

## Questions in science

*Are waves everywhere?*

### **Narrator:**

We are all familiar with the word 'wave': when we 'wave' goodbye, or when we see and hear ocean waves . But waves are also a scientific concept and they are *everywhere*.

When we think about a surfer riding a wave, those waves are caused by winds displacing the surface of the ocean.

If you look up at the sky you can often see wave patterns in the clouds. These waves are along the boundaries between layers of air of different densities.

Light is another example of a type of wave. Visible light, light visible to the human eye that makes up the colours of the rainbow, is made up of light of different wavelengths, with violet at one end of the spectrum and red at the other. At wavelengths above that of visible light there is infrared light, microwaves, and radio waves – all used in varying ways in modern life, including for communication, heating, cooking, and even in medical applications.

Some animals have evolved to make special use of waves. Both bats and dolphins have evolved a strategy known as echolocation. This involves generating soundwaves at a specific frequency, and by sensing the returning echo, they can become aware of both the shape of their environment – and their food. Some bats can even vary the width of the beam they project to cover a greater area. Humans can also use machines to generate ultrasound waves for medical imaging.

Waves can therefore be considered to be everywhere.

To discover more about the universal presence of waves and develop your scientific thinking, explore our introductory science module Questions in Science.

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