Feeling and seeing sounds

A SOUND is a very quick VIBRATION. We can hear and feel many sounds.

You can hear lots of sounds such as voices, the sound of breaking glass, and musical instruments such as cymbals being clashed or a drum being struck. But how do you think they make the sounds we hear?

Feeling sound

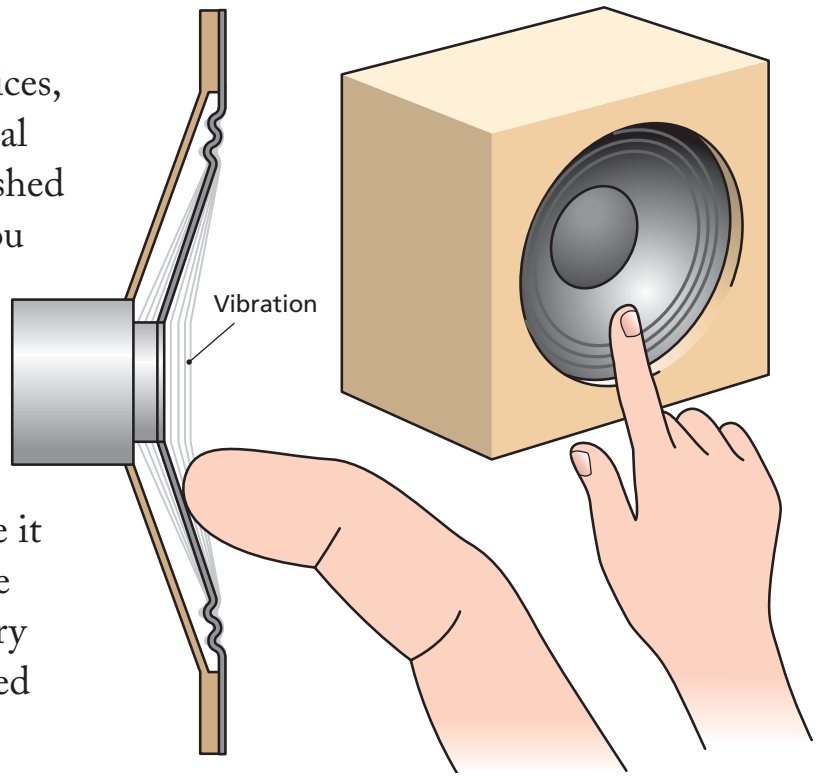
You can actually feel sound being made by placing your finger gently onto the surface of a loudspeaker while it is working (Picture 1). You will feel the loudspeaker moving back and forth very quickly. This kind of movement is called a vibration.

If you tap an instrument such as a drum or tambourine and gently feel the skin, you can feel the vibrations. You can also pluck the string of a guitar or violin and feel the string moving up and down – it is also vibrating.

If you place a finger gently on the lower part of your throat and sing a deep note, you can then feel your throat vibrating too. Where there is a sound, there is a vibration.

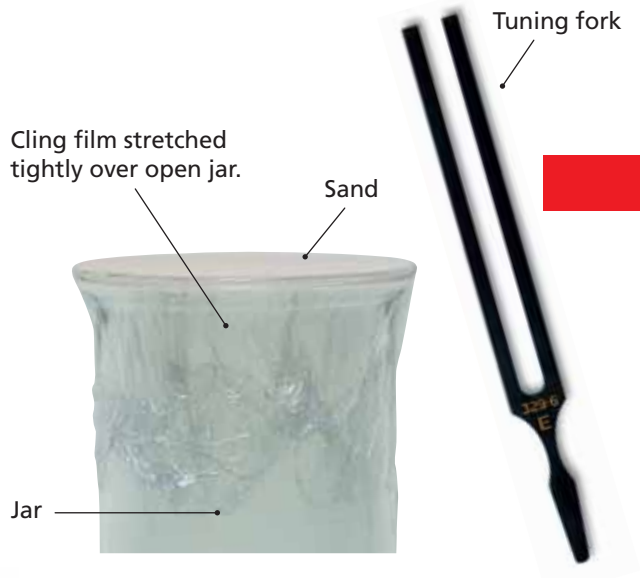
Seeing vibrations

Vibrations can be seen, as well as felt and heard, by using a tuning fork and a piece of cling film. The cling film needs to be tightly stretched over a jar and then covered in very fine grains of sand or rice (Picture 2).



▲ **(Picture 1) You can feel sound by gently touching a loudspeaker while sound is coming from it.**

▼▶ **(Picture 2) Vibrations can be seen by placing a vibrating tuning fork on a tightly stretched skin covered in sand.**



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When the tuning fork is struck and placed so that it lightly touches the cling film, the vibrations will make the sand or rice on the film jump up and down.

Vibrations pass through air

You can see vibrations pass through the air by using a candle, a cardboard tube and some thin plastic (Picture 3). Stretch the plastic tightly over both ends of the tube and make a small hole in the centre of one piece of plastic.

When the far side of the tube is tapped sharply, the air inside the tube is squashed slightly. As the air is forced out of the tube through the small hole, the **ENERGY** in the squashed air is concentrated. As a result, a sharp jet of air comes out of the hole and makes the flame wobble!

▲ **(Picture 3) This is one way to 'see' SOUND WAVES. The plastic on the far end of the tube is struck sharply and the air waves are forced out of a small hole in the other end of the tube. The waves are powerful enough to make a candle flame move.**

Summary

- **Sounds are movements of the air that you can hear.**
- **Sound waves are made by a movement called a vibration.**
- **Vibrations cause air to move.**

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