# **Aims**

This activity sheet will help you revise waves and sound.

#### Task 1: Waves

Draw a diagram showing a longitudinal wave and a transverse wave. Label:

- the wavelength
- direction the energy travels
- direction particles vibrate in.

Transverse wave	Logitudinal wave

### Task 2: Sound waves

Complete these sentences using the key words.

before	echo	pressure	reflects	slower	superpose	vibrates
A sound wave i	s created	l when some	thing		_ ·	
Sound waves to	ravel as <sub>.</sub>		wave	es in the air	or other mater	ials.
Sound waves to	ravel mu	ch	th	nan light wa	ives. This is wh	y lightning is
seen		_ we hear th	under.			
When a wave h	its a bar	rier it		_ and trave	ls the other wa	у.
When a sound	wave ref	ects off a su	rface, it crea	ates an		
Two waves in t	he same	place add to	gether. We	say they		

## Task 3: How sound waves travel

1	Complete these boxes to show the arrangement of particles in solids, liquids, and gase		
	Solid	Liquid	Gas
0	nce you understand the partic	cle arrangements, complete the	following sentences.
2	Sound waves travel when pa	rticles pass vibrations to each o	ther.
	Sound travels quickest in and with strong bonds.	because the pa	rticles are close together
	Sound travels slowest ineach other.	because particle	es are spaced apart from
T	ask 4: Properties of s	sound	
1	What changes when the loud	ness of a note changes?	
2	How does it change?		
3	What changes when the pitch	n of a note changes?	
4	How does it change?		
5	What is frequency measured	in?	

## Task 5: Hearing ranges



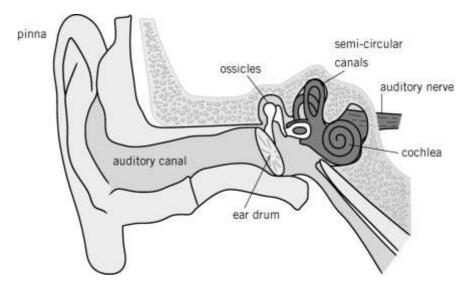
Ultrasound is shown in grey

Choose the answers from these frequencies. You can use them more than once or not at all.

10 Hz 20 Hz 100 Hz 200 Hz 2000 Hz 10 000Hz 20 000 Hz 30 000 Hz

- **1** Write down one frequency below the range of human hearing.
- **2** Write down one frequency above the range of human hearing.
- **3** Write down one frequency that is higher pitched than 200 Hz.
- 4 Write down one frequency bats can hear that humans cannot hear.

#### Task 6: The ear



Fill in the table to explain what each part of the ear does, and how it can be damaged

Part of the ear	What it does	How it can be damaged
ear drum		
ossicles		
cochlea		
auditory nerve		

hearing can be damaged.		

# **Task 7: Detecting sound**

Describe how a microphone works using the sequence in the table below. Fill in the columns on the left. Hints are given on the right.

Sequence	Hints
1.	Use the term 'sound wave'
2.	What does the sound wave hit?
3.	What happens to the thing the sound wave hits? What is this similar to?
4.	What does this produce? What is this similar to?

### Task 8: Ultrasound

Ultrasound has many uses. Give two examples of how ultrasound is used by completing the right-hand column of the table below.

Who uses it?	How is it used? (Write a description)
doctors	key words: reflect, echo
ships	key words: transmitter, receiver