Epistemic Insight

Essential Experiences in Science

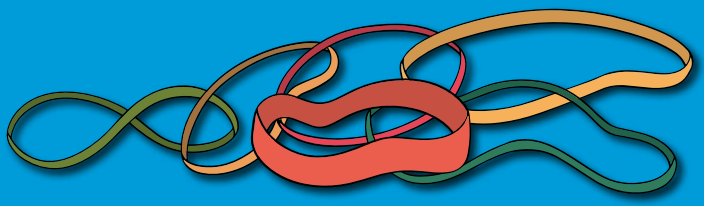
Can you make music with elastic bands?

Dogs can hear sounds that humans can't. A dog whistle produces a whistling sound that is too high pitched for human ears.

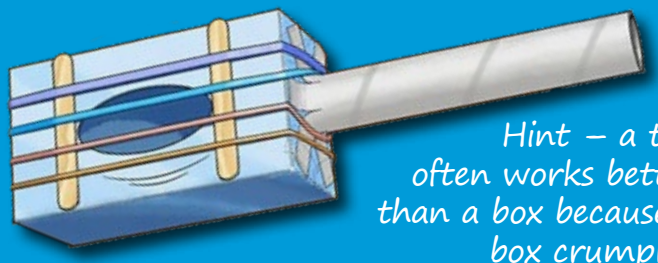
Elephants communicate with each other using 'rumbles'. These are sounds that are too low pitched for our ears to pick up!

Explore, observe, design

Put three or four elastic bands around a tub, box or jar. Now explore ways to make different sounds. You could compare wide bands and thin bands – which produces a higher pitched note? What happens to the note when you stretch a band?



Organise your selection of elastic bands into order – from high pitched to low to create a musical instrument.



Hint – a tub often works better than a box because a box crumples.

Draw a diagram and write instructions so that someone else can make an instrument that produces the same notes.

Canterbury Christ Church University

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How do we talk to astronauts in space – if there's no air?

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Sounds are made when objects **vibrate**. This causes the air around to vibrate and these air **vibrations** travel to your ear.

If you block your ears, you prevent air vibrations from reaching your ear drums – and keep out the sound!

Sound can't travel in space. In order to communicate with an astronaut, we convert sound vibrations into radio waves. Radio waves are like light – they can travel though space

Try knocking on a desk or table. You hear the sound when the vibrations of air reach your ears.

Now put your ear to the surface and knock again. You can hear the vibrations travel through the wood.

In space, there is no air and nothing for the vibrations to travel through.

Once the radio waves arrive at the astronaut's headset, they are changed back into sound. The sound vibrations travel into the astronaut's ears.