



Make music

Homemade Musical Instruments

Artist Di Mainstone turned Tower Bridge into a huge musical instrument! Can you create your own homemade orchestra, inspired by the Bridge?



Suspension rods

One of the ways that Di Mainstone '*made the Bridge sing*' was to use the Bridge's suspension rods like a giant xylophone.

The sound the rods made varied depending on their size. Here are two ways that you can experiment with making higher and lower pitched sounds by varying size and quantity.



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Jam jar

Xylophone

Make your own jam jar xylophone to 'conduct' a musical experiment investigating how to use it to make high and low sounds.



Do at home

You will need:

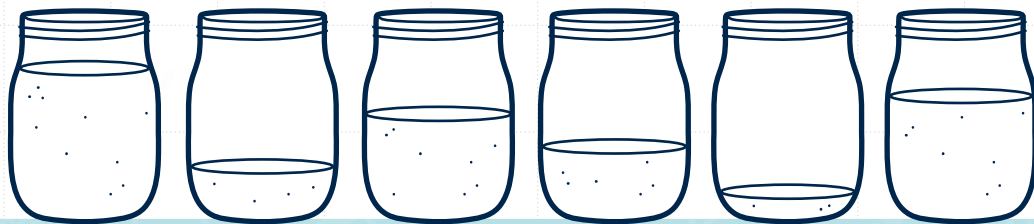
- About 4-8 glass jars or tumblers, ideally of similar size (if they are different sizes it will be more difficult to 'tune' your xylophone!)
- Wooden spoon
- Teaspoon
- Plastic spoon

Method

- 1 Make sure the jars or glasses are clean
- 2 Fill each jar with a different amount of water
- 3 Set the jars out on a table, and tap each jar with the wooden spoon. How can you order the jars so that it is easier to play a tune?
- 5 Now tap the jars with the teaspoon, and the plastic spoon. Is there a difference in the type of sound they make? What words can you find to describe the different sounds? Are they loud or quiet? Harsh or gentle?
- 6 Can you play a tune on your xylophone?

4 Which jar makes the highest sound? Which makes the lowest sound? You could record your findings in a table, like this:

	Highest	Lowest
Most water		
Least water		



So why does it work the way it does?

Your experiment will have shown that the jars with the most water in produced the lowest pitched noise. This is because sound is all about vibration. Faster vibration produces higher sounds. The more water there is in each jar, the slower it will vibrate, producing a lower sound.

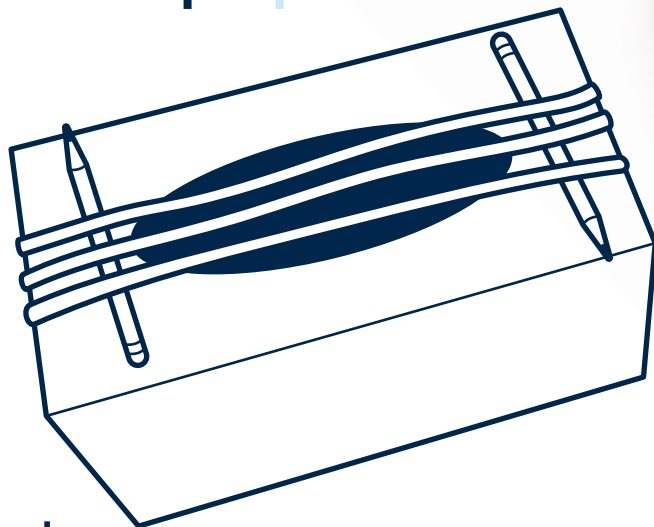


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Elastic band Guitar

Do at home



You will need:

- Empty tissue box or similar
- Elastic bands of varying thicknesses
- 2 pencils

So why does it work the way it does?

The pitch (how high or low the sound is) produced will vary depending on how thick the elastic band is, how tightly it is stretched and how much space it has to vibrate (the distance between the two pencils). The smaller the vibration the higher the pitch – so the thicker elastic bands will produce a lower sound; more tightly stretched bands will make a higher sound than looser ones; and more space between the two pencils will produce a lower sound.

The sound that Di Mainstone found hidden in the Tower Bridge suspension rods worked in a similar way. The pitch that each rod produced varied, depending on its size and how much space it had to vibrate.

Method

- 1** Wrap your rubber bands around the tissue box, making sure that they cross its opening
- 2** Slide a pencil underneath the bands each side of the opening
- 3** Pluck the rubber bands. Which make the highest sounds? Which make the lowest sounds?
- 4** Can you arrange the elastic bands so that they are placed from low to high?
- 5** Move the pencils closer together, or further apart. What happens to the sounds the elastic bands make?
- 6** Are there other ways that you can vary the pitch of the elastic bands?
- 7** Why do you think it is important for the elastic bands to be stretched over the opening of the tissue box?
- 8** Can you play a tune on your elastic band guitar?

You can record your findings on a table like this:

	Thicker band	Thinner band	Pencils together	Pencils apart
Higher sound				
Lower sound				



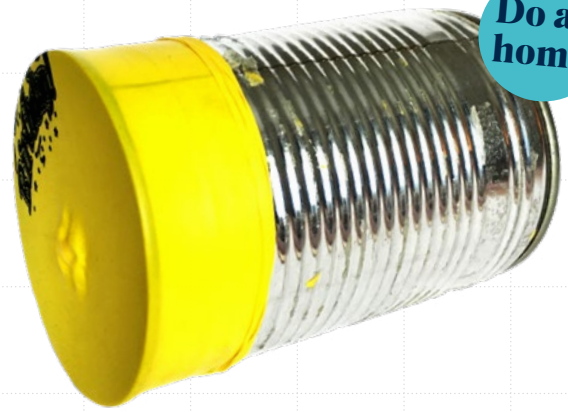
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Accumulator Drums

Do at
home

You will need:

- Tin cans (make sure there are no sharp edges, and ask an adult to help you clean them out)
- Balloons
- Scissors
- Elastic band or tape to secure



Method

- 1 Take your balloon, and cut the open end of it off, about a third of the way up the balloon
- 2 Now place it over the open end of your clean tin can (you may need an adult to help with this) and secure with the elastic bands or tape.
- 3 You've just made a tin can drum!
- 4 How many different sounds can you make with your tin can?
- 5 What sound does it make if you tap the balloon top? How about the side?
- 6 What happens if you put different things inside the tin can before you put the balloon on it?



Did you know?

Did you know that the power to raise Tower Bridge used to be stored in enormous accumulators? Can you decorate your tin can to look like the Tower Bridge accumulators? You could use paper, paint, wool, fabric. How does this change the sound that your drum makes?



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