

Sound Waves

Properties of sound waves

- 1) They are _____ waves.
- 2) They can travel through _____, _____ and _____, but not a _____ (no one can hear you scream in space)
- 3) Sound waves travel at _____ m/s in air, and faster in liquids and solids.
- 4) The human ear can detect sound waves between _____ - _____ Hz. Above _____ Hz, sound is called _____. Some animals, such as _____ and _____ can detect these high frequencies.
- 5) Like all other waves, sound can _____ (echoes), _____, and _____.

The Cathode Ray Oscilloscope (CRO)

The CRO is used to 'display' sound waves. Sound waves are picked up by a _____ which converts sound waves into a varying _____ in the wires. This is then displayed on the CRO screen. The timebase shows the _____ for each screen division in the x-direction.

Draw pictures of the CRO display for a loud sound and a quiet sound. What is different between the two? Draw pictures for a low pitched sound and a high pitched sound. What is different between the two?

Echolocation

- 1) Echolocation – finding the distance to things by reflecting sound (bats and dolphins also do this). Sketch a diagram to show how a boat can measure the depth to the seabed. What information is needed to calculate the depth? What formula is used?