

Make a water xylophone

Discover how sound moves through water and make a musical instrument.

What you need

- 6 identical glasses
- Measuring jug
- Water
- Food colouring
- A wooden chopstick

How does it work?

When you tap a glass with the chopstick, it vibrates, producing a note. The pitch (how high or low a sound is) of the note depends on the frequency (speed) with which the glass vibrates. Tapping an empty glass produces a higher-pitched sound than hitting one full of water. This is because sound travels between

two and four times faster through glass as through water. The less water in the glass, the faster it vibrates and the higher the pitch of the note. Adding water to the glass slows down the vibrations and lowers the sounds. We can hear these sounds because the vibrations also move through the air to our ears.



1 Find six identical glasses. Measure out 200ml water into a measuring jug.



2 Pour the water into a glass. Now pour 170ml, 140ml, 110ml, 80ml and 50ml into the others.



3 Line up the glasses in order of how much water each one contains.



4 Add a different food colouring to each glass to make your xylophone bright and colourful.



5 Tap each glass sharply with a chopstick and listen to the sound. Can you play a tune?



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If you tune the glasses carefully by adding or removing small amounts of water, you can play *Twinkle, Twinkle, Little Star* using these six notes.