Pitch the sound

Background knowledge

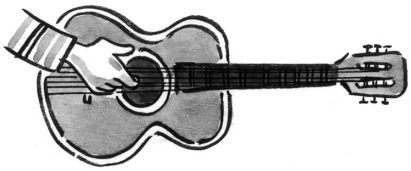
Did you ever wonder how an instrument makes a high or low note? When objects vibrate, they do so either quickly or slowly. The rate at which something vibrates is called the *frequency*. A slow rate of vibration produces a low note (low frequency). A fast rate of vibration produces a high note (high frequency). The word *pitch* is used to talk about low and high notes. We measure how fast something vibrates in units called *hertz* (Hz). One vibration per second = 1 Hz.

Science activity

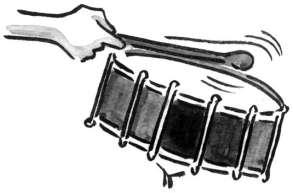
Look at the pictures of vibrating objects below, and note the frequency at which each one is vibrating (in Hz). Try to order them according to the pitch of the notes that they produce. Number the pictures form 1 to 4, with 1 identifying the object with the highest note.

100 Hz ☐

300 Hz ☐



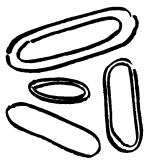
256 Hz ☐



440 Hz ☐

Science investigation

Take extra care - ask an adult to supervise you.



Obtain a number of different rubber bands. They should differ in size and thickness. Design and conduct an experiment to determine which rubber band will produce the highest pitch. One suggestion is to have an adult hammer some nails into wood at varying distances. The rubber bands to be tested can be stretched between the nails.

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Science activity

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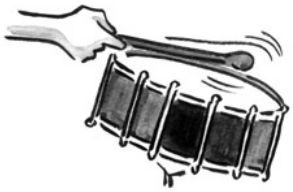
100 Hz 4

300 Hz 2

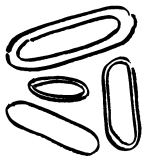
256 Hz 3



440 Hz 1

Science investigation

! Use bands of equal length to make a valid comparison of thickness's effect on pitch. Increased tension produces higher pitch. Test this by placing wooden pegs in styrofoam at different distances and stretching rubber bands between the pegs.



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