

# Review 2

Physics - Key Stage 3

Sound waves - Lesson 11

Miss Mason



# Review questions

Key words: medical imaging, Hertz, ear drum, electrical current, ear canal, sound waves, pinna, vibrations, auditory nerve, diaphragm, fluid, cilia, magnet, coil, ossicles, cochlea.

1. Identify 5 structures that make up the ear.
2. What is human hearing range?
3. How many Hz in 1 kHz?
4. Name 3 of the uses of ultrasound.
5. Give 2 examples of how hearing can get worse.
6. What is the function of a microphone?
7. What is the function of a loudspeaker?
8. How can ultrasound be used for baby scanning?
9. Name the 2 types of microphone you have learnt about in this topic.
10. Identify 3 structures that are present in both microphones and loudspeakers.



# Journey of a sound wave through the ear

Now use the names of those key structures to help you describe the journey of a sound wave through the ear

Cochlea

Ear canal

Auditory nerve

Pinna

Ear drum

Ossicles

The sound wave starts off by entering the ear through the...

It then travels through the...

This causes vibrations in the...

Finally, the sound wave is converted to...



# Exam-style question

Here is a diagram of the ear with the structure known as the eardrum highlighted.

- a) Describe what would happen to the eardrum as a sound gets louder.
  
  
  
  
  
  
  
  
  
  
- b) Describe what would happen to the eardrum as the pitch of a sound got higher.



# Exam-style question

The ear can often become prone to a buildup of earwax which can make hearing things more difficult.

Suggest why we aren't able to hear as well when there is a buildup of wax in the ears.



# Exam-style question

Mobile phones have several devices built into them in order to process both sound vibrations and electrical vibrations.

- a) What is the name given to the device that converts the sound vibrations into electrical vibrations?
- b) What is the name given to the device that converts the electrical vibrations into sound vibrations?



# Exam-style question

John and Sam were both waiting at home to hear a sonic boom that was due to happen. John lived 5km away from where the sonic boom was due to happen whilst Sam only lived 2km away.

- a) Who should hear the sonic boom more loudly?
- b) Draw out 2 sound traces to show the difference in the sound that John heard to the sound that Sam heard.



## Exam-style question

Mohammed uses a sound generator to play a range of different frequency sounds to Tyler.

The frequencies are listed below.

Put a cross next to all of the frequencies that Tyler would be able to detect.

<b>19,000 Hz</b>	<input type="checkbox"/>
<b>300 Hz</b>	<input type="checkbox"/>
<b>12 Hz</b>	<input type="checkbox"/>
<b>5,000 Hz</b>	<input type="checkbox"/>
<b>45,000 Hz</b>	<input type="checkbox"/>





# Exam-style question

People that work in noisy environments such as factories will often wear earplugs or ear defenders to protect their ears from damage.

Explain how this works.

