

# Representing sound

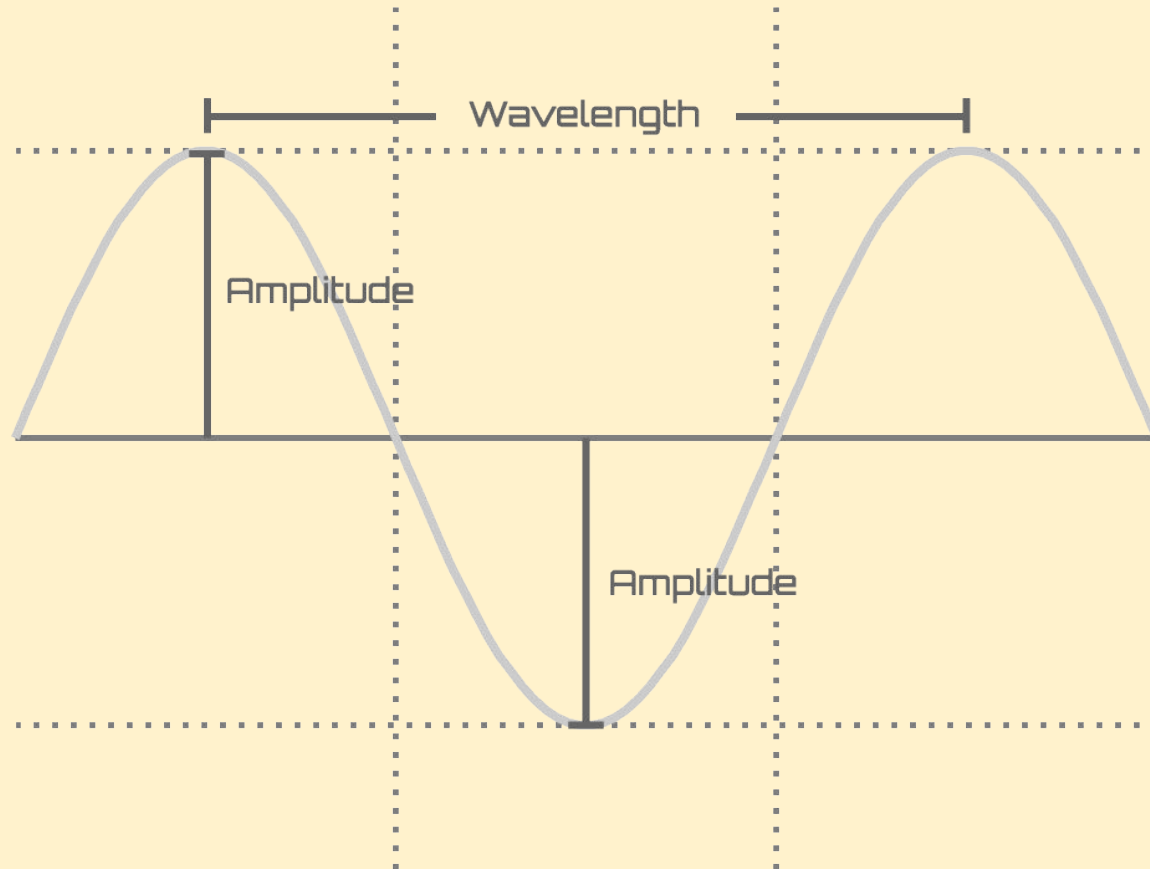
All **data** stored in a computer is stored as binary numbers

This means that sound needs to be stored as numbers

There needs to be a way to break the sound down into small parts and then a way to **represent** each part as a number

# Representing sound

Sound travels through the air as a wave. These change the air pressure that affects your ear drums.



# Representing sound

Sound waves are **analogue signals**. This means that they are continuous, without any breaks.

To store them **digitally** (in a computer) we need to break them up and represent them as numbers.



# Representing sound

The process of breaking up sound waves is called **sampling**

**Sampling** lets us turn **analogue** information into **digital** data

- the pixels in a digital image are samples - individual points that make up the image. We need to do the same with sound waves.

# Representing sound

To change **analogue** sound into **digital** form we need to **sample** it

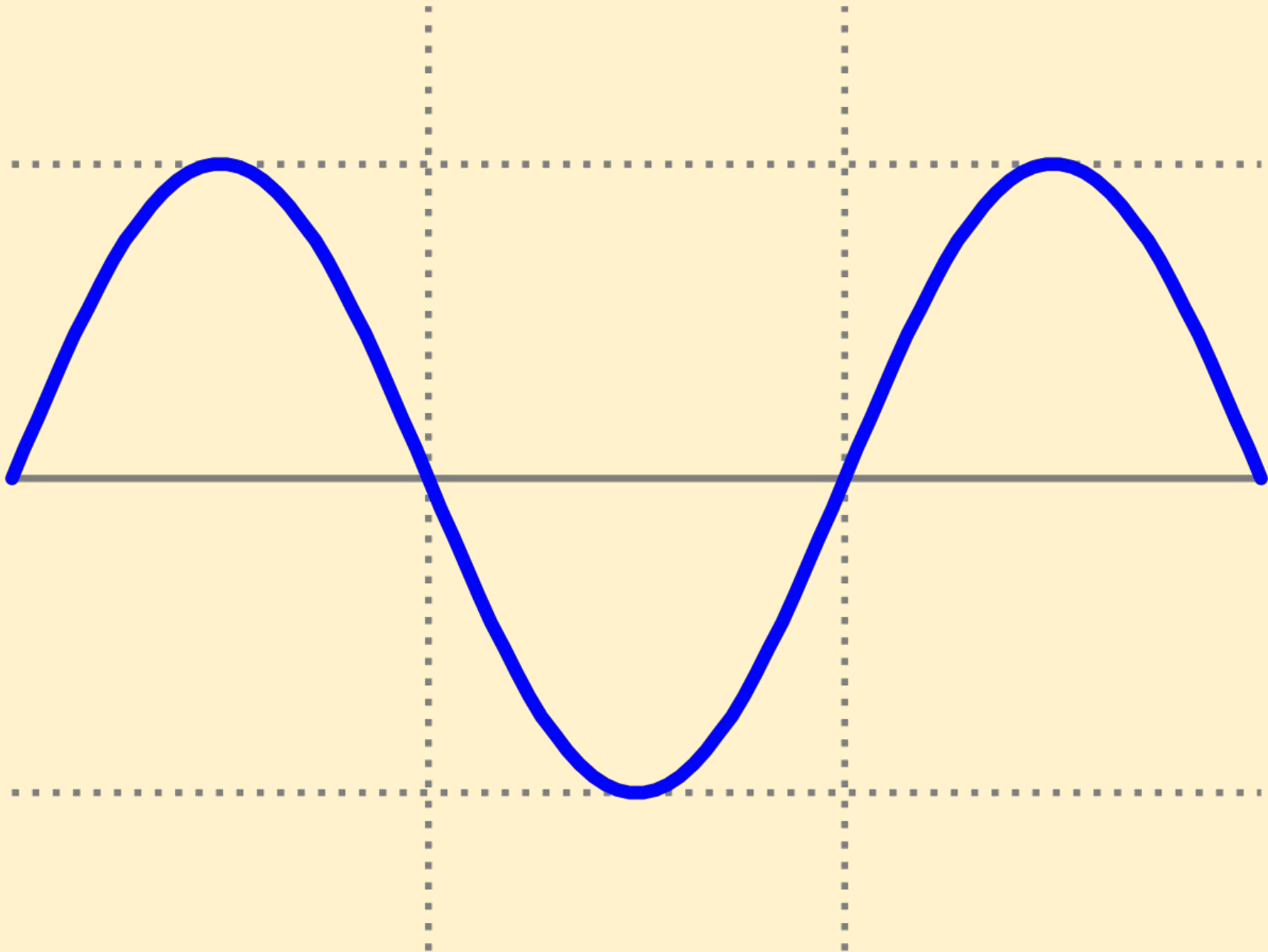
This means we take readings at **regular** intervals along the sound wave to measure the **amplitude** (volume) and convert these into **numbers**

The numbers can then be stored using binary

# Representing sound

A **sample** is a measure of **amplitude** at a point in time.





# Representing sound

The music you play on a piano or trumpet are **analogue**

The sound people hear when you sing is **analogue** (it may also be terrible)

The sound on a vinyl record is **analogue**

The sound on a CD is **digital**

The sound from an MP3 file is **digital**