Waves

1. Sound

CONCEPT 3

TEST YOURSELF

HOW SOUND WAVES TRAVEL

KNOW

Q1 Why can sound not travel through a vacuum?

Q2 How is it possible for sound to travel through a solid?

APPLY

Q3 Sound was passed through an unknown material inside a black box. The speed of sound was measured to be 1200 m/s.
Was the unknown material a solid, liquid or gas?
Explain your choice.

Q4 Sound was passed through water at room temperature and it was measured to be 1500 m/s. The water was frozen into ice. What affect this will have on the speed of sound passing through it?

Material	Speed of sound (m/s)
air	343
carbon dioxide	259
copper	5010
diamond	12000
lead	1960
oxygen	316
water	1482
steel	5960

EXTEND

Q5 Draw a particle diagram with arrows to show how sounds travel through a liquid.

Q6 Why do you think that sound travels much faster through some solids (e.g. sound is around twice as fast through diamond as it is through steel)?