

# Diamonds

- (a) Julia is listening to Kumi playing his guitar.



He plucks a string.

What happens to the guitar string when it makes a sound?



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- (b) Julia walks away from Kumi and leaves the room.

What happens to the loudness of the sound Julia hears as she goes further away from Kumi?



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- (c) Julia shuts the door. She can still hear Kumi playing his guitar in the next room.

One material the sound travels through is air.

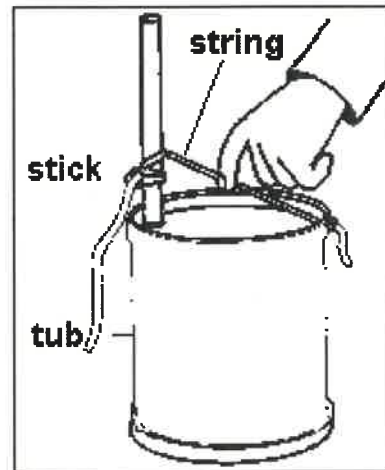
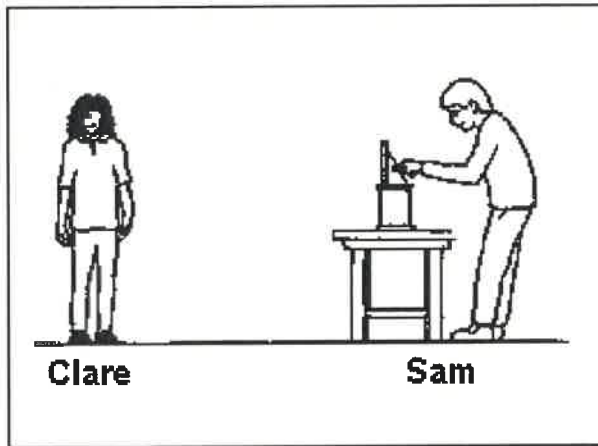
Name **ONE other** material the sound must travel through for Julia to hear it.



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## Rubies

- (a) Sam makes a string instrument. He ties the string tightly. He plucks the string. The instrument makes a sound.



Clare hears the sound.

What does the sound travel **through** to reach Clare's ear?

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- (b) Sam plucks the string again. It sounds louder.

How did Sam pluck the string with his finger to make it sound louder?

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- (c) Clare looks carefully at the string as Sam plucks it.

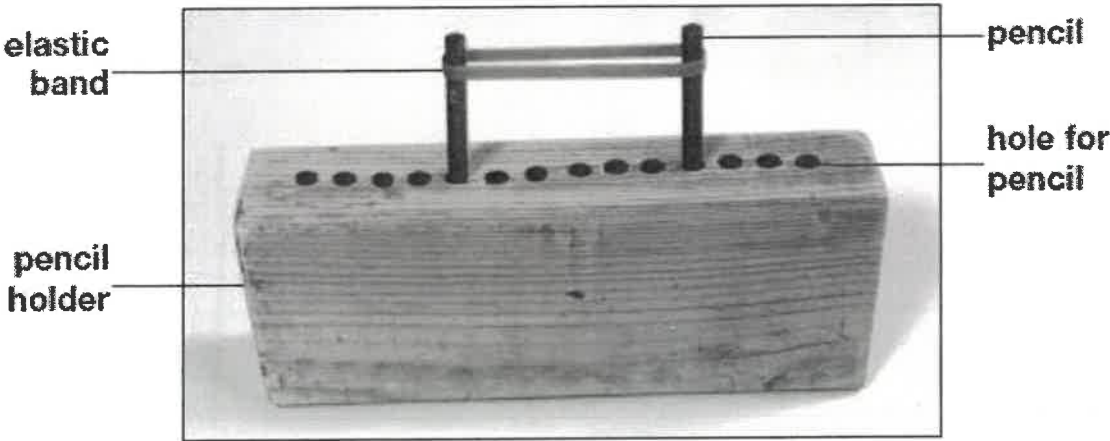
When Clare looks carefully at the string, what can she see that tells her the string is making the sound?

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# Opals

- (a) Salena has made a musical instrument. She stretched an elastic band around pencils as shown in the picture.

Salena plucks the elastic band.  
The instrument makes a sound.



What part of the instrument vibrates to make the sound?

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- (b) What does the sound travel through to get from the musical instrument to Salena's ears?

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- (c) Salena changes the elastic band on her instrument.

What would happen to the sound if Salena used a **thicker** elastic band on her instrument?

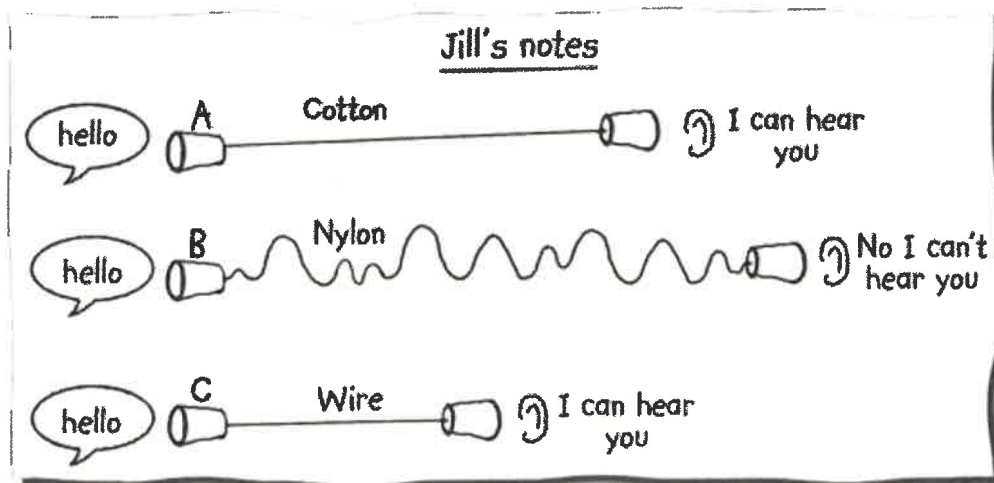
 A **thicker** elastic band makes the sound .....

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# Emeralds

- (a) Jill investigated whether or not sound travelled through different materials.

She made three telephones using plastic cups.  
She used different materials to connect the cups.  
One child talked through the telephone and Jill listened.



Look at Jill's notes of her investigation.

How many different materials did Jill test?

1.5

- (b) What was the factor Jill observed or measured to collect her results?

1.5

- (c) Jill changed three factors at the same time.

Complete the list to show the **THREE** factors Jill changed in this investigation

The first one has been done for you.

1. The tightness of the line

1.5

2.

3.

Sound is made when \_\_\_\_\_.

Sound travels by \_\_\_\_\_.

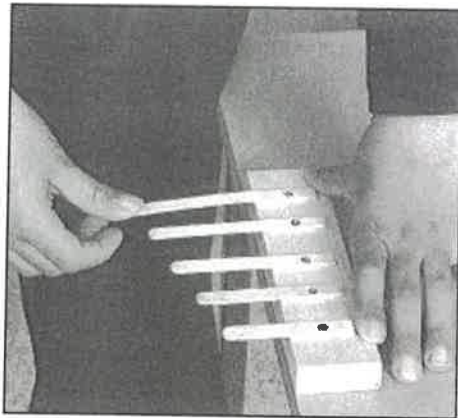
We can change vibrations by \_\_\_\_\_.

Our ears help us to hear sounds by \_\_\_\_\_.



# Sapphires

- (a) John makes a musical instrument using 5 sticks and a block of wood.



To make a sound, he pushes a stick down and lets it go.

Explain why the stick makes a sound.



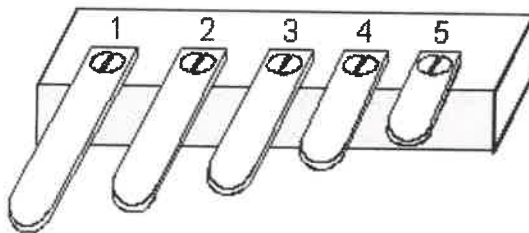
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- (b) How can he make the sound louder?



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- (c) John finds that stick 5 makes the highest note.

Describe how the **length** of the stick affects the **pitch** of the note.



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# Sapphires

- (d) Susan puts her ear on the plastic table as John makes a sound.

She hears the musical instrument.  
It sounds louder.

Complete the sentence below to explain how the sound reaches Susan's ear.

Tick **ONE** box.



The sound travels through...

air only.

☐

wood and air only.

☐

wood, air and plastic.

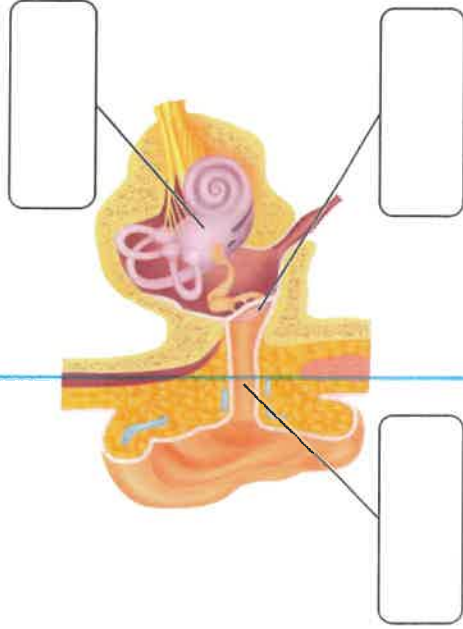
☐

wood only.

☐

Question 1

Label the parts of the ear.



Question 2

Use the word bank to complete the paragraph.

Sound is made when something vibrates. The vibrations travel through a \_\_\_\_\_ to the ear, where they are turned into a \_\_\_\_\_ that is sent to the brain. The brain then understands the \_\_\_\_\_.

signal      sound      medium

Question 3

Imagine you are using a string telephone, but the string is very long and very loose.



Predict what might happen to the sound.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Question 4

Complete the table to show the most likely pitch and volume of each sound.

| Sound                            | Pitch (low / high) | Volume (quiet / loud) |
|----------------------------------|--------------------|-----------------------|
| A flute playing classical music. |                    |                       |
| A bass drum being hit hard.      |                    |                       |
| A child whispering.              |                    |                       |
| A lion roaring.                  |                    |                       |

Question 5

Mirra thinks that sound gets louder in a place with more people.

Explain how she could prove this using a decibel meter.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

