SECOND EDITION

LONGHORN

Integrated Science

Pupil's Book 6

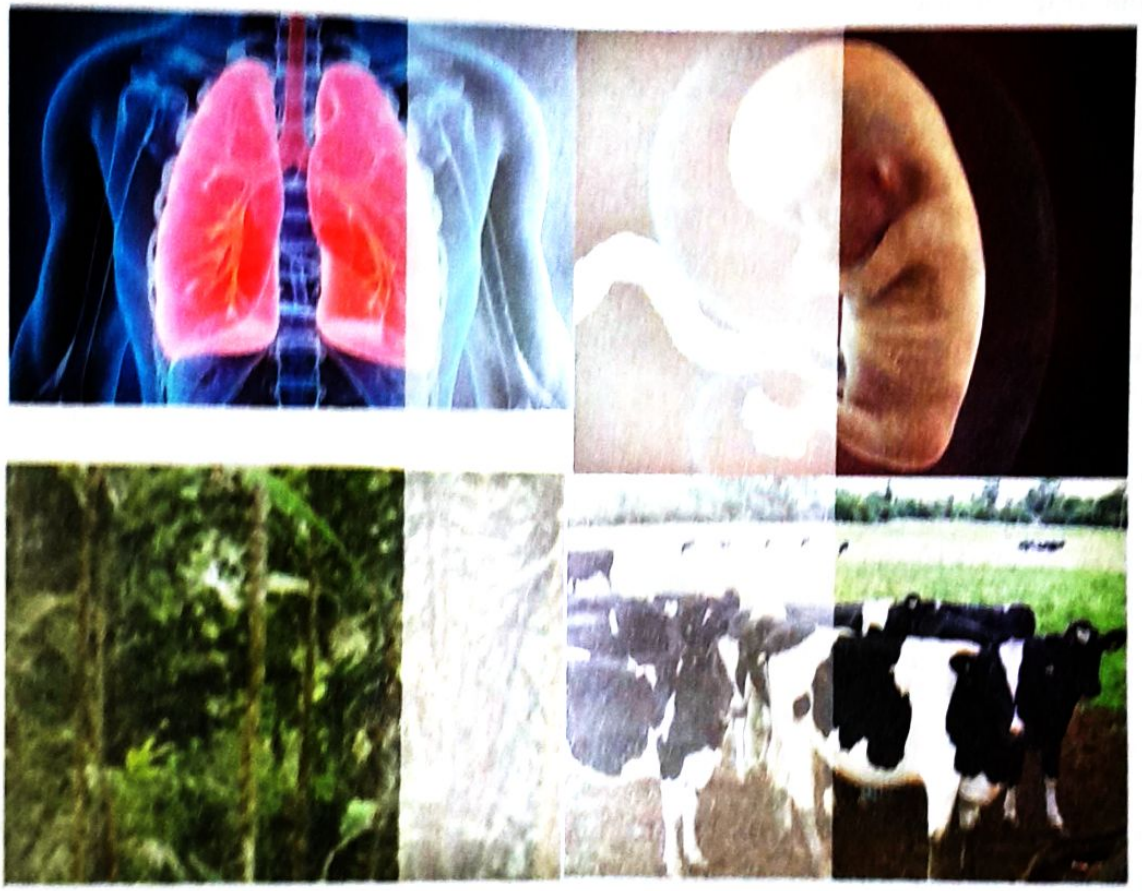
W. Mpumudde

Adapted to the New Competence Based Curriculum

expanding minds

Longhorn Integrated Science

Pupil's Book 6



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The time between sending the original sound and receiving echo is noted and used to calculate the depth or distance as t is shown in Fig. 2.18.

(d) Pilots use echoes to avoid accidents.

(e) Whales and dolphins use echoes to locate their prey or obstacle in their way.

(f) Echoes are used in the entertainment industry to create sound effects.

Disadvantages of echoes

1. In a theatre or a concert hall, echoes can ruin a performance if the walls and ceiling are not properly designed. Multiple echoes make words of a speaker unclear to the audience.
2. Echoes make communication difficult by confusing the original sound with the reflected sound.

Work to do

Read the following words loudly as your friend spells them quickly.

- Echo
- Volume
- Sound
- Frequency
- Natural
- Artificial
- Pitch
- Bounce

How sound is produced, stored and reproduced

Producing sounds

We learnt earlier that sound can be produced delete by different objects. These include: Musical instruments, Animals and Other objects.

Storing sound

Sound can be stored using physical, magnetic and electromagnetic methods on various devices.

Physical methods include use of a film, vinyl record, wood record, paper record, wax cylinder.

Magnetic and electromagnetic methods include use of a hard disk drive, magnetic recording tape etc.

For sound to be stored, the following equipment and materials are required:

A sound recorder, a microphone, source of power such as batteries or mains electricity.

PRIMARY

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BAROQUE

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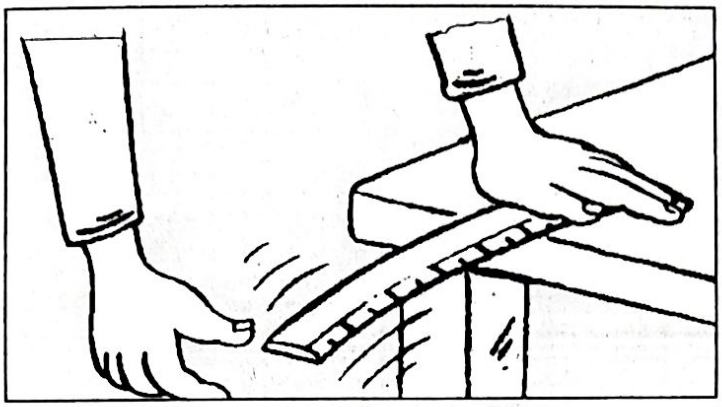
Set up:



Note. The pitch of sound produced by the ruler can be changed by increasing or decreasing the length of the ruler.

Increasing the length of the ruler reduces the pitch of sound produced by the ruler.

Decreasing the length of the ruler increases the pitch of sound produced by the ruler.

Methods of storing sound

Mechanical method

Sound is stored on plastic discs in form of grooves made on the side by physical means.

This can be done using a gramophone, vinyl record, wood record, paper record and wax cylinder.

Sound can be reproduced by the movement of the needle along the grooves as the disc turns.

Magnetic method

Sound is stored on plastic objects coated with magnetic materials. Such plastic objects include radio cassette tapes and magnetic recording tapes .

sound can be reproduced by the turning of the magnetized tape over the play head (coil).

Electromagnetic method

Sound is stored on plastic discs with the use of laser light. Such plastic discs include Compact Discs (CDs) and hard disc drives.

Sound can be reproduced by directing a weak laser beam on the disc.

How Sound is Stored and Reproduced

Sound energy can be stored and later reproduced for future use and reference.

There are three methods of storing sound.

1) **Physical method.** This example involves the use of a gramophone. This is not common today.
2) **Magnet method.** This example involves storing sound on **compact disc** or **tapes.**
3) **Electro-magnetic.** This is a method for storing sound on **CDs** and **memory cards.**

Recording sound

Sound energy produced can be recorded using audio recording devices. It is stored for future use on storage devices.

Devices that can be used to record sound today include:

Figure 2.6: Recording devices

Several devices are used to store sound, and these include:

Figure 2.7: Storage devices