

簡易英語科技叢書

聲 音



中 外 出 版 社

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卷册

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《簡易英語科技叢書》是爲初學英語的中國青年學生提供一套閱讀英語科技書籍資料的參考讀物。

本叢書包括十六個科學課題，分爲十六冊出版。每一課題構成一個完整的知識讀物。這十六個課題把目前國外學校教學中的基礎科學內容都包括進去了。

爲提高讀者科學知識和閱讀興趣，每一分冊均附有生動的彩色插圖，英語文字力求淺顯，使一般初學英語的中國青年學生都能接受。

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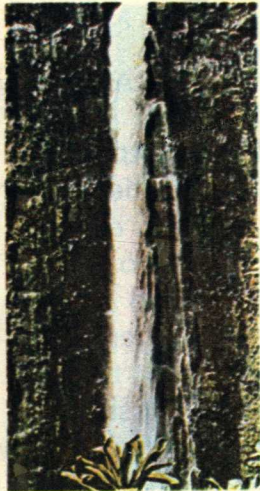
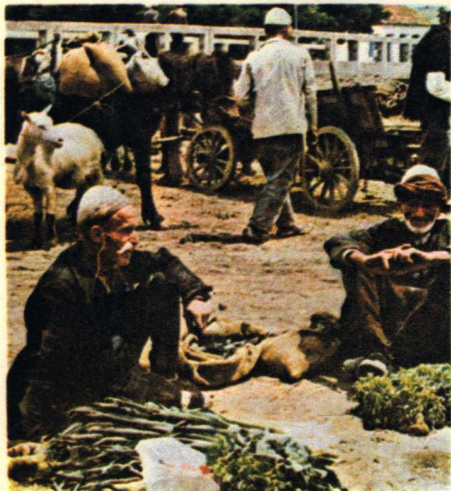
INTRODUCTION

The world is filled with many interesting sounds. Some are unpleasant to our ears while others are very pleasant to hear. In a single day you probably hear hundreds of different sounds.

All sounds are different. Some may be soft; others may be loud. Some sounds are high; others are low.

Some sounds are useful. Without sound we cannot talk or listen to one another. The ringing alarm clock wakes people up. The hooting of a horn on the road warns careless people of danger.

Name the sounds you can hear in these scenes.



Some sounds are harmful. Very loud sounds produced by huge planes which fly low over the land can cause damage to houses. Loud sounds will disturb people. Very loud sounds can even make people deaf or prevent them from hearing clearly.



A hooting horn warns of danger.

Things to Do

- (i) Collect as many solids as you can find, for example, coins, rocks, tins, pieces of wood and glass. Take two similar objects and knock them together. Then take different objects and knock them together. Try to make as many different sounds as possible.
- (ii) Next take two similar objects and rub them together. Then take different objects and rub them together. Try to make as many different sounds as possible.

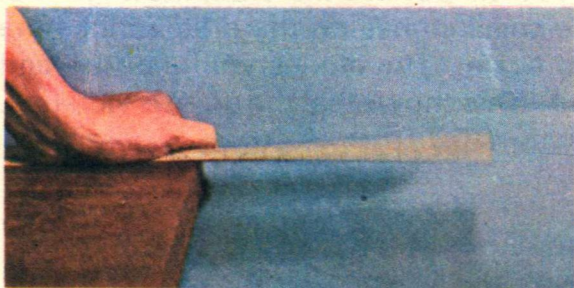
HOW WE MAKE SOUNDS

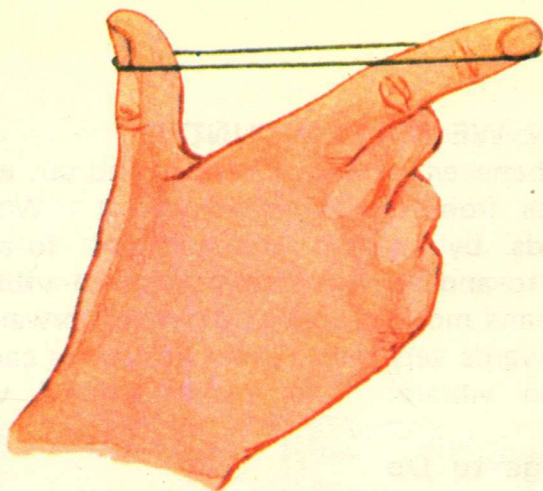
Whenever you hear a sound, find out where it comes from and what causes it. We make sounds by making things move to-and-fro. This to-and-fro movement is called **vibration**. It means moving up and down or forwards and backwards very fast. These vibrations cause the air to vibrate. This makes **sound waves**.

Things to Do

- (i) Look at this picture. Hold a long ruler on the table, so that two-thirds of the ruler is jutting off the table. Pull down on the free end of the ruler and let go. See the ruler vibrate. Can you hear a humming sound?

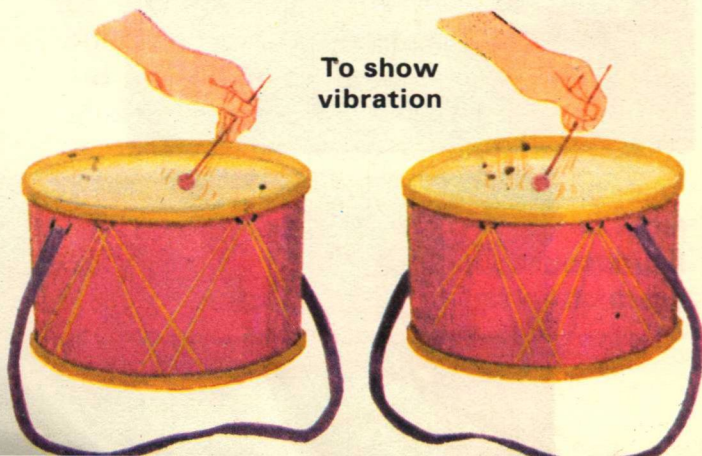
A vibrating ruler





A vibrating rubber band

- (ii) Take a rubber band. Hold it between your finger and thumb like this. Pluck it. What do you notice? Can you hear it humming?
- (iii) Strike a drum. You can hear the sound but you cannot see the drum moving. Put some small stones on the drum. Strike the drum again. The stones will jump up and down. This shows that the drum is vibrating.



We can make sounds in many ways e.g. by shouting, clapping our hands and banging the table. We can make sounds only by making things vibrate. Sometimes these things vibrate so fast, or so slightly, that we cannot see them vibrating.



Your voice-box is in your throat.

We can talk because we can make our **vocal cords** vibrate. Our vocal cords are in a sound-box or **voice-box**. Feel your throat gently. You can feel a hard lump. It moves up and down when you speak. This is your voice-box. Two vocal cords are stretched across it. They vibrate when your lungs force the air through them.

Things to Do

Let us make sound go through things:

- (i) Take a piece of tubing (or a pipe or hose), about one metre long, and ask your friend to hold one end to his ear. Whisper something through the other end of the tubing. Now remove the tubing and whisper to him again. Ask him whether it is easier to hear when you are whispering through the tubing or whispering without the tubing. What does this show?
- (ii) Take a clean empty tin and cup it over your mouth. Talk into it. Can the other children hear what is said? What does this show?

SOUNDS MADE BY ANIMALS

Animals can make sounds too. Different animals can make different sounds, but they all must make some part of their body vibrate.

(A) Birds can chirp and sing because they have voice-boxes. Many of them have two voice-boxes — one for singing and one for calling or warning other birds.

(B) Bees make a buzzing sound because their wings move up and down very fast. They have no voice-boxes.

(C) Bull-frogs croak by using the voice-boxes in their throats. When they croak they puff up their throats like balloons.

**Birds use their
voice-boxes to
chirp and sing.**

**A****B**

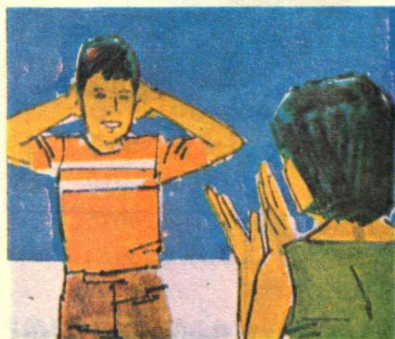
**Bees buzz with
their wings.**

**Bull-frogs use
their voice-boxes
to croak.**

**C**

HOW DO WE HEAR SOUNDS?

We hear sounds with our ears of course! Ask your friend to clap his hands. Cover your ears. Can you hear your friend clapping? Ask your friend to blow his trumpet. Can you hear the blare of the trumpet? Cover your ears. What do you notice now?



You hear sounds with your ears.

