The ear

Physics - Key Stage 3

Sound waves - Lesson 7

Miss Mason

Recap

1. What is the average speed of sound in air?

2. What is the volume of a sound determined by?

Volume is determined by the a_____ of a wave which is a measure of the d_____ of particles caused by v_____.

3. What is the pitch of a sound determined by?

Pitch is determined by the f_____ of a wave which is a measure of how many w_____ pass a certain point in 1 _____.

4. If a dolphin uses echolocation to find prey underwater and the sound wave returns to them in 3s, how far away is their prey?

(Use the equation Speed = Distance ÷ Time to help you)

5. How long would it take for a car to travel 3km at a speed of 15m/s? Give your answer in minutes.

(Use the equation Speed = Distance ÷ Time to help you)

Match the part of the ear to its function

1. Pinna	a. Membrane that vibrates
2. Ear canal	b. Filled with liquid
3. Ear drum	c. Funnels sound into the ear
4. Ossicles	d. Tiny bones that vibrate
5. Cochlea	e. Carries an electrical impulse to the brain
6. Auditory nerve	f. Carries sound wave to the eardrum

Put the steps in the right order

A. The vibrations are changed to electrical impulses and sent along the auditory nerve to your brain.
B. The eardrum vibrates when a sound hits it.
C. The vibrations travel through the fluid in the cochlea.
D. Your outer ear channels the sound waves into your ear canal.
E. The vibrating eardrum makes the little bones in your ear vibrate.

Linking with our previous learning...

1. How would the eardrum vibrate when you hear a high pitched sound?
2. Low pitch?
3. Loud?
4. Quiet?

Your hearing can be damaged by very loud sounds.

What will these vibrations be like?

Use the words (amplitude, energy)

A student has written an answer about problems with hearing.
Can you spot <u>eleven</u> ways to make the answer better?
Rewrite the answer.

If the ear becomes blocked with wax you won't be able to hear as well.

The drum won't vibrate properly. Then the bones and cochlea won't vibrate either. The nerve won't pass on a signal to the brain.

Normally the drum has big vibrations when a high pitched sound hits it. It will vibrate less when the sound is quieter.