

Key Vocabulary

sound

vibrations

particles

ear

prevent

cochlea



How is sound created?

Sound is simply **vibrations** that spread through the air.

When something makes a sound, it wobbles or vibrates.

This makes all **particles touching it** wobble and vibrate.

This 'push' gets passed through the **air**. Our **ears** are

designed to sense these **vibrations** and tell our **brain**

what kind of sound we are hearing.



How is sound created?

If we want to **stop sound** we have to **block the vibrations** in the air with a **solid object**. For example, closing a door to stop the sound on the other side of the door. We could also use **soft objects** to **reduce** the sound, like ear muffs or soft objects on walls.



How is sound created?

1. Sound is _____ that spread through the air.



How is sound created?

1. Sound is _____ **vibrations** _____ that spread through the air.



How is sound created?

2. When something makes a sound what happens to the particles in the air?

i) They stop moving

ii) They wobble and vibrate

iii) They change size



How is sound created?

2. When something makes a sound what happens to the particles in the air?

i) They stop moving

ii) They wobble and vibrate

iii) They change size



Which is louder?

sound inside classroom	or	sound outside classroom with door closed
sound without mouth covered	or	sound with mouth covered
sound without your ears covered	or	sound with your ears covered



What happens when you block sound?

When you block sound _____

_____.

This happens because _____

_____.

quieter

sound

louder

travel

vibrate



What happens when you block sound?

When you block sound, **it will become quieter.**

This happens because **particles need to vibrate against each other in order for sound to travel.**

quieter

louder

vibrate

sound

travel

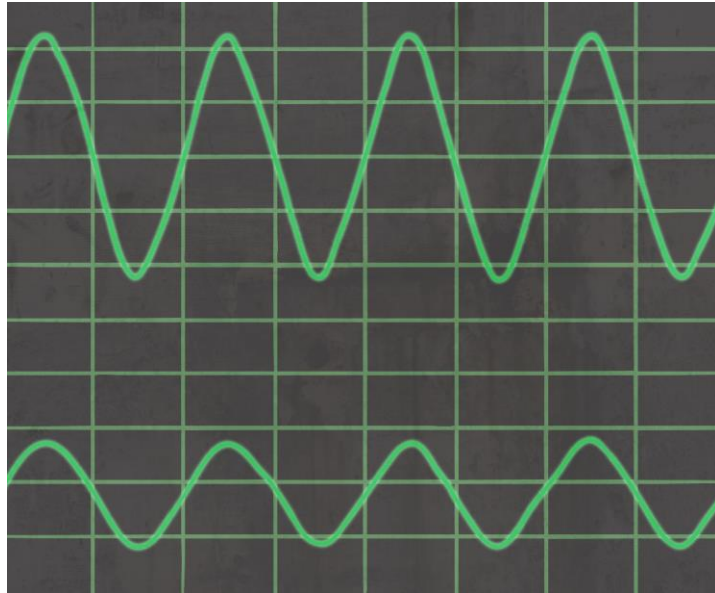


Loud and Quiet

The louder the sound, the bigger the vibration. You should have noticed that the rice grains vibrated more when you hit the drum harder, creating a louder sound.

The size of the vibration is called the amplitude.

Quieter sounds have a smaller amplitude, and louder sounds have a bigger amplitude.



How Does Sound Travel




So we know that sounds are caused by vibrations, and the louder sounds have bigger vibrations.

But how do these different sounds reach our ears?

These children have been talking about their ideas.

What do you think of their ideas?



I think sound can travel through the air because the air is lighter and easier to get through than solids or liquids.

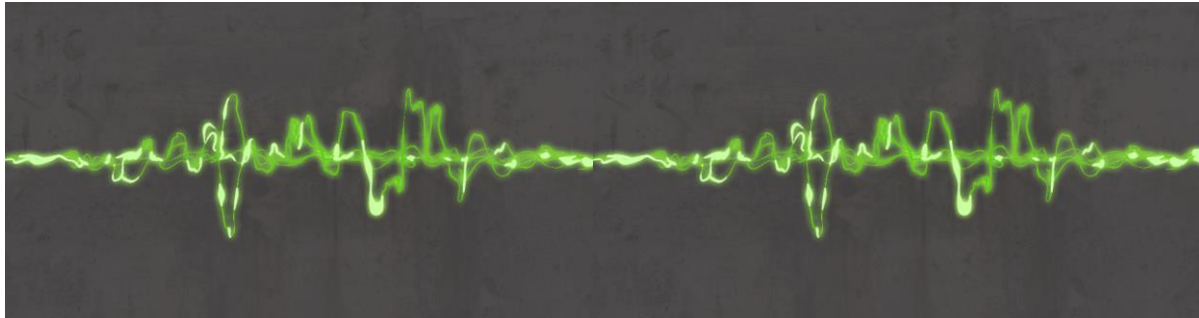
Sound moves the air from the source of the vibration into our ears. If we are listening, we will hear the sound.



How Does Sound Travel?

Sound can travel through solids, liquids and gases.

Sound travels as a wave, vibrating the particles in the medium it is travelling in.

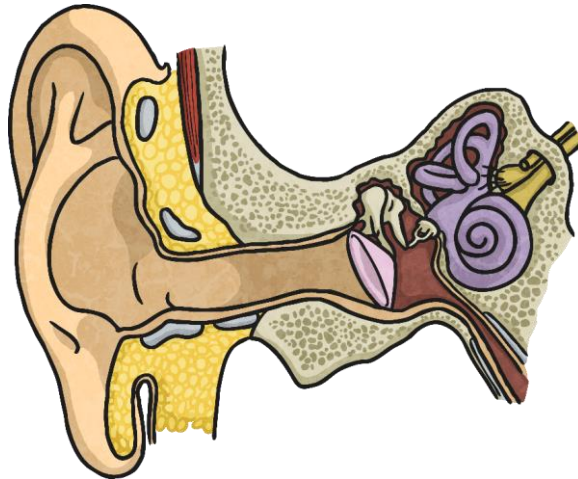


So in our example, when you hit the drum, the drum skin vibrated. This made the air particles closest to the drum start to vibrate as well. The vibrations then passed to the next air particle, then the next, then the next. This carried on until the air particles closest to your ear vibrated, passing the vibrations into your ear.

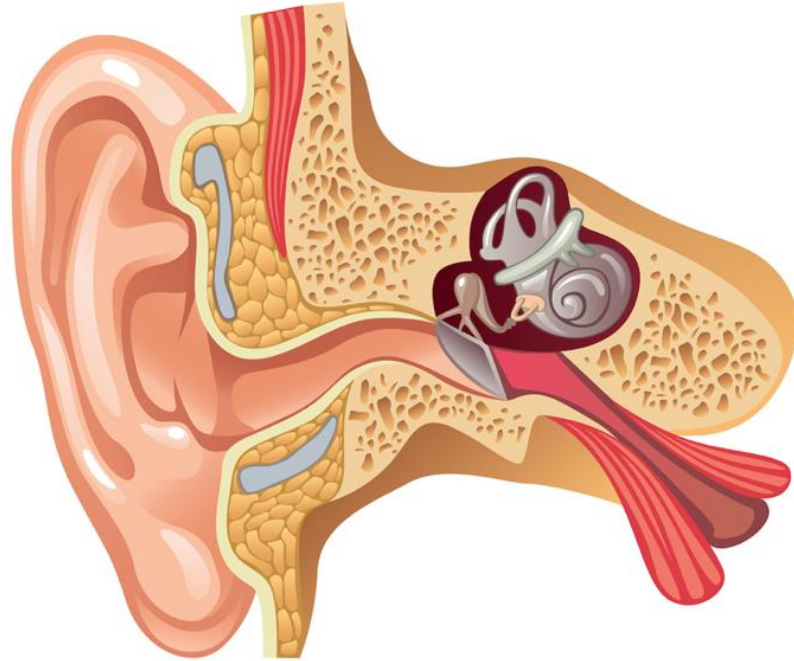
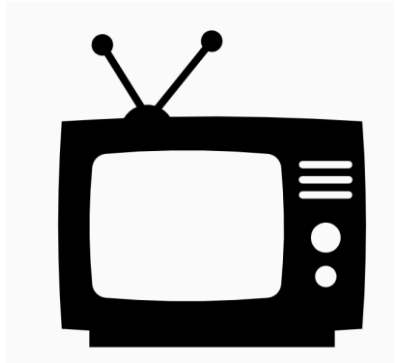


Hearing Sounds

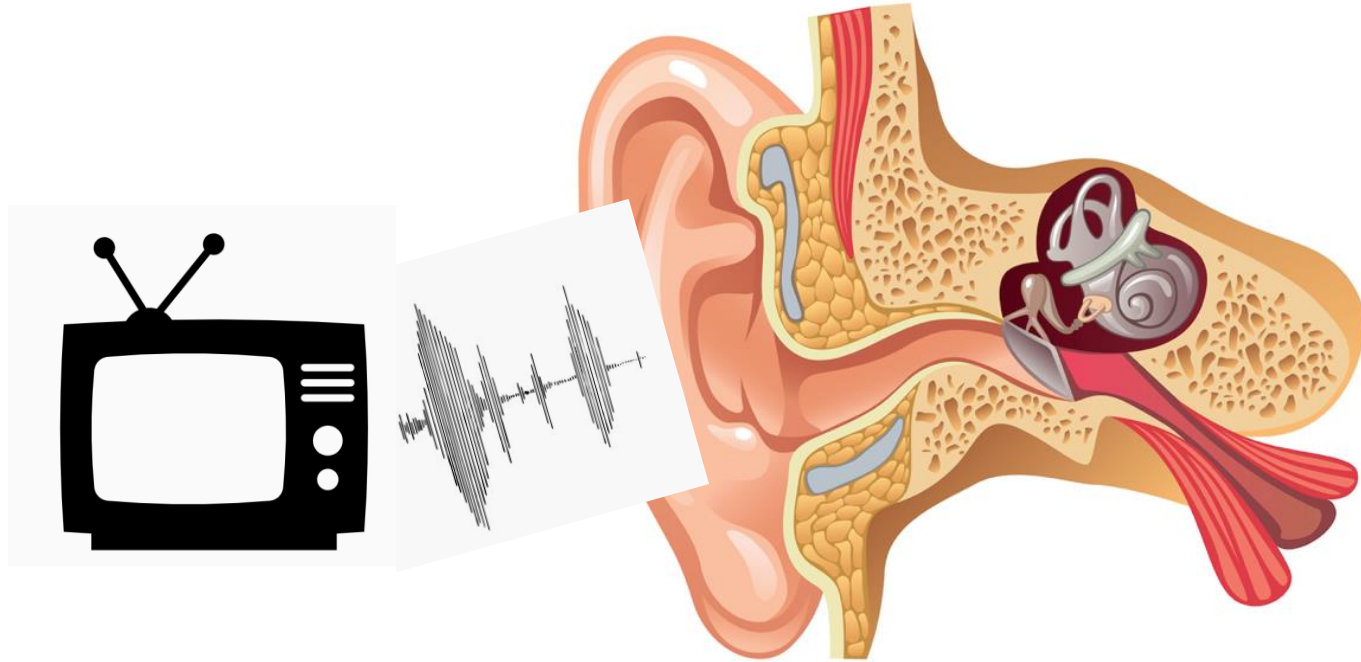
Once in your ear, the vibrations travel into the ear canal until they reach the eardrum. The eardrum passes the vibrations through the middle ear bones (the hammer, the anvil and the stirrup) into the inner ear. The inner ear is shaped like a snail and is called the cochlea. Inside the cochlea, there are thousands of tiny hair cells. Hair cells change the vibrations into electrical signals that are sent to the brain through the hearing nerve. The brain tells you that you are hearing a sound and what that sound is.



How do we hear sound?

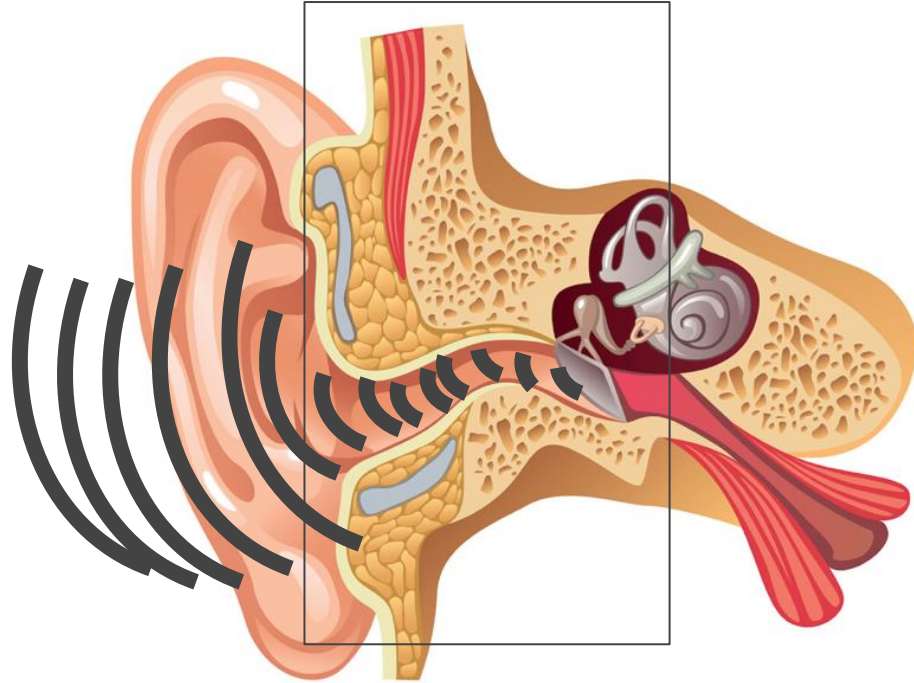


How do we hear sound?

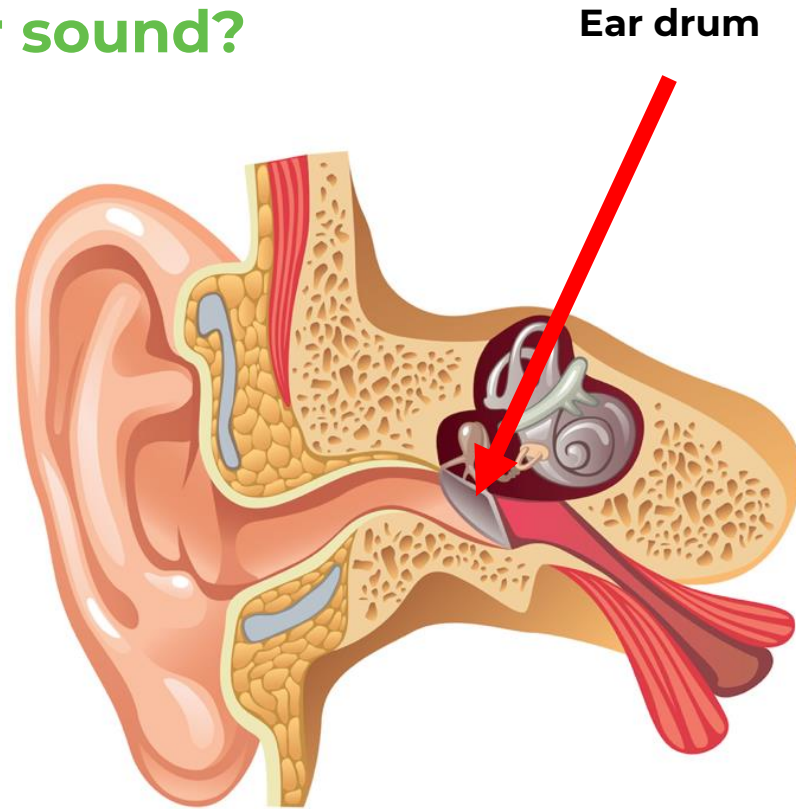


How do we hear sound?

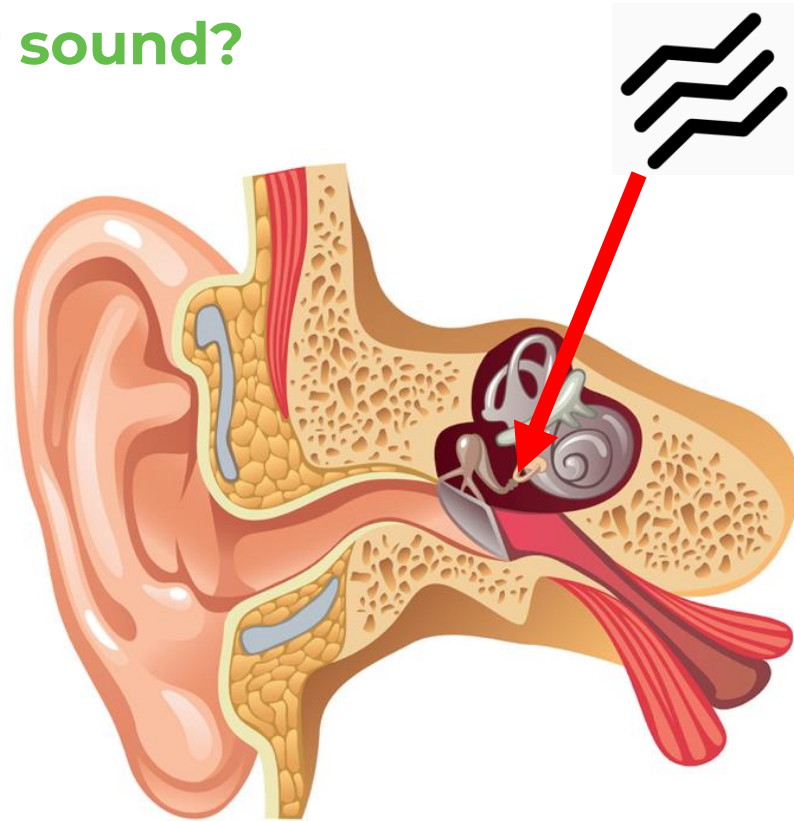
Middle ear



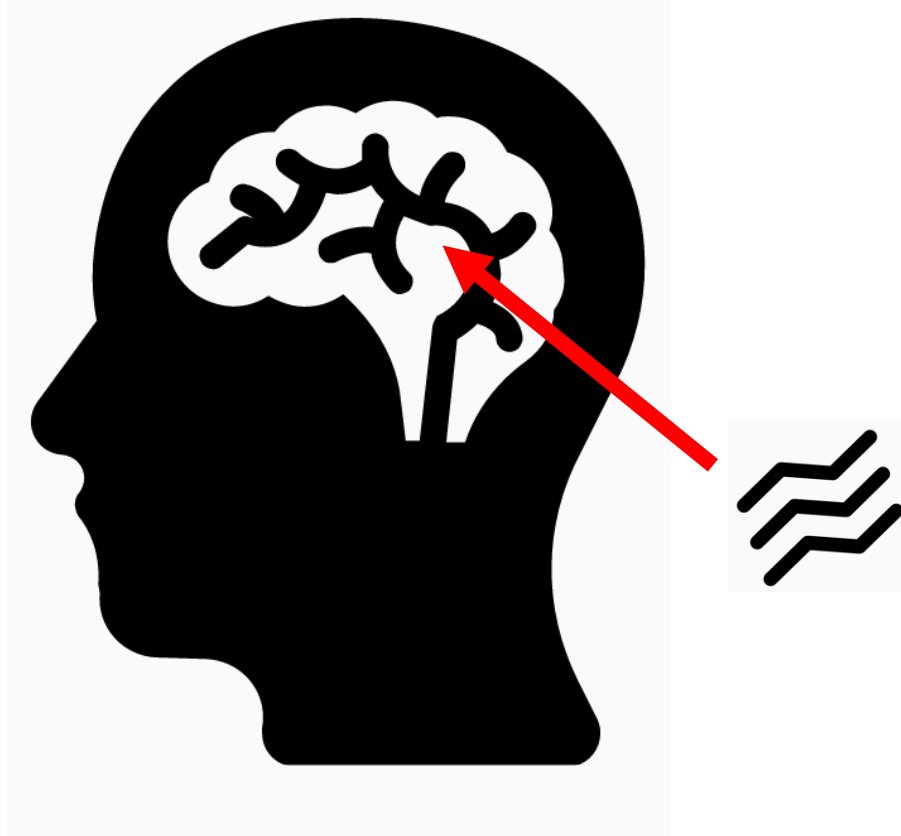
How do we hear sound?



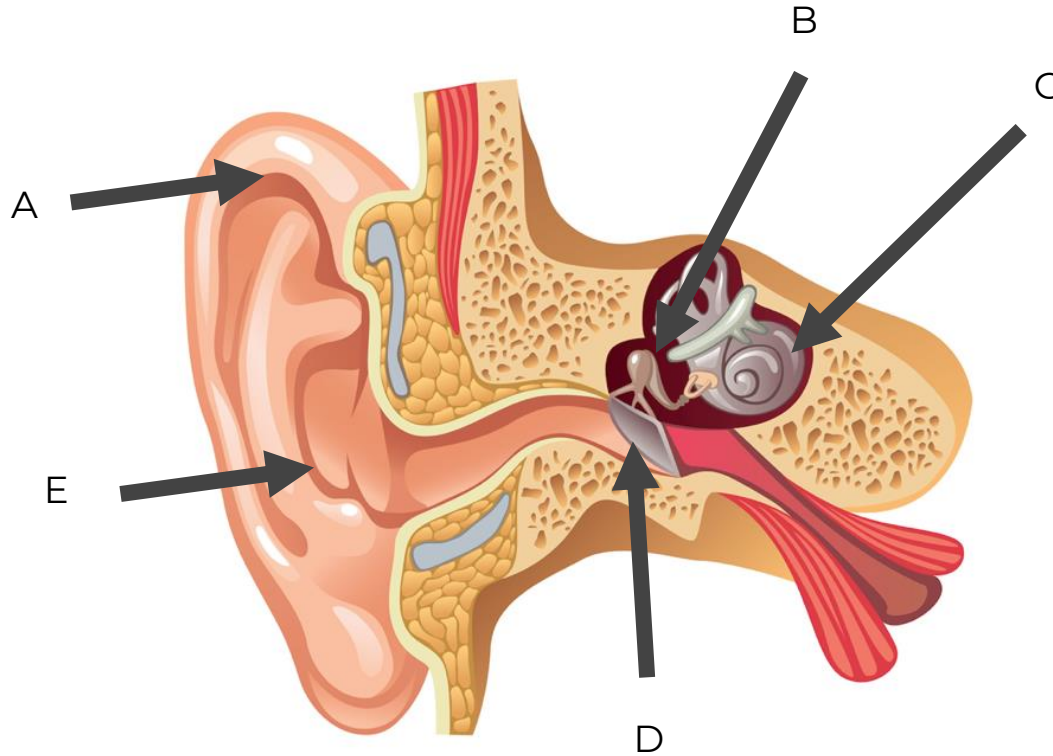
How do we hear sound?



How do we hear sound?



How do we hear sound?



Ear

Cochlea

Ear drum

Bones

Outer ear



How do we hear sound?

