



Helping Your Child with *Sound and Hearing*

Introduction

As part of the Sound and Hearing section of the National Curriculum for Science children will learn a number of basic ideas. These may seem obvious to us, but the children need to use a lot of imagination to get them into their heads. The idea of something vibrating causing a sound, for example, is very difficult. And activities that demonstrate or reinforce these ideas will help them develop the mental agility to deal with new ideas in the future.

This sheet points out the sort of mental blocks that children sometimes have when learning about Sound. There are also 'Activities'. These are opportunities when you might talk about things they notice around them at home or when they are out with the family. This will reinforce what they do at school and help them realise how their Science lessons relate to everyday life.

KS1 Year 3: Identifying and Hearing Sound

Useful Vocabulary

High pitch (frequency) compared with low pitch sounds, loud sounds compared with quiet, shake, pluck, rattle, ring.

Basic Ideas

- Sounds come from a source (they don't just happen) and travel through the air, water or a solid object from the source to the person hearing the sound.
Activity: Ask what's making a sound when they hear something, and ask them to describe the sound. Many children confuse the word high with loud, and low pitched with quiet.
N.B. Sounds travel fastest through solids, quite fast through liquid, and slowest through air but this is not required at this level. The delay between seeing lightning and hearing thunder is evidence that sound travels slowly through air- but this isn't covered until KS3
- There are lots of ways to make sound (think of the different types of instruments). In all cases, something is vibrating to make the sound we hear, even if the vibration cannot be seen – although children do not need to use the word 'vibrate' at this stage. Children will often begin to be able to identify different instruments from their sounds.
- **Activity:** Ask your child how sound is made – by hitting, by plucking, by rattling? – and what makes them think this. The ability to provide evidence by comparison with something they have heard previously is an important skill here.
- We hear sounds because they travel into our ears. We can often work out which direction a sound comes from using our ears (but covering one ear makes this much more difficult).

Activity: Observe animals will pivot their ears to listen to sounds and work out more precisely where they are coming from. N.B. Many young children have misunderstandings about how we hear things, and don't always realise that ears are part of the process. At KS1 and 2, children do not need to know about the structure of the ear – this is covered at secondary school level.



- Sounds appear louder the nearer we are to their source, and get quieter as we move away.
Activity: Notice when a police car approaches how its siren gets louder. N.B. You will also notice that the sound seems higher pitched as it approaches, and lower pitch as it goes away. This is a complicated phenomenon which isn't covered until upper secondary school.
Activity 2: In some Science centres there is a listening device where you speak into a large dish and can be heard at the other end of the room. This works by sending all the sound straight across the room (it is collimated into a parallel beam by the dish) instead of letting it spread out and get quieter in the usual way.
- Noise (or any loud sound) can damage our ears.
N.B. The words 'noise' and 'sound' mean the same thing, but 'noise' is usually used to mean an unpleasant sound.
Activity: Notice road workers, grass cutters etc. who wear ear defenders. Children may not realise that these are to protect their hearing. They may think they are listening to music!

KS2 Year 5: Making Sound

Useful Vocabulary

Loudness, vibration, quiet and soft as synonyms, tension (in a string on an instrument).



Basic Ideas

- To make any sound, an object has to vibrate.
Activity: Work out what's vibrating to make any sound they hear.
Activity 2: Feel the throat of family members as they make different sounds – and possibly notice how a low or loud sound made by a man 'feels' different from a higher or quieter sound.
- Sound travels better through some materials than others.
Activity: Make a string telephone using two tins or yoghurt pots with a string knotted to the end of each one. They can only hear if the string is held tightly between the pots, and not if it goes round a corner.

- Some materials muffle sounds better than others.
N.B. This goes back to the observation that some workers wear ear defenders to protect their hearing.
- A musical instrument will make a higher sound if the string is tightened up, or it's a shorter string.
Activity: 'Ping' a ruler hanging off the edge of the table and shorten it to hear how the sound changes. Or, stretch an elastic band and 'ping' it to hear the sound.
- A larger volume of air will make a lower pitch sound if it vibrates. A wind instrument, like a recorder, makes a lower sound if more of the holes are covered.
Activity: Blow across the top of a bottle as the contents are drunk, and notice how the sound changes, getting lower as the volume of air contained increases.
N.B. If you hit the bottle as the contents are removed, the sound gets higher as there is less liquid to vibrate.