

## Vibrations and Waves

### Early Level

Lesson 1	What Makes a Noise?
Outcome	Through play, I have explored a variety of ways of making sounds. <b>SCN 0-11a</b>
Resources	Boomwhackers Plastic sound tubes Tins Pipes Foam pads
Lesson Outline	Take pupils into an outdoor space. Ask them to shut their eyes and listen to the noises around them. Hold a fist up and raise a finger for each sound they hear. Can they copy the noises? Ask them what they think the noises are and how they are made. Can they copy the noises? Offer the pupils a range of objects and ask them how they might get a noise from them. How would they make the sounds louder or quieter? When they have made a few predictions get them to test them out by making different types of noise. Can they make noises from natural materials/objects? Can they cooperate to produce a tune?

### First Level

Lesson 1	What is Sound?
Outcome	By collaborating in experiments on different ways of producing sound from vibrations, I can demonstrate how to change the pitch of the sound. <b>SCN 1-11a</b>
Resources	Slinky Frequency measuring app Plastic sound tubes Elastic bands Boomwhackers
Lesson Outline	Remind pupils of what they need to do to make a sound. Give out rubber bands and ask them what they need to do to make a sound. Show that sound is a vibration that makes waves. What do they have to do to the rubber bands to change the pitch (frequency). Use a slinky to demonstrate basic properties of waves. Introduce the idea of pitch. Remember that sound is a longitudinal wave (push pull) not transverse (side to side) Now ask them to predict how they could alter the pitch of a sound. Provide them with different objects and ask them to produce sounds of different pitch. Use a phone app to measure the frequency (pitch) of the sounds. Produce tunes.
Other ideas	Bottles with different amounts of water.

## Second Level

Lesson 1	How is Sound Carried?
Outcome	Through research on how animals communicate, I can explain how sound vibrations are carried by waves through air, water and other media. <b>SCN 2-11a</b>
Resources	Tins & Strings. Airzooka. Card to make ears
Lesson Outline	Remind pupils that sounds are vibrations using slinky. Make string telephones using cans to demonstrate how sound is carried through a solid (the string) What happens if they try to add another tin? Construct large ears like a dog to see if it affects their hearing. Use the sound cannon to show that sound waves carry energy. Why do some animals have big ears? – Get pupils to cup their hands behind their ears to see if it makes a difference to what they can hear. Make their own big ears with card and try that.