

# Sound - Year 4 - Unit 1

## Scientific Enquiry



### comparative & fair testing

**Comparative testing** means testing objects in order to rank them. We will test and compare materials to find the best sound insulator.

**Fair tests** are enquiries that observe or measure the impact of changing one variable when all others are kept the same. We will conduct pitch and volume tests.

### pattern seeking



We **seek patterns** by looking for links between variables. We will be looking for patterns in pitch and volume after conducting different tests.

## Working Scientifically

**Asking** scientific questions

**Planning** an enquiry

**Observing** closely

**Measuring** (taking measurements)

**Gathering and recording** results

**Presenting** results

**Interpreting** results

**Concluding** (drawing conclusions)

**Predicting**

**Evaluating** an enquiry

### sound

**Sound** is created when something (the **source**) vibrates and sends vibrations into our ears.



A **sound** produces vibrations which travel through solids, liquids and gases from the source to our ears. **Sound** cannot travel through a vacuum (an area empty of matter).

### vibration

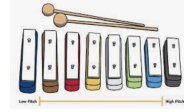
A vibration is a back and forth motion.



The **vibrations** from a sound cause parts of our body inside our ears to **vibrate**, allowing us to hear (sense) the sound.

### pitch

**Pitch** is the highness or lowness of a sound depending on the frequency of vibrations.



A high sound has a high **pitch**. A low sound has a low **pitch**. The shorter the bar on a xylophone, the higher the **pitch**. The longer the bar, the lower the **pitch**. A tight drum skin gives a higher **pitch** sound than a loose drum skin.

### volume

**Volume** is how loud or quiet a sound is. Loud sounds have a high **volume**. Quiet sounds have a low **volume**.



The loudness (**volume**) of the sound depends on the strength (size) of vibrations which decreases as they travel. Sounds decrease in **volume** as you move away from the source.

### insulation

Sound **insulation** is a material that prevents sound (or heat) from being transmitted.



A sound **insulator** is a material which blocks sound effectively like foam.



### Things you learnt in previous topics

In year 1, you identified, named, drew and labelled the basic parts of the human body and were able to say which part of the body is associated with each sense, including that we use our ears to hear.



### How this connects with future learning

At secondary school, you will learn that waves on water are undulations which travel across water and can be reflected. You will also learn that the rate of sound waves are measured in Hertz. You will learn about: echoes, reflection and absorption of sound; the speed of sound in air, water and solids; how sound is detected; hearing in humans and animals; pressure waves; about waves transferring information for conversion to electrical signals by microphone.