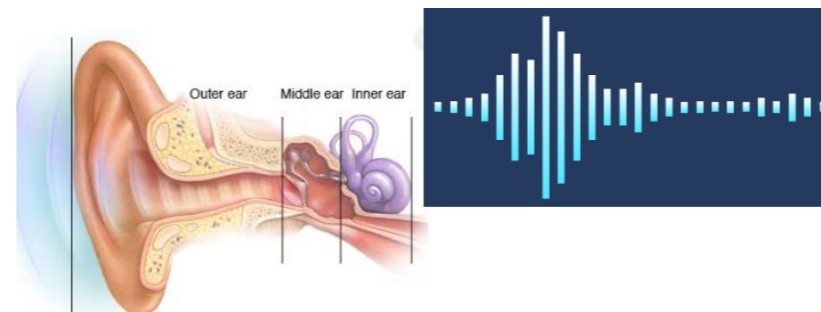


Year 4 – Autumn 2 – ‘Sound’

NC Science – ‘Sound’

Pupils should be taught to:

- Know how sound is made associating some of them with vibrating.
- Know what happens to a sound as it travels from its source to our ears.
- Know the correlation between the volume of a sound and the strength of the vibrations that produced it.
- Know how sound travels from a source to our ears.
- Know the correlation between pitch and the object producing a sound.



I can identify sounds around school and how they are made.

At the beginning of the topic, ask the children what they currently know about sound. Now explore what they would like to know. Children to write some questions on post it notes about what you would like to know and place them together on the flip chart. Introduce the children to a map of the school. Begin to talk about sounds you can hear in and around school. Using the same map, children to make a **prediction** of where they think the noisiest room will be and the quietest room and mark it on the map. Children to then write a written **prediction** of why they have chosen those rooms/places around school. Now conduct a noise walk around school and once back in class, create a key code, red noisiest rooms, orange/yellow middle and then green being the quietest room.

I can explain that sounds are made when an object vibrates.

Begin by playing a game to see if the children can identify where the sound is coming from when they have their eyes closed. Did everyone get the correct general direction? How did we know where the sound was coming from? We heard it through our ears. How did the sound travel from the source to our ears? Now strike a tuning fork against the side of the desk and gently place the vibrating end in a glass of water. Explain that the tuning fork is vibrating and the ripples move outwards from the sound source (the fork). This is how sound travels, by causing the particles around the vibrating source to vibrate, which in turn vibrate other particles, sending a ripple away from the vibrating sound source. We usually hear sound that has travelled through the medium of air, but it can also travel through solids and liquids. Children make their own string telephones in pairs using the instructions given. Ensure children understand that the sound travels along the string (solid). Once complete, children to write a short description of how the sound travels through the solid to the ear. Now demonstrate with the children outside using a drum and explore how the sound changes the further you are from it.

I can explain how sound travels to the ear.

Explain to the children that today they are going to learn about all the components of the ear. There are three main sections of the ear, show images and discuss how they initially think the sound travels to the inner ear. Now explain how sound travels through by watching the following clip: www.youtube.com/watch?v=p3OyHlodZU4. Now the children have some knowledge of how the ear works, children to label the ear and then using scientific language, explain how sound travels to the ear. You may need to watch the clip through a few times in order for the children to make effective notes.



What do you understand by the term ‘pitch’?

Explain to the children that today we are going to investigate pitch and how we can create high and low pitched sounds through the use of different musical instruments.

The children will need to work through the **pose**, **plan** and **predict** elements of an investigation in today’s lesson.

Explore some ideas for the ‘**pose**’ and then in small groups, **plan** the investigation.

Discuss how we need to make the test fair and how we could do this. Discuss the variable.

Children to write a written prediction in books and then decide how they are going to record and then **present** their results.

Orally, discuss what the children have found out from their investigation.

I can explore ways to change the pitch of sound.

Begin by discussing why it is sometimes important to prevent sound travelling. **Pose** the following question to the children: Which material would be the best for muffling a sound?

Explain to the children that today they are going to **plan** and carry out the investigation in small groups. They first need jot down their ideas on the group ideas sheet. Move between the groups and assess progress so far. Talk to groups and individuals by asking: *How will you make the test fair? What will you use as a sound source? Which one factor will you vary, e.g. the material, the number of layers of the material, the area of the material? What do you think will be the best and why?* Children to create a **written prediction** and then draw a diagram of how they are going to set up the investigation. Children to carry out the investigation and record their results in planning books first.

I can plan and carry out a fair test.

NC Working Scientifically (LWKS2)

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- Asking relevant questions and using different types of scientific enquiries to answer them.
- Setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

Begin by discussing what their investigation was about last week. Explain that today they are going to **present** their results and then **provide** a conclusion. How did they make their investigation fair?

Children to write out their results in science books and then discuss what they found out in their small groups. Bring the children back together and as a class, share what each group has found out. Model how to write a detailed conclusion and then allow time for the children to write their own conclusion based on their findings.

I can present my result. I can provide a conclusion to my investigation.

Year 4 – Autumn 2 – 'Sound'

--

- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.

