**Vibrations and Waves**

**Early Level**

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| Lesson 1 | What Makes a Noise? |
| Outcome | Through play, I have explored a variety of ways of making sounds. **SCN 0-11a**  |
| Resources | BoomwhackersPlastic sound tubesTinsPipesFoam 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? |
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**First Level**

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| 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. **SCN 1-11a** |
| Resources | Slinky Elastic bands Frequency measuring app Boomwhackers Plastic sound tubes |
| 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**

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| 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. **SCN 2-11a** |
| 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. |
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