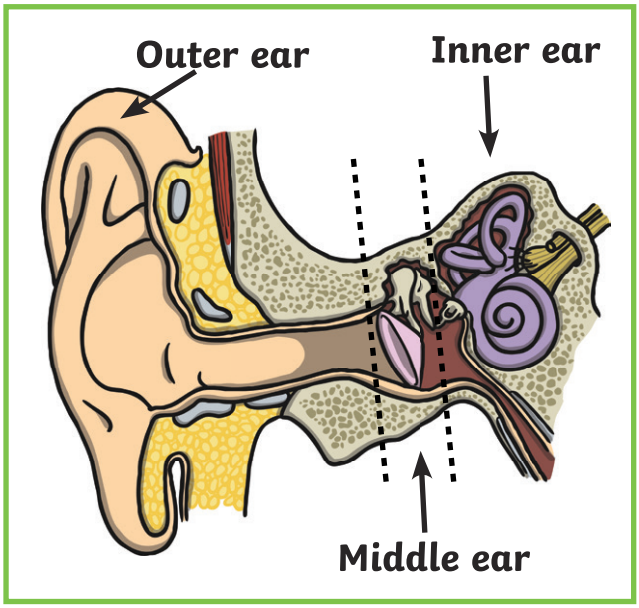
Sense of Hearing

As our eyes allow us to detect light, our ears allow us to detect sound waves in the air around us. Humans have a good range of hearing, being able to hear sounds at a low and high decibel range. The ear was thought in the past to be more than just a body part for hearing. The Ancient Chinese believed that the shape of your earlobe foretold your future. A long earlobe meant that you would lead a long life and a short, wide earlobe meant that you would be rich. This is why Buddha is always shown with especially long earlobes, touching his shoulders. Also, the earlobe has been pierced from as far back as the Ice Age; we know this because scientists have found an ancient mummy with bone-pierced ears!



How does the Ear Work?

The ear consists of three main parts.

The Outer Ear – This is the part of the ear that people can see and it acts as a way of channelling sound down into the ear canal. The sound waves are directed into the opening by the particular shape of the ear. The sound vibrations travel down until they reach the eardrum, causing it to vibrate. This area is kept clear of dirt by earwax, allowing the sound waves to travel through uninterrupted.

The Middle Ear – The outer ear ends where the eardrum starts. The area after the eardrum is called the middle ear. This middle ear is made up of three tiny bones known as the hammer, the anvil and the stirrup. These are the smallest bones in the human body. All three of them could comfortably fit onto a penny. The middle ear is the place where the sound gets amplified.

The Inner Ear – The inner ear is found inside the temporal bone, the hardest bone in the human body. The sound travels into the cochlea, which is in the shape of a snail shell. It is full of liquid and covered in tiny hairs. There are over 20,000 hairs in the cochlea. As the sounds move through the liquid, they make the hairs vibrate. These vibrations create small chemical changes which the brain translates into sounds.

Did you know?

Your ears never shut down, not even while you are sleeping. They still hear sounds but these sounds don't register with your brain. This explains why sometimes you wake up suddenly when you hear a sound.

In the animal kingdom, dolphins use something called echolocation to find prey. They send out a high pitched sound and then listen for the echo as it bounces off a fish. They then use this echo to pinpoint exactly where the fish is. Even your average household pet has amazing hearing. Cats and dogs are both able to hear so well that they both know when their owners are coming home long before they walk in the door!

Technology now exists to help people who are losing their hearing. Hearing aids can amplify the sounds around a person to make them easier to hear and surgery is now carried out on people who have been deaf their whole lives to help them hear for the first time!

Sense of Hearing **Questions**

1. What is the function of ear wax?

2. How many hairs are there in the cochlea?

3. How do cats and dogs know when to wait for you at the front door?

4. What is the hardest bone in your body called?

5. How long have people been piercing their ears for?

6. How do dolphins find their prey?

7. If you lost your hearing, which sound would you miss the most?

8. In Ancient China, would you rather have short, wide earlobes or long earlobes? Why?

Sense of Hearing **Answers**

1. What is the function of ear wax?
   Ear wax keeps your ears clean.
2. How many hairs are there in the cochlea?
   There are over 20,000 hairs in the cochlea.
3. How do cats and dogs know when to wait for you at the front door?
   Cats and dogs have great hearing and can hear you long before you actually arrive at your door.
4. What is the hardest bone in your body called?
   The hardest bone in your body is the temporal and it is found in the inner ear.
5. How long have people been piercing their ears for?
   People have been piercing their ears since the Ice Age.
6. How do dolphins find their prey?
   Dolphins use echolocation to find their prey.
7. If you lost your hearing, which sound would you miss the most?
   Varied answers.
8. In Ancient China, would you rather have short, wide earlobes or long earlobes? Why?
   Varied answers.