



NATIONAL  
GEOGRAPHIC

Windows on Literacy™

国家地理

学生英语主题阅读训练丛书



中国学生阅读  
助学工程

# Glass

玻璃

[美] Robyn Crocker 等著



北京大学出版社  
PEKING UNIVERSITY PRESS

# 致读者

《国家地理学生英语主题阅读训练丛书》是我们继《国家地理英语阅读与写作训练丛书》(共14种)之后推出的又一套美国英语阅读教材系列,旨在进一步为我国的中学生及同等英语水平学习者提供既有美国原版教材精髓,又充分体现我国新课标英语教学理念的新型英语学习读本。全套丛书共有2 000余幅活泼自然、优美迷人的精彩图片,佐以简洁生动、深浅有度的文字,引导学生借图读文、借文识图;图文相辅的阅读材料不仅使学生的英语学习变得更轻松有趣,同时,图文并重,也十分契合我国高考中的看图作文命题的新趋势。

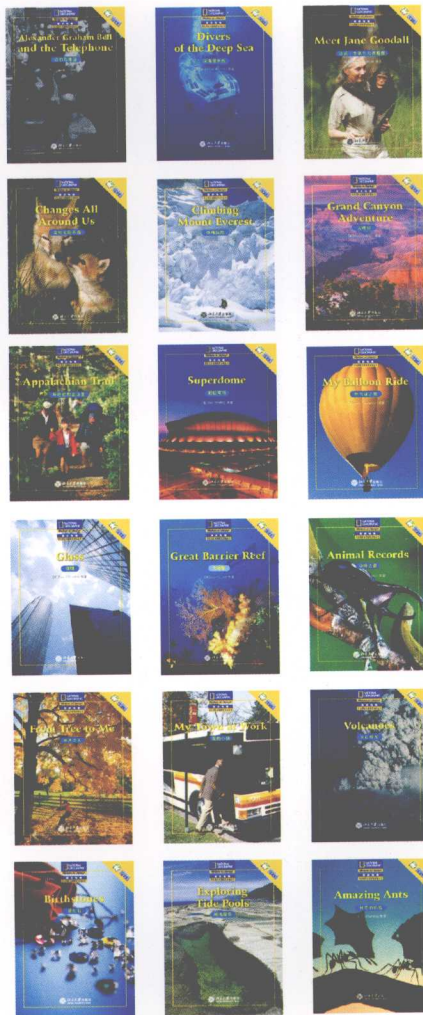
《国家地理学生英语主题阅读训练丛书》共18册,涵盖9个主题,72个话题,涉及数学、科学与社会研究三个学科领域。根据我国中学生英语学习和高考写作的要求,我们在为学生提供全英文阅读素材的基础上,继续沿袭《国家地理英语阅读与写作训练丛书》所采用的词汇分级注释原则,将注释的词汇分为“记忆词汇”、“阅读进阶词汇”和“阅读参考词汇”三类。考虑到音标对单词记忆的重要作用,培养学生的朗读与口语能力,我们对所有注释词汇都加注最新版国际音标。此外,我们在每本书中增加了相应的“Reading Objectives”(阅读目标)及“Review Activities”(活动空间),以配合教师的课堂教学,并帮助学生进行英语阅读理解的自我检测。

《国家地理学生英语主题阅读训练丛书》提供的英语原味图文阅读,十分有利于中学生扩大知识面,拓展文化视野,而且,也能有效帮助学生实实在在地提高英语能力,达到“知”与“学”的统一。我们衷心希望,本套丛书的出版不仅能使我国的中学生在轻松的阅读中掌握丰富的知识和有效的英语学习方法,同时,也能为提高学生的人文情结、科学视野、社会关怀以及全球性思维等综合素质略尽绵薄之力。

编者



Alexander Graham Bell  
and the Telephone  
Divers of the Deep Sea  
Meet Jane Goodall  
Changes All Around Us  
Climbing Mount Everest  
Grand Canyon Adventure  
Appalachian Trail  
Superdome  
My Balloon Ride  
Glass  
Great Barrier Reef  
Animal Records  
From Tree to Me  
My Town at Work  
Volcanoes  
Birthstones  
Exploring Tide Pools  
Amazing Ants



意外的发明

太空探秘

恐龙侦探

东非游猎

尼罗河上

神秘金字塔

阿拉斯加

趣味游戏

滑板族

光的世界

超级古鳄

你在月球上有多重

丰收庆典

工作犬

沙的迁徙

行星巡礼

动物藏身地

神奇的动物

《国家地理学生英语主题阅读训练丛书》（英语注释版）（18种）

同时推出

中文翻译版《国家地理学生主题阅读训练丛书》（18种）

欢迎中小學生使用



北京大学出版社  
PEKING UNIVERSITY PRESS

邮购部电话：010—62534449

市场营销部电话：010—62750672

外语编辑部电话：010—62765014



NATIONAL  
GEOGRAPHIC

Windows on Literacy™

国家地理

学生英语主题阅读训练丛书

# Glass

玻璃

[美] Liam Collins, Monica Halpern, Robyn Crocker, Care Thompson 著

《学生双语报》编辑部 注



北京大学出版社  
PEKING UNIVERSITY PRESS

著作权合同登记 图字: 01-2006-2040

图书在版编目(CIP)数据

**Glass (玻璃)** / (美) 克罗克 (Crocker, R.) 等著; 《学生双语报》编辑部 注.

—北京: 北京大学出版社, 2006.4

(国家地理学生英语主题阅读训练丛书·英语注释版)

ISBN 7-301-10336-0

I. 玻… II. ①克… ②学… III. 英语—阅读教学—中学—课外读物 IV. H31

中国版本图书馆CIP数据核字(2005)第145652号

图片来源(Picture Credits)

Cover: Getty Images

**Section 1 Sound** 3(t), 5, 6(b), 10, 11, 14, 15, 18, 19, Lindsay Edwards Photography; 4(b), 7, 8, 20(t), 84, photolibrary.com; 4(t), 6(t), 9(b), 12, 16(m), 17(b), 20 (m&b), Getty Images; 7(b), NGS Image Collection; 9(t), ANT Photo Library; 16(b), 82(r), Digital Imagery. **Section 2 light** 22-23, 24-25, 31, 36, NGS Image Collection; 25(t), 30, 35, 38-39, photolibrary.com; 26, Getty Images; 27, 42, 85, Auscape; 32, Bill Bachman; All other images Lindsay Edwards Photography. **Section 3 Glass** 43, 47(tr), 57, 60, Getty Images; 44(t), Photoedit; 44(b), 45(t), 47(br), 48(t&b), 51 (t), 52(t), 56(t), 58(t), 59, 60(t), 64(t), Photodisc; 45(b), Digital Vision; 46(br), Brand X; 46(bl&tr), Photolibrary.com; 47(l), 53, 55, 56(b), 58(b), 61, 62-63, 64(b), 86, Australian Picture Library; 48(m), 49, Ancient Art & Architecture Collection; 51(b), 54, Axxess Glass; 52(b), 83(t), Peter Arnold Inc. Illustration by Xiangyi Mo. **Section 4 Simple Machines** 66-67, 81, Getty Images; 65, 66(t), 70, 73(t), 75, 77, 79, photolibrary.com; 71, Great Southern Stock; 73(b), 80, Digital Imagery; All other images Lindsay Edwards Photography.

《国家地理学生英语主题阅读训练丛书》(英语注释版)由美国北极星传媒有限公司授权,并与君红阅读(北京)出版咨询有限公司共同策划。

书 名: **Glass (玻璃)**

著作责任者: [美] Robyn Crocker Liam Collins Monica Halpern Gare Thompson 著  
《学生双语报》编辑部 注

责任编辑: 张建民 孔燕红

标准书号: ISBN 7-301-10336-0/H · 1629

出版发行: 北京大学出版社

地 址: 北京市海淀区成府路205号 100871

网 址: <http://cbs.pku.edu.cn>

电 话: 邮购部 62752015 发行部 62750672 编辑部 62765014

电子信箱: [zbing@pup.pku.edu.cn](mailto:zbing@pup.pku.edu.cn)

设计制作: 北极星-君红阅读·朱文兵

印刷者: 北京大学印刷厂

经销者: 新华书店

787毫米×1092毫米 16开本 5.5印张

2006年4月第1版 2006年4月第1次印刷

定 价: 16.80元

未经许可,不得以任何方式复制或抄袭本书之部分或全部内容

版权所有,翻版必究



# Contents



## Sound

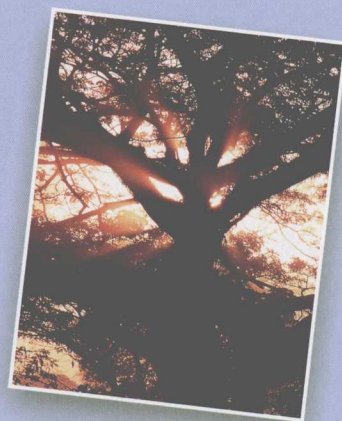
### Reading Objectives ..... 6

- What Do You Hear? ..... 7
- What Is Sound? ..... 8
- Loud and Soft ..... 12
- High and Low ..... 16
- Sounds Around You ..... 20

## Light

### Reading Objectives ..... 22

- Light for Life ..... 23
- Sources of Light ..... 24
- Bouncing and Bending Light ..... 31
- Making Shadows ..... 35
- Light and Color ..... 38



## Glass

### Reading Objectives ..... 44

- Amazing Glass ..... 45
- The History of Glass ..... 48

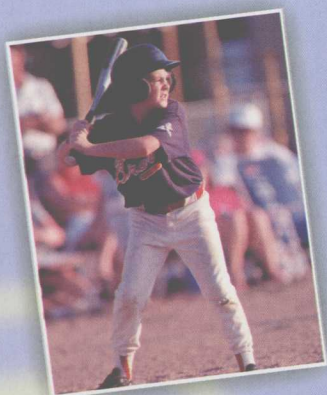
- Making Glass Today .....51
- Glassblowing .....56
- Recycling Glass .....58
- Different Kinds of Glass .....60



## Simple Machines

### Reading Objectives .....66

- Work .....67
- Machines and Work .....68
- The Inclined Plane .....70
- The Wedge .....72
- The Screw .....74
- The Lever .....76
- The Wheel and Axle .....78
- The Pulley .....80



## Review Activities

- Think and Discuss .....82
- Multiple-Choice Test .....84

**Index** .....88



In this section, you'll discover that sound is energy carried by waves.

记忆词汇



**affect** /ə'fekt/ *v.* 影响

**alarm** /ə'lɑ:m/

*n.* 闹钟, 闹铃

**amount** /ə'maunt/ *n.* 数量

**communicate** /kə'mju:nikeɪt/

*v.* 交流, 沟通

**contain** /kən'tein/

*v.* 含有, 包含

**create** /kri'eɪt/ *v.* 产生, 引起

**depend** /dr'pend/

*v.* 取决于

**determine** /dr'tɜ:rmin/

*v.* 决定

**direction** /dr'rekʃn/

*n.* 方位, 方向

**distance** /'distəns/

*n.* 距离, 路程

**energy** /'enədʒi/

*n.* 能, 能量

**material** /mə'tɪriəl/ *n.* 材料

**narrow** /'nærou/

*adj.* 狭小的, 细的

**object** /'ɒdʒekt/

*n.* 物, 物体

**pond** /pɒnd/ *n.* 池塘

**pour** /pɔ:/ *v.* 注, 倒

**string** /strɪŋ/

*n.* 线, 带, 绳子

**yell** /jel/ *v.* 叫喊, 大嚷



# Sound

By Liam Collins

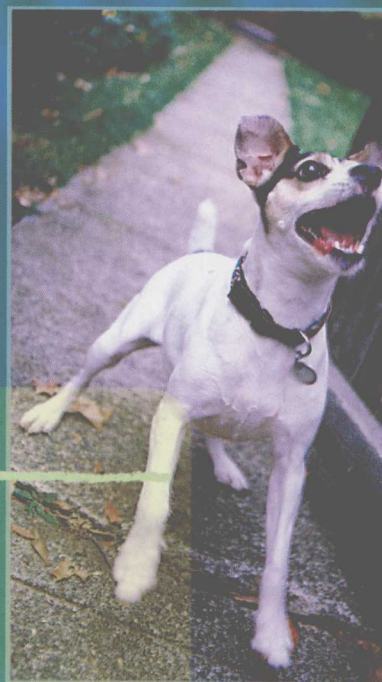
## Reading Objectives 阅读目标

### Word Attack and Vocabulary Skills 词汇攻略

- Using apostrophes: Contractions  
掌握缩字符的用法：缩写形式
- Adding the suffix *-ly* to make adverbs  
词尾加 *-ly* 变副词
- Identifying opposites  
辨识反义词

### Content and Thinking Skills 阅读与思考训练

- Understanding how sound travels  
理解声音的传播方式
- Observing how sounds are alike and different  
观察声音的异同
- Recognizing that sound waves can be measured and compared  
认识声波可以被测量和比较



# What Do You Hear?

Our world is filled with sounds. One of the main ways we understand the world is by listening to its sounds.

When you hear an **alarm** clock, you know it's time to get up. When you hear a bell ring, you know it's time for class to start. Sit quietly and listen. What do you hear?

阅读进阶词汇

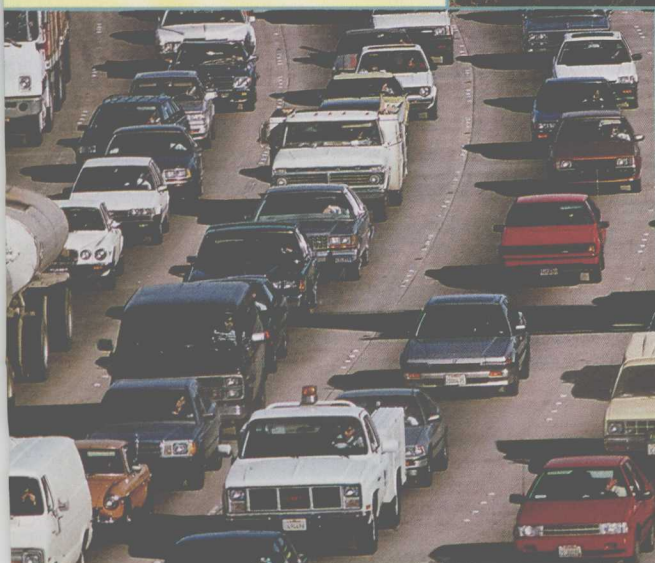
bark /bɑ:rk/  
v. (狗等)吠, 叫

◀ Do you hear  
a dog barking?



▲ Do you hear someone talking?

◀ Do you hear traffic going by?



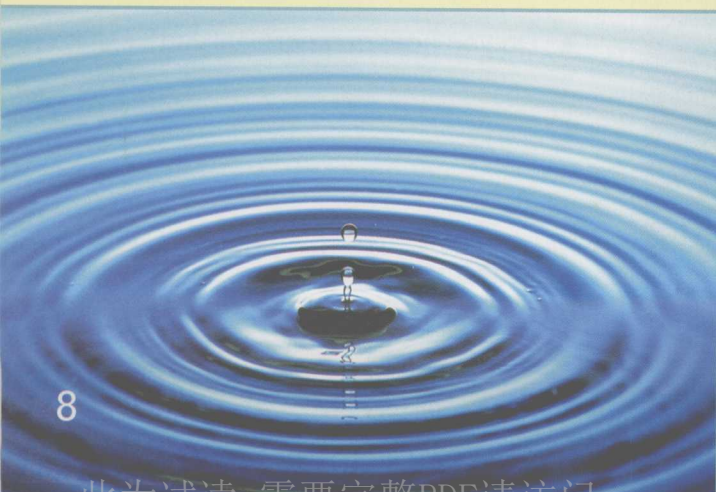


# What Is Sound?

Sound is a form of **energy**. Sounds are made when an **object vibrates**, or moves back and forth very quickly. The moving object makes the air around it vibrate, too. These vibrations travel through the air as sound waves. When the vibrations reach our ears, we hear the sound.

- ▼ Sound waves move through the air like **ripples** on a **pond**. The waves **spread** out from the **source** in all **directions**.

- ▼ When someone plays an **instrument**, the music travels through the air.



## 阅读进阶词汇

**instrument** /'ɪnstɹəmənt/  
n. 乐器

**source** /sɔ:rs/ n. 源头, 本源  
**spread** /spred/ v. 传播; 展开  
**vibrate** /'vaɪbreɪt/ v. 振动

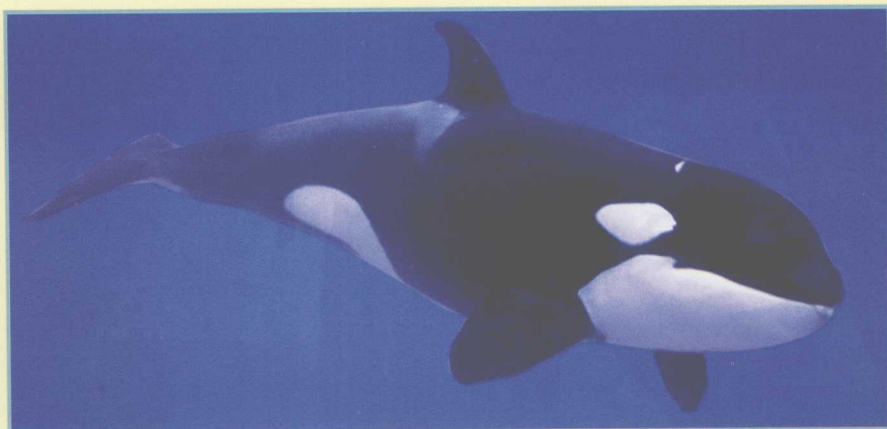
## 阅读参考词汇

**ripple** /'rɪpl/ n. 涟漪

Sound waves travel through the air. They can move through **solids** and **liquids**, too. Each **material** carries sound differently. A material that carries sound well is a good **conductor** of sound.

阅读进阶词汇

**conductor** /kən'dʌktə/ *n.* 导体  
**liquid** /'lɪkwɪd/ *n.* 液体  
**solid** /'sɒlɪd/ *n.* 固体



▲ Water is a good conductor of sound. Whales can **communicate** over long **distances** in the ocean.



◀ Solids conduct sound, too. When you talk on a **string** telephone, sound vibrations travel through the string to the other cup.



# Experiment: Sound Vibrations

We all know you can hear sound. You can also feel sound. Here's what you can do to feel sound vibrate.

## Things You'll Need

- a balloon
- a radio

阅读进阶词汇

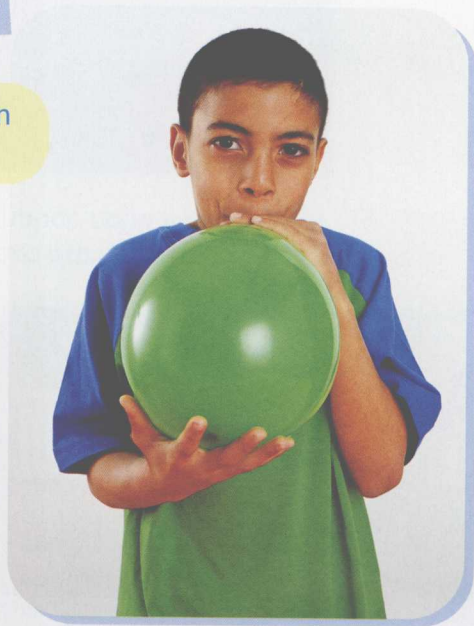


knot /nɔ:t/ v. 把……打结

1. Blow up the balloon and knot the end.



2. Leave the radio off. Hold the balloon up against the radio speaker. The balloon is still. You can't feel a thing.





3. Turn on the radio. Hold the balloon against the radio speaker again. The balloon moves, or vibrates.

4. Now turn the sound on the radio up. The vibrations get stronger. Turn the sound down. The balloon vibrates less.

The sound waves coming out of the radio speaker cause the air to vibrate. The vibrating air moves the balloon. When the sound is turned off, the air stops vibrating. The balloon stops moving.



# Loud and Soft

Not all sounds are the same. Some sounds are louder than others. A police **siren** and a school bell both make loud sounds. A **whisper** is a soft sound. A **kitten** crying is a soft sound, too. What makes a sound loud or soft?

## 阅读进阶词汇

**kitten** /'kɪtn/ *n.* 小猫  
**whisper** /'wɪspə/ *v.* 低语, 耳语

## 阅读参考词汇

**siren** /'saɪrən/ *n.* 汽笛, 警报器



- ▲ The soft sound of a whisper contains a little energy.

How loud or how soft a sound is **depends** on how much energy is in the sound wave. A loud sound **contains** more energy than a soft sound.



- ▲ The loud sound made by a siren contains a lot of energy.

# Measuring Sound

Scientists **measure** sound energy in **decibels**. The sound of a person talking to you contains about 50 decibels of sound energy. Other sounds contain more or less sound energy.

阅读进阶词汇

**measure** /'meʒə/ v. 量, 计量

阅读参考词汇

**decibel** /'desɪbəl/ n. 分贝

**140 decibels**



Airplane taking off  
飞机起飞

**80 decibels**



Vacuum cleaner  
吸尘器

**10 decibels**



Leaves rustling  
落叶的沙沙声

**100 decibels**



Jackhammer  
手提钻

**50 decibels**



People talking  
交谈声



# Experiment: Loudness

The amount of energy we use to make a sound **affects** its loudness. Here's what you can do to see how changing the **amount** of energy used to make a sound changes how loud it is.

1. Clap your hands lightly. You can hear a soft clapping sound.

阅读进阶词汇



clap /klæp/ v. 拍, 拍打



2. Clap your hands hard. The clapping sound becomes much louder.

