Year 4 Science

Sound

LO – I can recognise that vibrations from sounds travel to the ear.

Thinking Time...

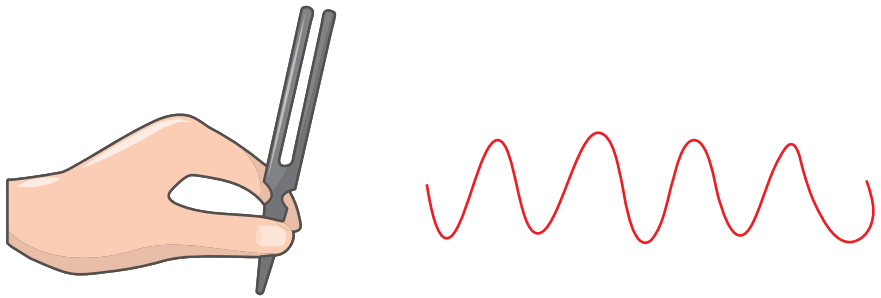
How are sounds made?

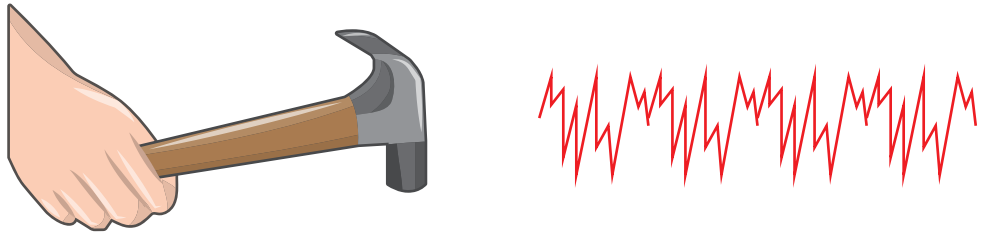
Talk to your partner before feeding back to the class.

Sounds

Sounds are made when objects **vibrate**. The vibration makes the air around vibrate, and the air vibrations enter your ear. You hear them as sounds.

You cannot always see the vibrations, but if something is making a sound, some part of it is always vibrating.





What is the difference between a sound and a noise?

Sounds

We can see vibrations when we hit a drum. When we hit it, the drum skin vibrates. This makes the air particles closest to the drum start to vibrate as well.

The vibrations then pass to the next air particle, then the next, then the next. This carries on until the air particles closest to your ear vibrate which passes the vibrations into your ear.

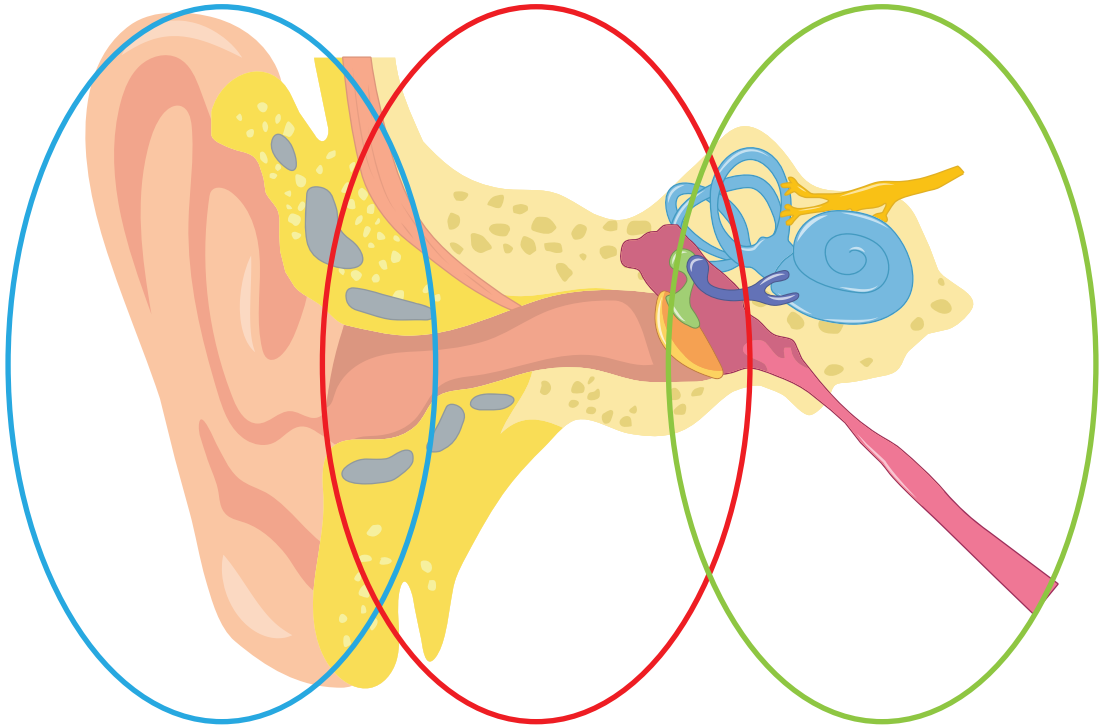
Thinking Time...

What happens when sounds reach our ear?

Talk to your partner before feeding back to the class.

The Ear

The ear is divided into three parts. The **inner ear**, **the middle ear** and **the outer ear**.



Did you know?

Most of your ear is hidden inside your head!

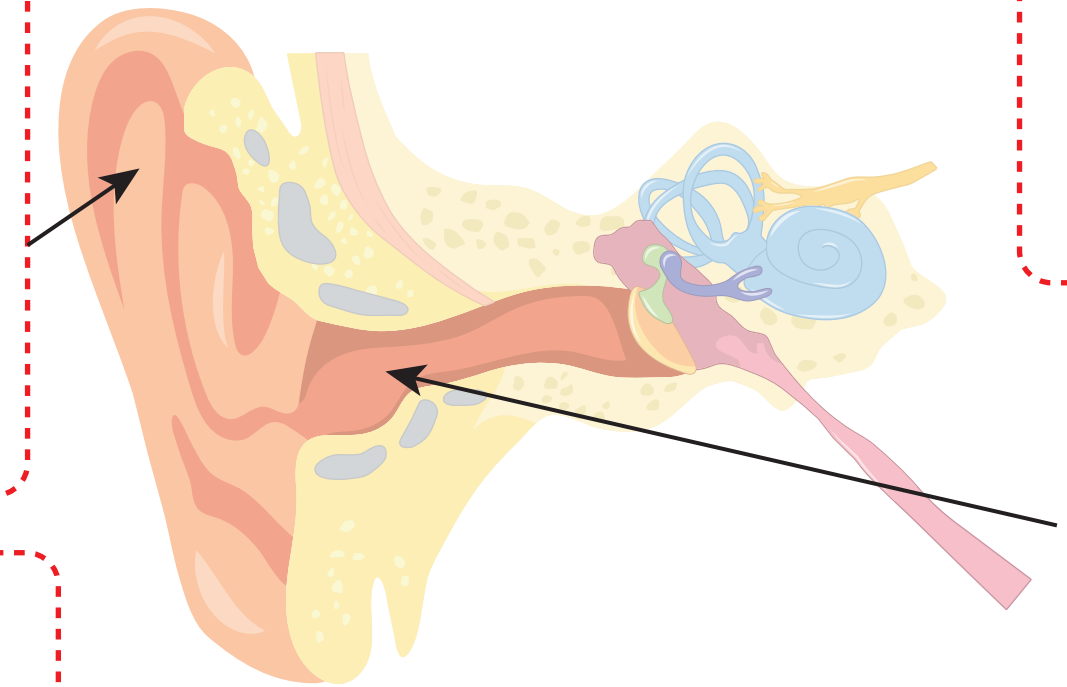
The Outer Ear

1. Pinnae or Ear Flaps

This is the part that we usually think of when we think of our ears. The are the folds of skin and cartilage on the side of our head. They collect the sound waves and vibrations and direct them into the ear canal

Interesting Fact!

One ear flap is called a pinna. Two or more ear flaps are called pinnae.



Interesting Fact!

If you have bigger pinnae, you can hear sounds louder. Try it out! Cup your hands round your ears to make bigger pinnae! Do sounds sound louder?

2. Ear Canal

The ear canal is a tube that connects the outer ear flaps to the middle ear. Sound waves and vibrations travel down the ear canal.

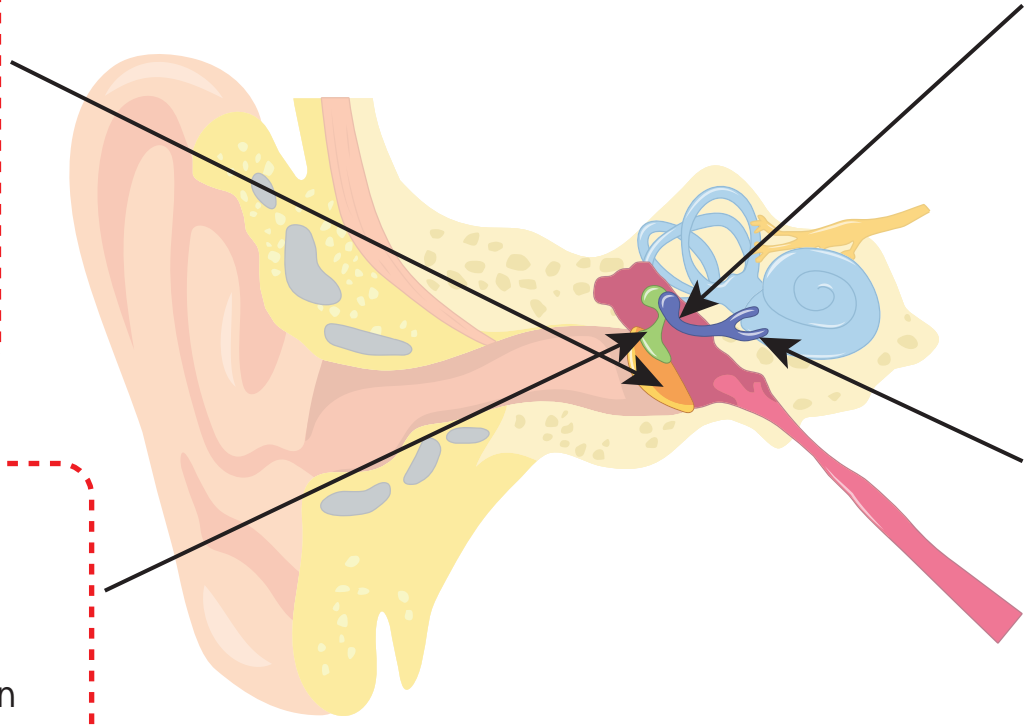
The Middle Ear

1. Ear Drum

The ear drum is a thin flap of skin at the end of the ear canal. The sound waves strike it like a drum, causing it to vibrate.

2. Hammer

The hammer is a tiny bone connected to the ear drum. When the ear drum vibrates, it causes the hammer to vibrate too.



3. Anvil

The anvil is another bone. When the hammer vibrates, it causes the anvil to move too!

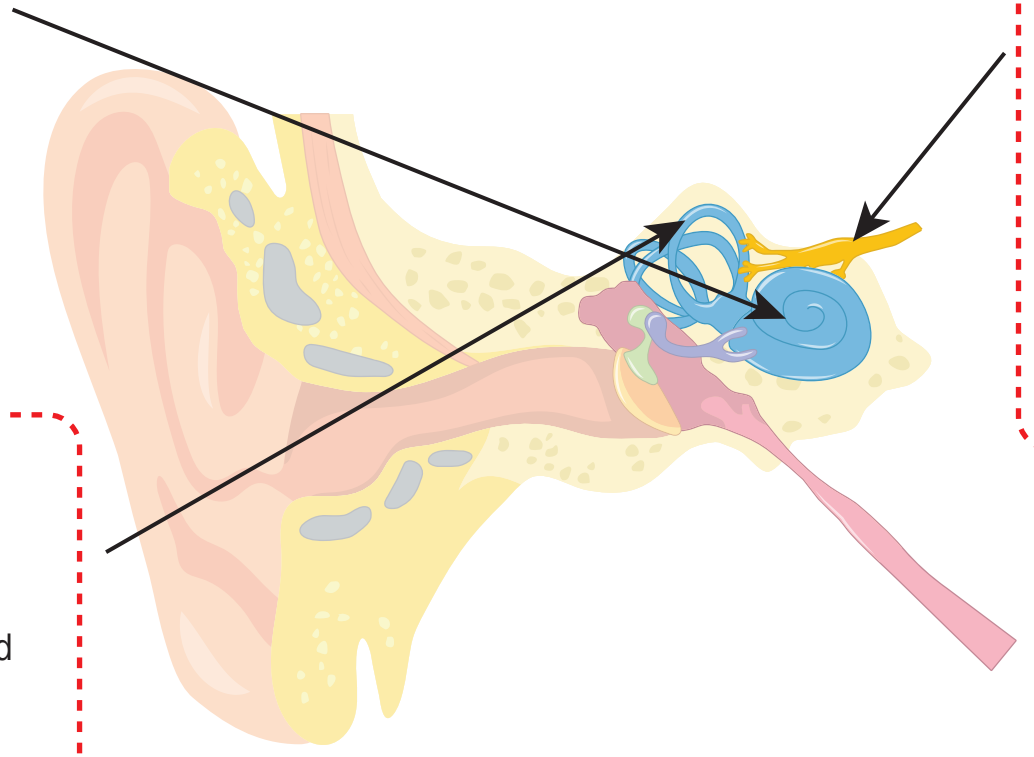
4. Stirrup

The stirrup is the smallest bone in the whole body! When the anvil moves it cause the stirrup to move too. The stirrup sends the vibrations to the inner ear.

The Inner Ear

1. Cochlea

The cochlea is a snail shaped which is filled with liquid. When the stirrup hits the cochlea, it sends waves through the liquid inside.



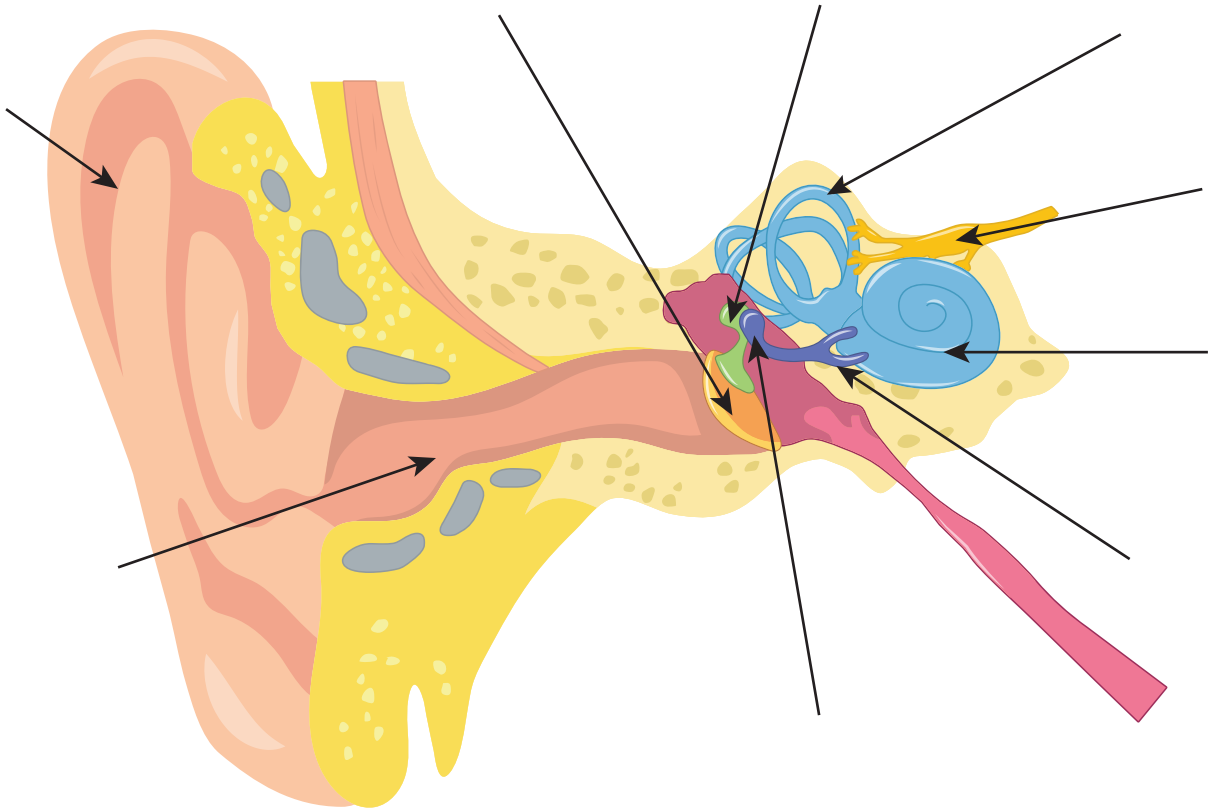
2. Auditory Nerve

The auditory nerve begins in the cochlea as thousands of tiny hairs. The hairs sense the liquid moving and carries this information to the brain. The brain then interprets what sound we are hearing.

3. Semi-Circular Canals

The semi-circular canals help with our balance. When you spin around quickly and then stop, the fluid in the semi-circular canals carries on moving for a while. This is what makes you feel dizzy.

Independent Activity



Label the different parts of the ear on your worksheets.

Quiz

1. What are the three sections of the ear called?

2. What is the smallest bone in our body?

3. Which part of the ear carries signals to the brain?

4. Which part of the ear helps with our balance?

5. What is another name for the ear flaps?

Grab a whiteboard and write your answers down!

Quiz

1. What are the three sections of the ear called? **Inner, middle and outer ear**

2. What is the smallest bone in our body? **stirrup**

3. Which part of the ear carries signals to the brain? **Auditory nerve**

4. Which part of the ear helps with our balance? **Semi-circular canals**

5. What is another name for the ear flaps? **pinnae**

How many did you get correct?