

# How can you change your voice?

## VOICE MANIPULATOR



(Type)	Ages	Topic	Time
Science background	3-14	Sound	<10 mins
	Skills used Observation - Curiosity		

## Overview for adults

This exhibit allows you to change the way your voice sounds. Speak into the microphone and the vocoder inside combines your voice with other tones that you can control with the buttons and the joysticks.

## What's the science?

When you speak, your throat produces a vibration which travels as a wave. Essentially, your voice is a sound wave. This machine, called a vocoder, changes the shape of your voice wave by adding other waves to it.

It does this by changing things like the frequency and volume of your sound waves. Frequency is how high or low the wave sounds and volume is how loud it is.

## Science in your world

The sound of the Daleks in Doctor Who have weird voices. To create this effect, the voices of the actors are combined with tones so low they are at the limits of your hearing. This gives them their scary, out-of-this-world voices.

This technology is also used for auto-tuning pop stars' voices. Can you think of any songs which definitely used it?

## Things to think and talk about ...

- What is the funniest thing you can do to your voice?
- What are the key things that make your voice your own?

## Things to investigate ...

- Can you make your voice sound like a Dalek?
- Change the pitch of your voice: does it make you sound like a different person?

## Museum links

Check out the Dalek on the other side of level 3, near the old TV memorabilia. Exterminate! The person controlling the Dalek had to sit inside – must have been a tight fit.

## Did you know...?

The technology for auto-tuning songs was originally invented to study earthquakes. Engineers realised they could use it to detect and change the pitch of pop songs as well as listening to sounds from the Earth.