

# Amplitude and Volume

Physics - Key Stage 3

Sound waves - Lesson 4

Miss Mason



# Recap

1. What is meant by the 'frequency' of a wave?

**The \_\_\_\_\_ of waves that pass a certain point in 1 \_\_\_\_\_.**

2. What can the pitch of a sound be affected by?

**Pitch can be affected by the s\_\_\_\_\_ of particle vibrations.**

3. What causes an 'echo'?

**An echo is caused by e\_\_\_\_\_ from a s\_\_\_\_\_ w\_\_\_\_\_ being r\_\_\_\_\_ from a surface.**

4. What do we measure frequency in?

5. What happens to the wavelength of a wave with its increasing frequency?

**As frequency increases, wavelength \_\_\_\_\_.**



# Volume

1. Volume is determined by the \_\_\_\_\_ of the sound wave. The louder the \_\_\_\_\_, the bigger the \_\_\_\_\_. (Amplitude is to do with the s\_\_\_\_\_ of the vibrations).
2. What is volume measured in?



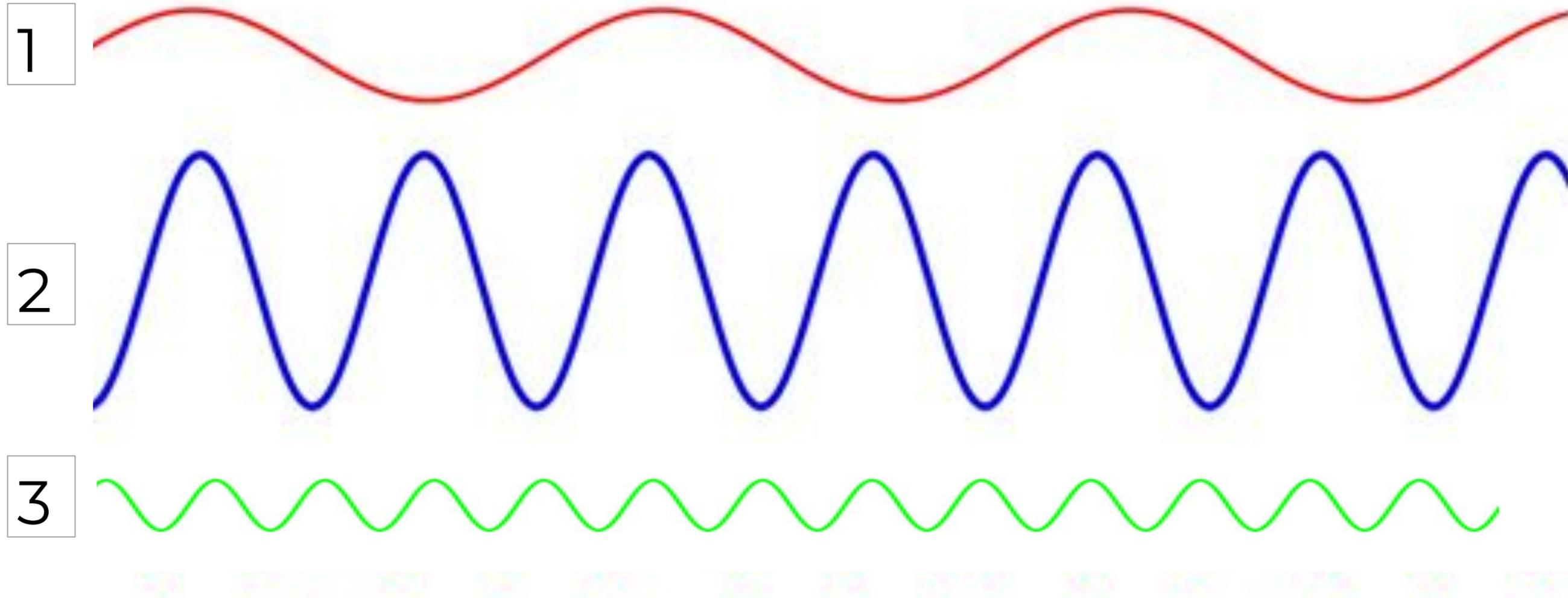
# Amplitude - your turn

1. Amplitude is the distance that particles are d\_\_\_\_\_ by v\_\_\_\_\_.
2. Explain why the amplitude would be high if we hit the skin of this drum hard.
3. Explain why the amplitude would be low if we hit the skin of this drum gently.

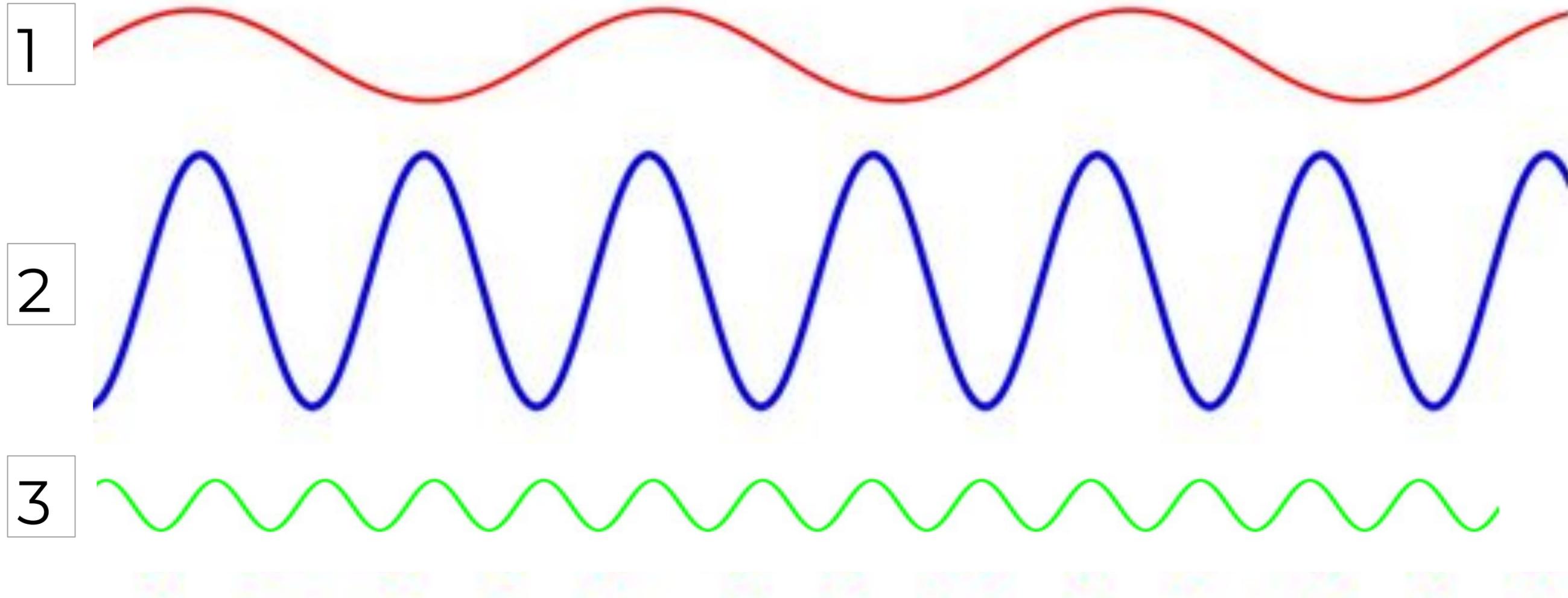
**For Q2 + 3, use the words:** *vibrate, energy, particle, displace, amplitude*



# Which sound wave has the lowest volume? How do you know?

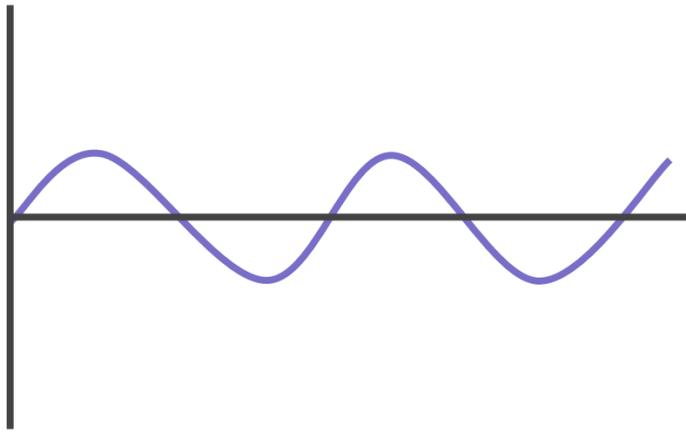


# Which sound wave has the highest volume? How do you know?

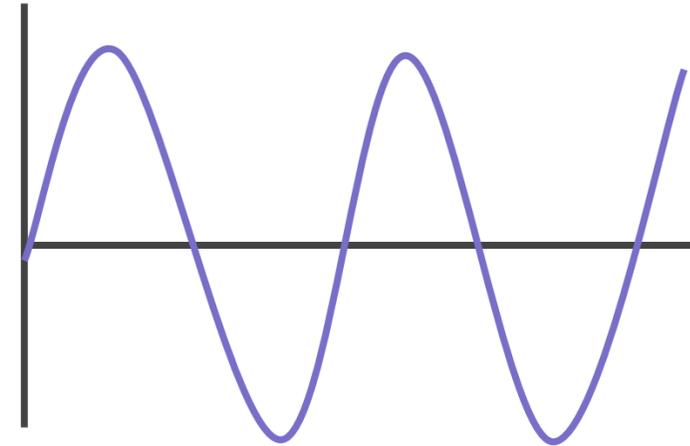


# Which sound is the loudest? How do you know?

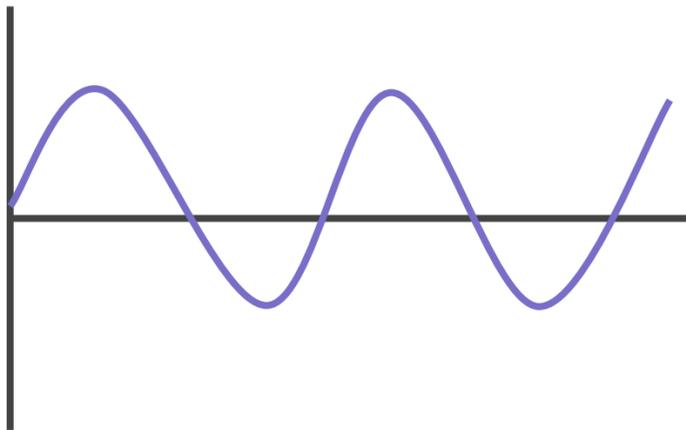
Option 1



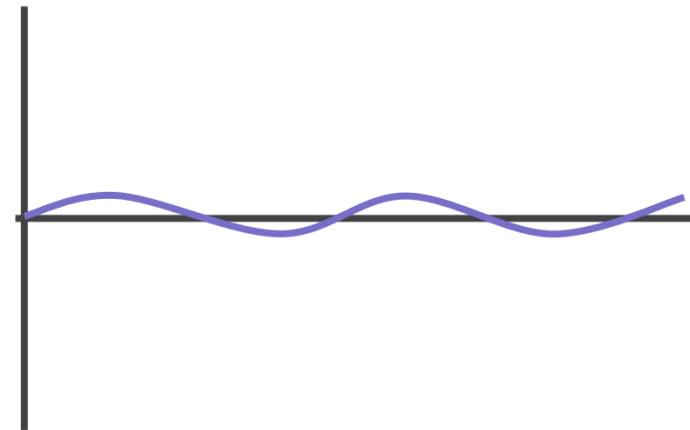
Option 2



Option 3

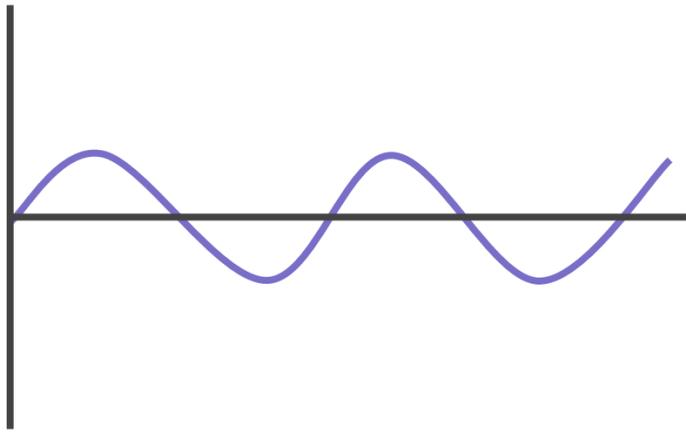


Option 4

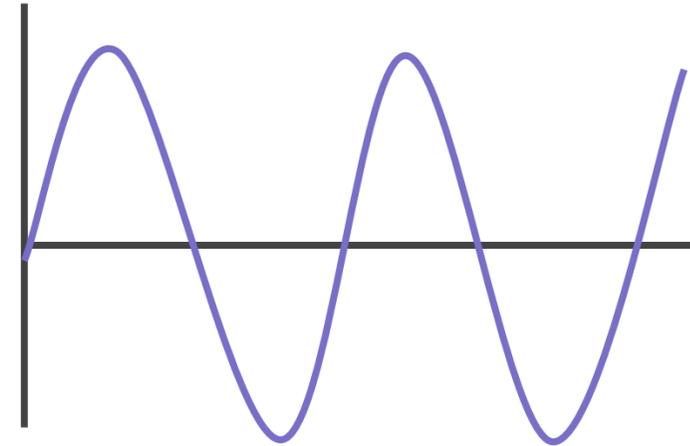


# Which sound is the quietest? How do you know?

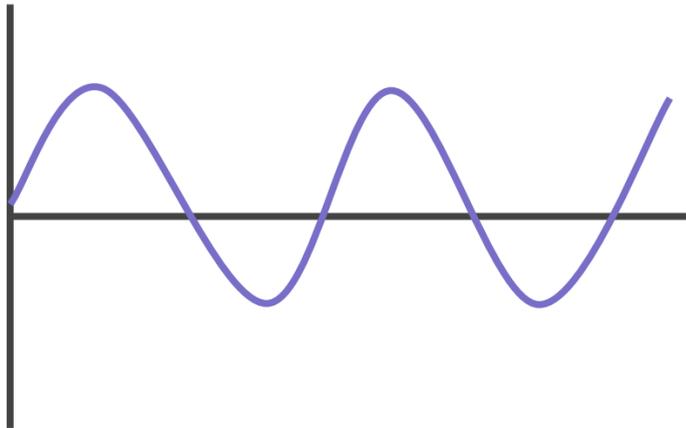
Option 1



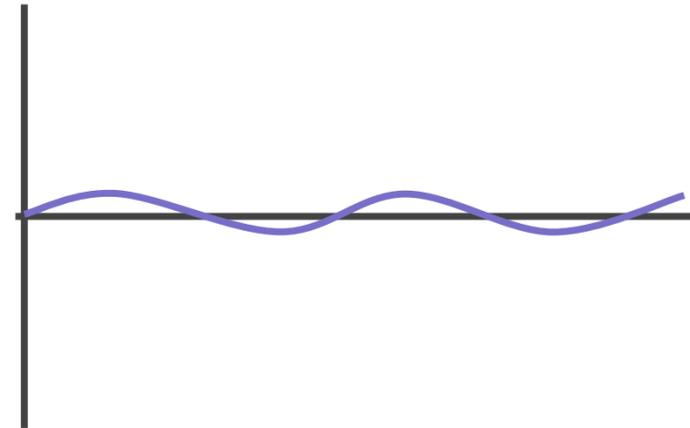
Option 2



Option 3



Option 4



# Drawing sound waves

Draw 2 sound waves on oscilloscope traces - both should have the same frequency (number of waves) but one should have a large amplitude and one should have a small amplitude.



**Describe what volume and amplitude are along with how they are connected.**

*(You may wish to draw diagrams and provide examples to aid your description).*

**Key words:** particles, vibrations, energy, size, decibels, displacement, high, low, loud, quiet.



**Application task** - *explain how a trumpet would make different volume sounds*

