

The science of sound!

Sound is a vibration, which requires a material to travel through. Some materials allow sound to travel through them very easily, especially hard, rigid materials. Softer materials, such as cotton balls, absorb sound, making it difficult for the vibrations to travel.

Let's investigate!

Which material is the most effective in blocking out sound?

Think about:

- In what situations might you want to block out loud noises?
- How do you think you could block out loud sounds?
- What sort of materials do you think would block out sound most effectively?

Equipment

You will need:

- 2 plastic cups
- a selection of soft materials (cotton balls, paper towel, foil, bubble wrap etc.)
- a sound source (musical instrument, sound recording, music etc.)

Predictions

Look carefully at the available materials and spend some time exploring them. Predict which of the materials will absorb sound most effectively and give reasons for your prediction.

Method

1. Place the materials, one at a time, inside the plastic cups.
2. Place one plastic cup over each ear.
3. Begin to walk away from the sound source until you can no longer hear the sound.
4. Record the distance each time (using a standard or non standard units e.g. number of steps).
5. Ensure the investigation is a fair test by using the same amount of material, same sound source and same person each time.

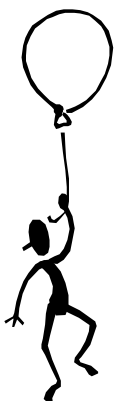
Conclusion

Which material blocked out sound most effectively? Why?

How would you describe the most effective material?

Challenge:

Balloon Voices Investigation: Find out more about the vibrations of sound.



You will need: balloon, scissors, cardboard tube

1. Carefully cut off the neck of the balloon using scissors and throw it away.
2. Stretch the rest of the balloon over one end of a cardboard tube
3. Gently place one finger on the balloon, and talk down the cardboard tube. Can you feel what is happening?