poem about vibrations