

# Sound Waves and Other Waves (KS3)

## Section A – Recall (1 mark each)

Q1 (1 mark)

What type of motion do water waves have?

Q2 (1 mark)

What is the name of the process when waves bounce off a surface?

Q3 (1 mark)

What is superposition?

Q4 (1 mark)

What unit is frequency measured in?

Q5 (1 mark)

What type of wave is a sound wave?

Q6 (1 mark)

What must sound travel through?

Q7 (1 mark)

What is the approximate speed of sound in air?

Q8 (1 mark)

Name the part of the ear that vibrates when sound enters the ear.

## Section B – Understanding (2–3 marks each)

Q9 (2 marks)

Explain how transverse waves move through water.

Q10 (2 marks)

Explain what happens when two waves meet

Q11 (2 marks)

What happens to a wave when it is reflected from a surface?

Q12 (2 marks)

Explain why sound cannot travel through space.

Q13 (2 marks)

Describe how a loudspeaker produces sound waves.

Q14 (3 marks)

Explain how a microphone detects sound waves.

Q15 (3 marks)

Describe the difference between the speed of sound in air and solids.

Q16 (2 marks)

Explain why some animals can hear sounds humans cannot hear.

## Section C – Application (3–4 marks each)

Q17 (3 marks)

A student listens to two sounds. One is 500 Hz and the other is 1000 Hz. Both are produced at the same volume. Explain how the two sounds differ and what a change in frequency means.

Q18 (3 marks)

A diver underwater hears sound faster than a person in air. Explain why.

Q19 (3 marks)

A wave hits a wall and bounces back. Name this process and explain what happens.

Q20 (3 marks)

Two water waves overlap and a much smaller wave is seen at that point. Explain what has happened using superposition.

Q21 (4 marks)

A student shouts in a canyon and hears an echo. Explain how the echo is produced.

Q22 (4 marks)

Doctors use ultrasound scans on pregnant women. Explain why ultrasound is useful for this purpose.

Q23 (4 marks)

A microphone is connected to a computer. Explain how sound energy is converted into electrical signals.

Q24 (4 marks)

A student at *Learntit* claps loudly in an empty room and then repeats the same clap in a room filled with sofas, curtains, and carpets. Explain the difference in the sound heard in the two rooms.

## Section D – Extended Response (6 marks)

Q25 (6 marks)

Explain how waves transfer energy and information.

In your answer include:

- water waves
- sound waves
- reflection and absorption
- microphones or ultrasound

Total: \_\_\_\_ / 60

Percentage: \_\_\_\_%