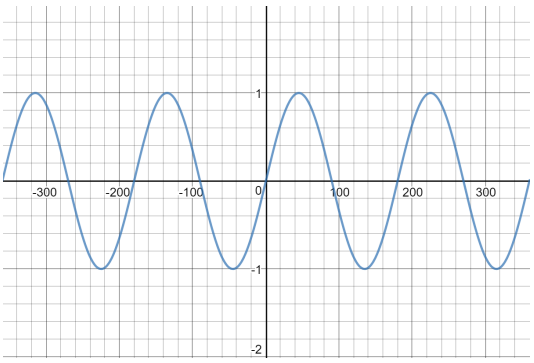
Mission Assignment: Describe the properties of sound

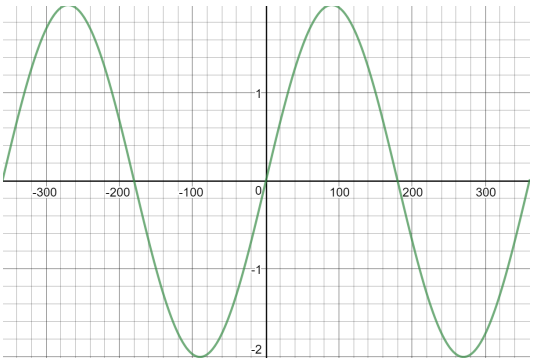
KS3-18-02

Look at the diagrams of sound waves below. Match the letters to the correct statements.

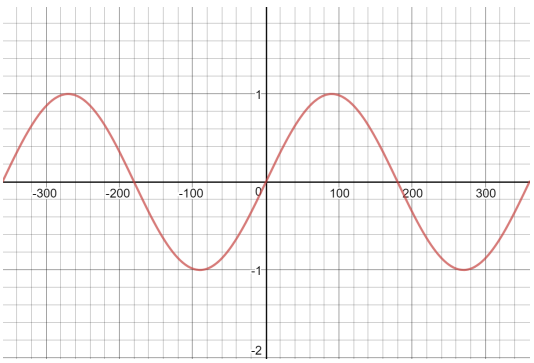
A



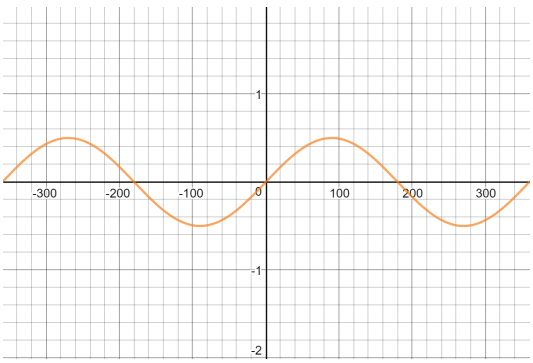
B



C



D



The loudest sound is _____.

The quietest sound is _____.

The highest pitch sound is _____.

Two sounds with the same frequency are _____ **and** _____.

Two sounds with the same volume are _____ **and** _____.

On the blank graph opposite draw the sound wave that is twice the frequency and twice the amplitude of sound D. Describe what you notice.

_____

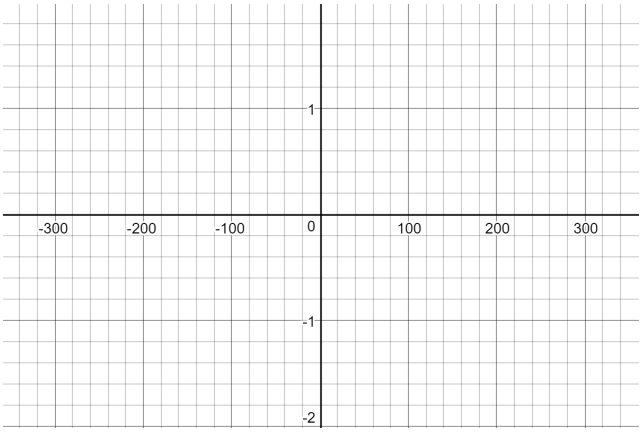
_____

_____

_____

_____

_____



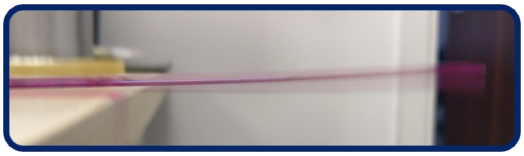
Mission Assignment: Describe the properties of sound

KS3-18-02

Investigate how the length of a ruler affects the volume and pitch it creates when "twanged".

Method

1. Hang 5cm of your 30cm ruler over the edge of the desk.
2. Flick the end of the ruler.
3. Listen to the sound that is created.
4. In your table describe the sound you heard in terms of pitch and volume.
5. Repeat as above for 10cm, 15cm and 20cm



Length of ruler hanging over (cm)	Description of pitch.	Description of volume
5		
10		
15		
25		

At what length did the highest pitched sound occur? Suggest why this happened.

At what length did the loudest sound occur? Suggest why this happened.

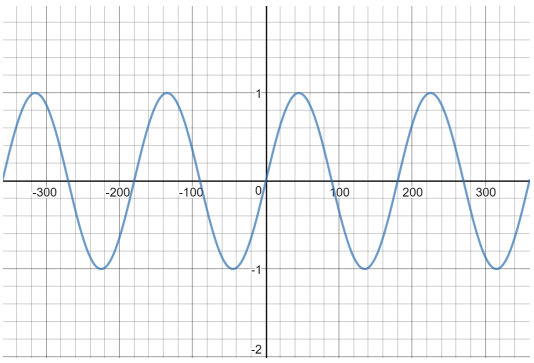
Mission Assignment: Describe the properties of sound

ANSWERS

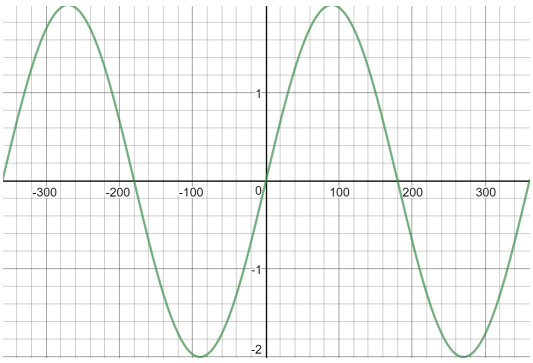
KS3-18-02

Look at the diagrams of sound waves below. Match the letters to the correct statements.

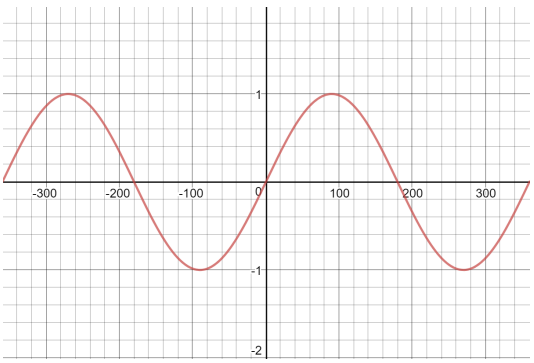
A



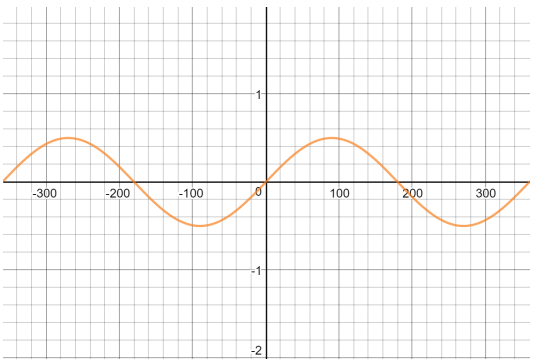
B



C



D



The loudest sound is **B**.

The quietest sound is **D**.

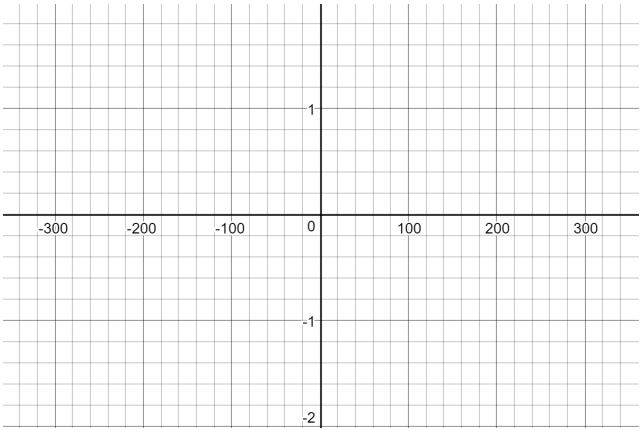
The highest pitch sound is **A**.

Two sounds with the same frequency are **B** and **C**.

Two sounds with the same volume are **A** and **C**.

On the blank graph opposite draw the sound wave that is twice the frequency and twice the amplitude of sound D.
Describe what you notice.

The period of the wave will halve, the speed will remain the same, the energy of the wave will be the same. The peaks will be higher.



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ANSWERS

KS3-18-02

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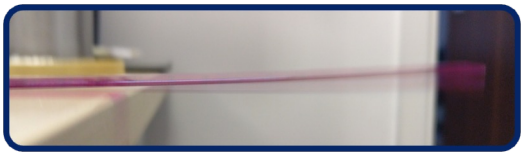

Length of ruler hanging over (cm)	Description of pitch.	Description of volume
5		
10		
15		
25		

At what length did the highest pitched sound occur? Suggest why this happened.

The highest pitched sound occurred when the ruler was twanged at the shortest distance, which is 5cm. This is because when the ruler is twanged at a shorter distance, the length of the vibrating portion of the ruler is shorter, and as a result, the frequency of the sound wave produced by the ruler is higher.

At what length did the loudest sound occur? Suggest why this happened.

It's likely that the loudest sound occurred when the ruler was twanged at the shortest distance, which is 5cm. This is because when the ruler is twanged at a shorter distance, the amplitude of the resulting sound wave is larger due to the greater displacement of the ruler, resulting in a louder sound.