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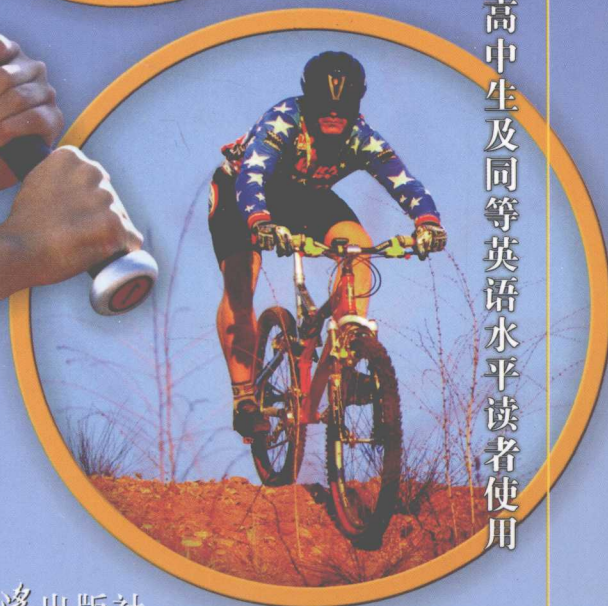
国家地理

英语阅读与写作训练丛书

Using Simple Machines

简单机械

[美] Caroline Snow 著



适合



高中生及同等英语水平读者使用



北京大学出版社
PEKING UNIVERSITY PRESS

致读者

想在快乐阅读中轻松地提高英语写作能力吗？你会发现，这套《国家地理英语阅读与写作训练丛书》（National Geographic Theme Sets, 下称《丛书》）就是一个很好的选择。

《丛书》共14册，涵盖14个主题，每个主题下的4个相关小话题围绕着关键概念，按阅读和写作的易难程度，循序渐进地依次编排。《丛书》的“关键概念+递进阅读+任务型写作”的创新编排体例，帮助学生从培养语感和思维方式开始，在阅读过程中自然习得英语写作的规律和特点，从根本上提高学生的综合语言应用能力。此外，《丛书》紧贴高中英语教学的实际需要，在针对性和实用性方面有着无可比拟的优势：

第一，对生词进行注释。注释生词既为读者创造了猜词空间，也为读者快速查阅提供了方便，不至于被生词破坏了阅读的兴致。考虑到音标对单词记忆，以及培养学生朗读与口语能力的重要作用，我们对所有注释词汇都加注了国际音标。

第二，根据高中英语学习和高考写作的要求，对注释词汇进行三级分类。记忆词汇属于基础词汇，也是高分作文常用词汇，学习者要做到会写、会读、会听、会用；阅读进阶词汇是高中生提高英语水平需要掌握的英语常用词汇，建议学习者经常使用，熟悉这类词汇有助于作文的表述；阅读参考词汇包括话题所涉及的专业词汇和非常用词汇，学习者了解即可，可以根据自己的实际情况各取所需。在编排中，记忆词汇在文中用加粗的字体表示。为了方便学生集中记诵，“阅读”板块的记忆词汇被放在每一个小话题的开篇页，“任务型写作”板块的记忆词汇则集中编排在书末。阅读进阶词汇和阅读参考词汇在文中分别用绿色和紫色字体表示，注释词条呈现在当前页上，以利于学生查阅。

第三，以丰富多样的主题和体裁系统地介绍了各类英语应用文的写作。写作从阅读开始，即首先了解优秀文章是什么样的。在阅读的基础上，《丛书》介绍了不同范文的体例特点和适用范围，其中包括记叙文、说明文等十几种常用作文体裁。同时，《丛书》以严谨的思路和清晰的操作步骤，把学生带进一个既有阶梯渐进的具体指引，又有充分创意空间的写作训练营。

第四，具有综合教学功能。由于在指导应用文写作方面的独特设计和精心编排，这套丛书不仅适合学生自学，更适用于课堂的写作教学。《丛书》的写作训练案例是英语教师写作教学中难能可贵的参考资料，可直接作为英语写作课程的辅助教材使用。

Try it! 你会发现，英语阅读原来可以这么轻松快乐，英语写作也不总是“头疼”、“痛苦”的代名词。

朱京力

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Using Simple Machines

简单机械

[美] Caroline Snow 著

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Using Simple Machines

When you hear the word *machine*, what is the first thing that comes to your mind? Perhaps you think of a dishwasher or a **vacuum cleaner**. These are both machines, but a **broom** and a knife are also machines. **Basically**, a machine is any kind of **device** that helps you do something more easily. People use simple machines every day – at home, in sports, on **construction** sites, and in **health care**.



Key Concepts.....

1. Machines use force to help people do work.
2. There are six simple machines.
3. **Compound** machines use two or more simple machines **operating** together.

阅读进阶词汇

basically
/'beɪsɪkəli/ *adv.* 基本上
compound
/'kɒmpaʊnd/ *adj.* 复合的
construction
/kən'strʌkʃən/ *n.* 建筑
device /di'vaɪs/ *n.* 设备
health care 医疗保健

阅读参考词汇

broom /bru:m/ *n.* 扫帚
vacuum cleaner 吸尘器

记忆词汇

amount /ə'maʊnt/ *n.* 数量
apart /ə'pɑ:t/ *adv.* 分离
consist /kən'sɪst/ *v.* 由...组成
connect /kə'nekt/ *v.* 连结, 连接
design /di'zaɪn/ *v.* 设计

flow /fləʊ/ *v.* 流动; *n.* 流动
force /fɔ:s/ *n.* 力
fixed /fɪkst/ *adj.* 固定的
jar /dʒɑ:/ *n.* 广口瓶
handle /'hændəl/ *n.* 柄, 把手
invent /ɪn'vent/ *v.* 发明
operate /'ɒpəreɪt/ *v.* 运转

pole /pəʊl/ *n.* 杆
reduce /rɪ'dju:s/ *v.* 减少
require /rɪ'kwaɪə/ *v.* 需要
scientific /saɪən'tɪfɪk/ *adj.* 科学的
work /wɜ:k/ *n.* 功
wheel /wi:l/ *n.* 轮

In this section you will learn
about simple machines
used in the home, such as
this knife.



Machines

in the Home

Look around your home. What machines do you see? A vacuum cleaner is a machine found in a home, and so is a coffee maker. But what about a knife or a pair of **scissors**? These things are also machines found in the home.

Some machines in homes have moving parts, and some do not. Some machines run on electricity, and some do not. All these machines do one thing, though. They make jobs around the home easier.

阅读参考词汇

scissors

/'sɪzəz/ n. 剪刀

A vacuum cleaner is a machine with many moving parts.



Machines – Past and Present

There are many machines in people's homes. Some of these machines are based on tools from long ago. Long ago, people used sharp rocks for cutting and **chopping** their food. Today, they use knives, which are modern machines with sharp **edges**.



People once used very basic tools to prepare and cook food.

阅读进阶词汇

chop

/tʃɒp/ v. 剁碎, 砍

edge

/edʒ/ n. 刃, 锋



Today, we use many tools to make cooking easier.



Key Concept 1 Machines use force to help people do work.

Force and Work

To understand how machines operate, you need to understand **force** and **work**. Force is something that makes an object move, stop, or change. When you push open a door or stop it from **slamming** shut, you use force. When you roll out pizza **dough**, you use force.

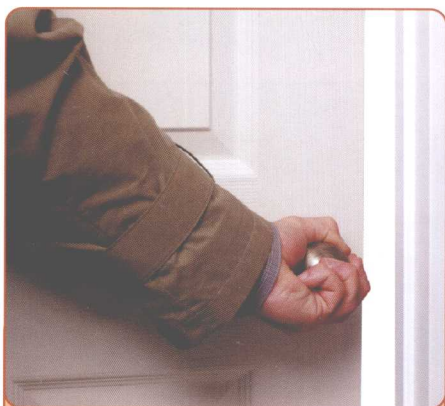
阅读进阶词汇

dough

/dəu/ n. 生面团

slam

/slæm/ v. 砰地关上



Force can make an object move.



Force can stop an object's movement.



Force can change an object.

In science, work is done any time a force moves, stops, or changes an object. For example, you are doing work when you eat your food. The force of your **chewing** changes the food so you can **swallow** it.

阅读进阶词汇

chew

/tʃu:/ v. 咀嚼

point of view

角度, 观点

swallow

/'swɒləu/ v. 吞咽

Much of the work that people do is not easy. Some work **requires** a great **amount** of force. People cannot do this work just with their bodies. So they **invent** machines to help them.



The girl and her mother are doing work while cooking. Can you explain why this is so from a **scientific point of view** ?



Key Concept 2 There are six simple machines.

The Six Simple Machines

There are six simple machines. Simple machines are **designed** to change how forces act.

The Wedge

A **wedge** is an object with one or more **sloping** sides.

The wedge may end in a sharp edge or point. People use wedges to cut or **split** things. An axe is a type of wedge. You use the sharp edge of an axe to cut into wood. The sloping sides of the axe split the wood **apart**.

阅读进阶词汇

split /splɪt/ v. 裂开

阅读参考词汇

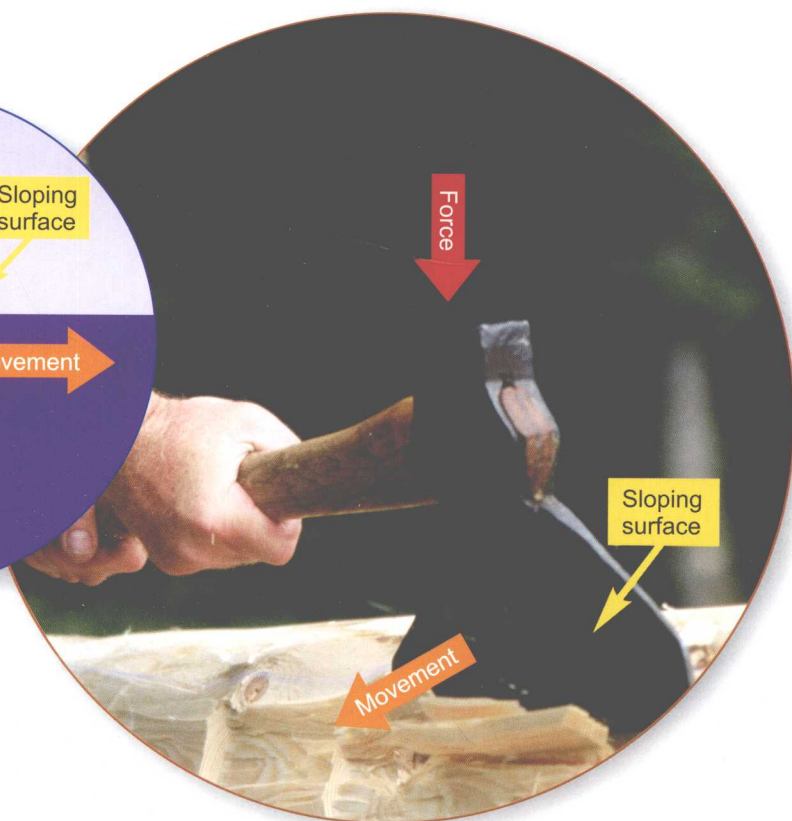
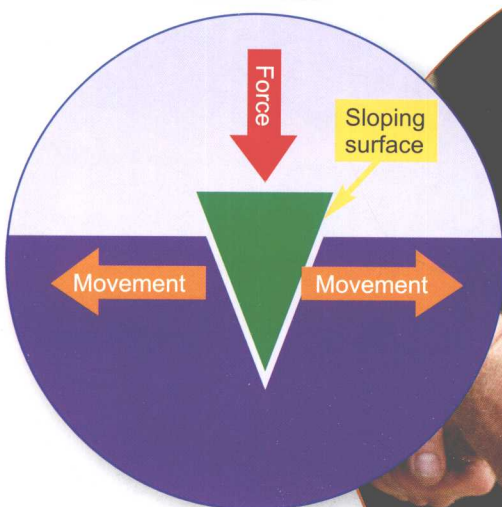
axe /æks/ n. 斧头

sloping /'sləʊpɪŋ/

adj. 倾斜的

wedge /wedʒ/ n. 楔子

Wedge



This axe is a wedge.

The Lever

A **lever** is a straight bar or **rod**. A lever turns or **rotates** on a **fixed** point called a **fulcrum**. By using force on one part of a lever, people can move something that is **attached** to another part of the lever. The thing the lever moves is called a **load**. A lever can be used to **reduce** the force needed to move the load.

阅读进阶词汇

attach /ə'tætʃ/

v. 系, 连接, 固定

rotate /rəu'teɪt/ v. 旋转

阅读参考词汇

fulcrum /'fʌkrəm/

n. 杠杆的支点

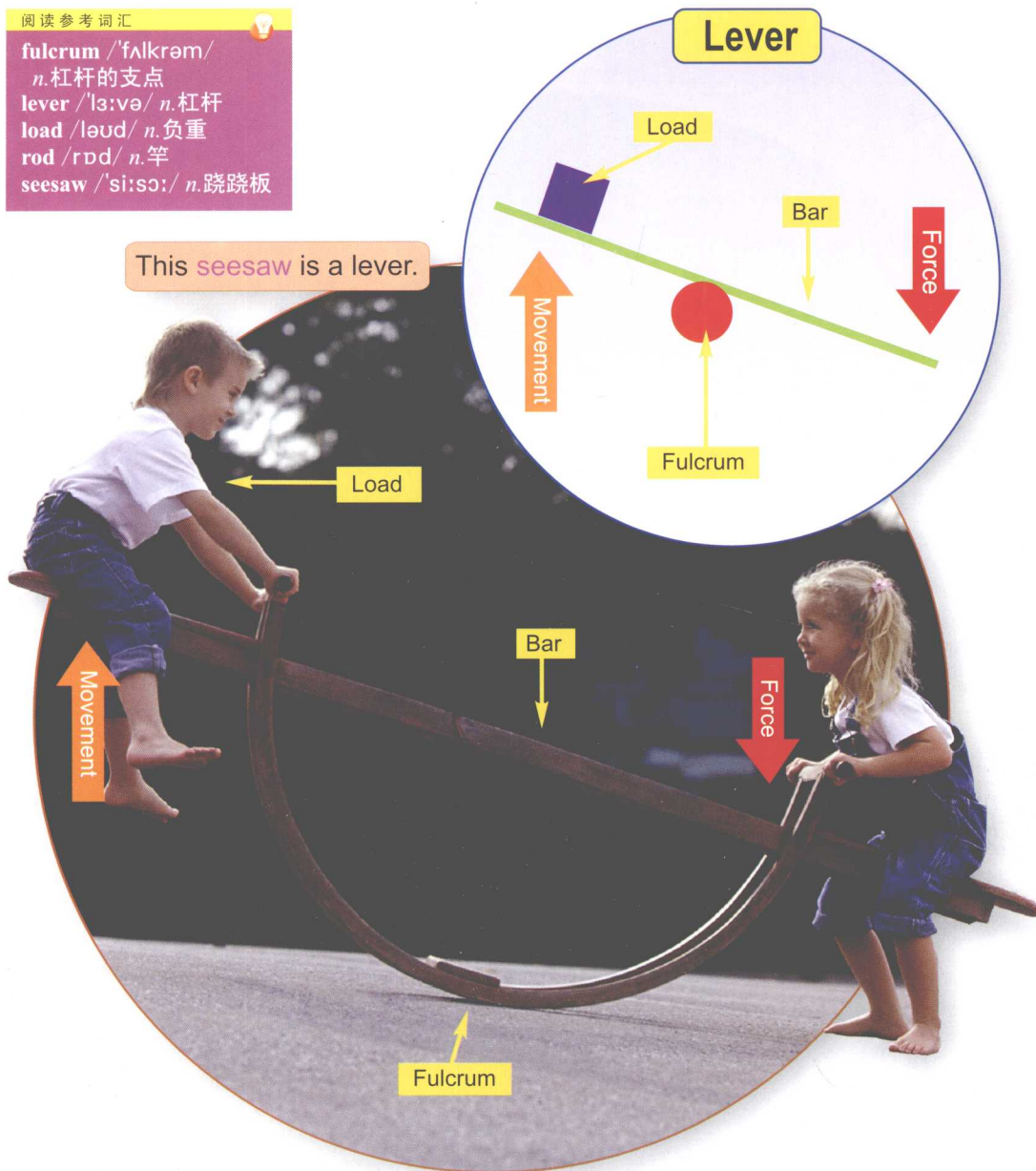
lever /'lɜ:və/ n. 杠杆

load /ləʊd/ n. 负重

rod /rɒd/ n. 竿

seesaw /'si:sɔ:/ n. 跷跷板

This **seesaw** is a lever.



The Inclined Plane

An **inclined plane** is a flat, **slanting** surface with a high end and a low end. A **ramp** is an example of an inclined plane. People use inclined planes to move loads up and down. It takes less force to push loads up an inclined plane than to lift them straight up.

阅读进阶词汇

entrance /'entrəns/
n. 入口

阅读参考词汇

inclined plane 斜面
ramp /ræmp/
n. 斜坡, 坡道
slanting /slɑ:ntɪŋ/
adj. 倾斜的

This **entrance** has a ramp.
A ramp is a type of inclined plane.

Inclined Plane



The Screw

A **screw** is a simple machine. It **consists** of a **pole** with a sloped **ridge** that **spirals** around it. This ridge is called a **thread**.

People can use screws to hold things together. When a screw is turned, it pulls the two pieces toward each other. A **jar** with a **twist-on lid** is a type of screw. It has a thread. As you turn the lid, it is forced against the jar.

阅读参考词汇

lid /lɪd/ *n.* 盖子

ridge /rɪdʒ/ *n.* 脊

screw /skruː/ *n.* 螺栓

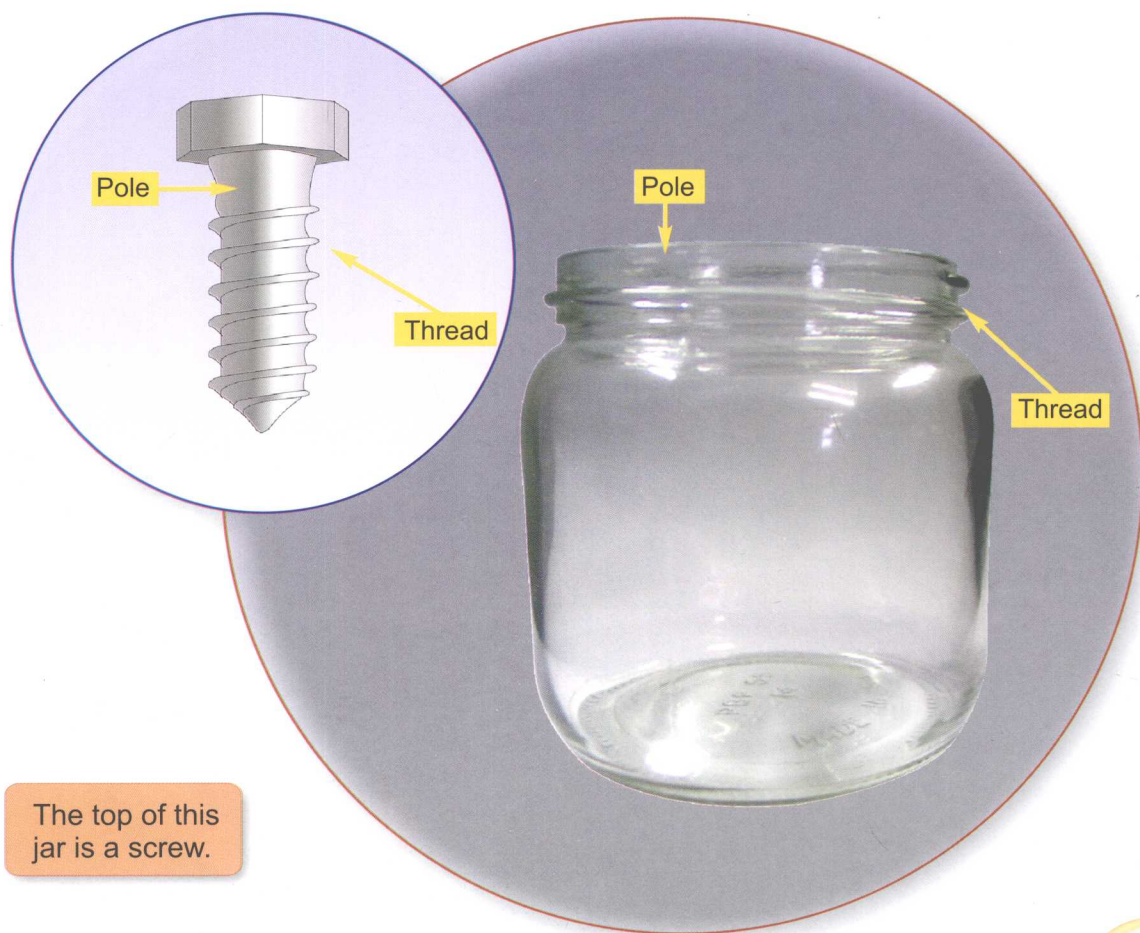
spiral /ˈspɪərəl/

v. 盘旋

thread /θred/ *n.* 螺纹

twist-on 可拧开的

Screw



The top of this jar is a screw.

The Wheel and Axle

Another kind of simple machine is the **wheel** and **axle**. This machine has a wheel that is **connected** to a pole. The pole is called an axle. The wheel and axle always turn together. Turning the bigger wheel makes the smaller axle turn more slowly but with more force. Turning the axle makes the bigger wheel turn more quickly but with less force.

阅读参考词汇

axle

/ˈæksəl/ n. (轮)轴

doorknob

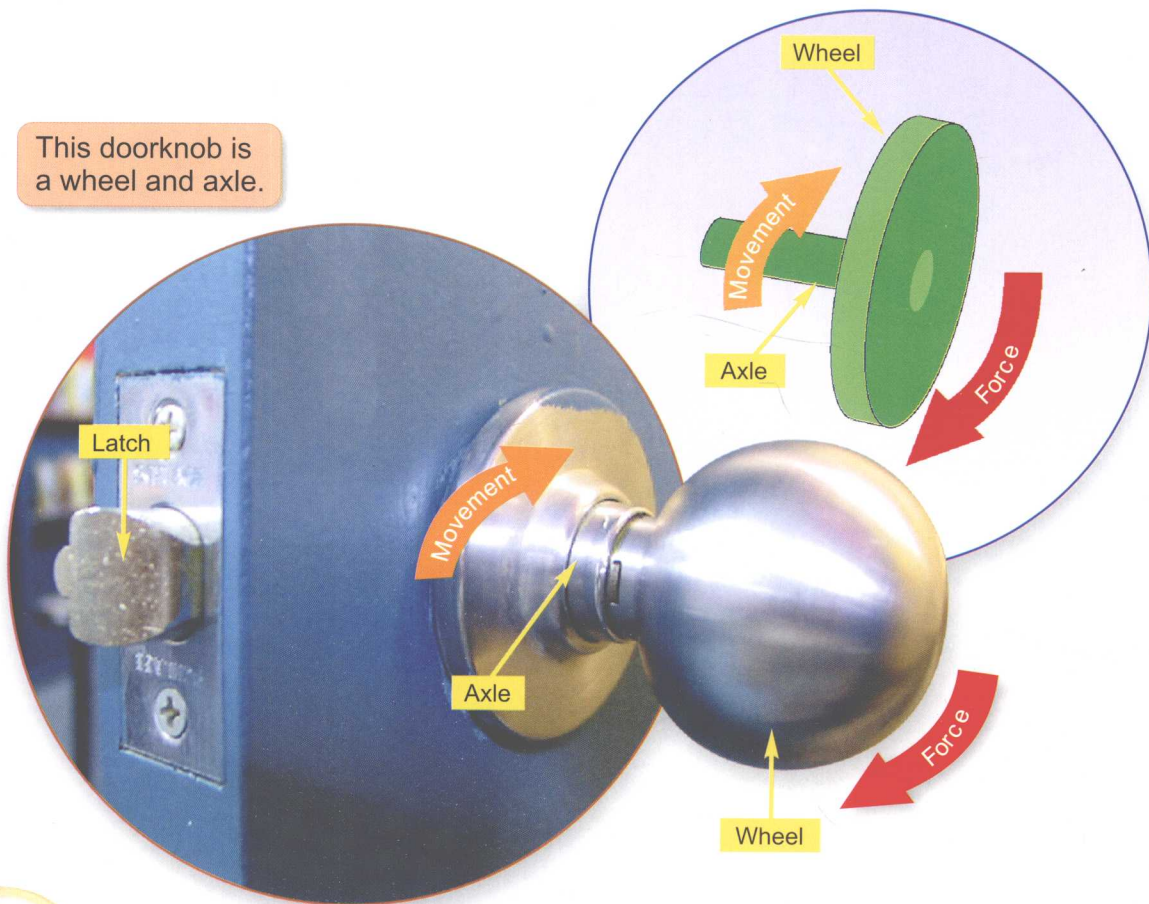
/ˈdɔːknɒb/ n. 门把手

latch

/lætʃ/ n. 门插销

A **doorknob** is a type of wheel and axle. The doorknob is the wheel. The bar that is attached to the doorknob is the axle. When you turn a doorknob, you turn the axle as well. The axle moves the **latch** that holds the door closed.

Wheel and Axle



This doorknob is a wheel and axle.

The Pulley

A simple **pulley** is a wheel with a **groove** in its **rim**. A rope in the groove **wraps** around the wheel. One end of the rope is tied to a load. If you pull down on the other end, you can lift the load up.

阅读进阶词汇

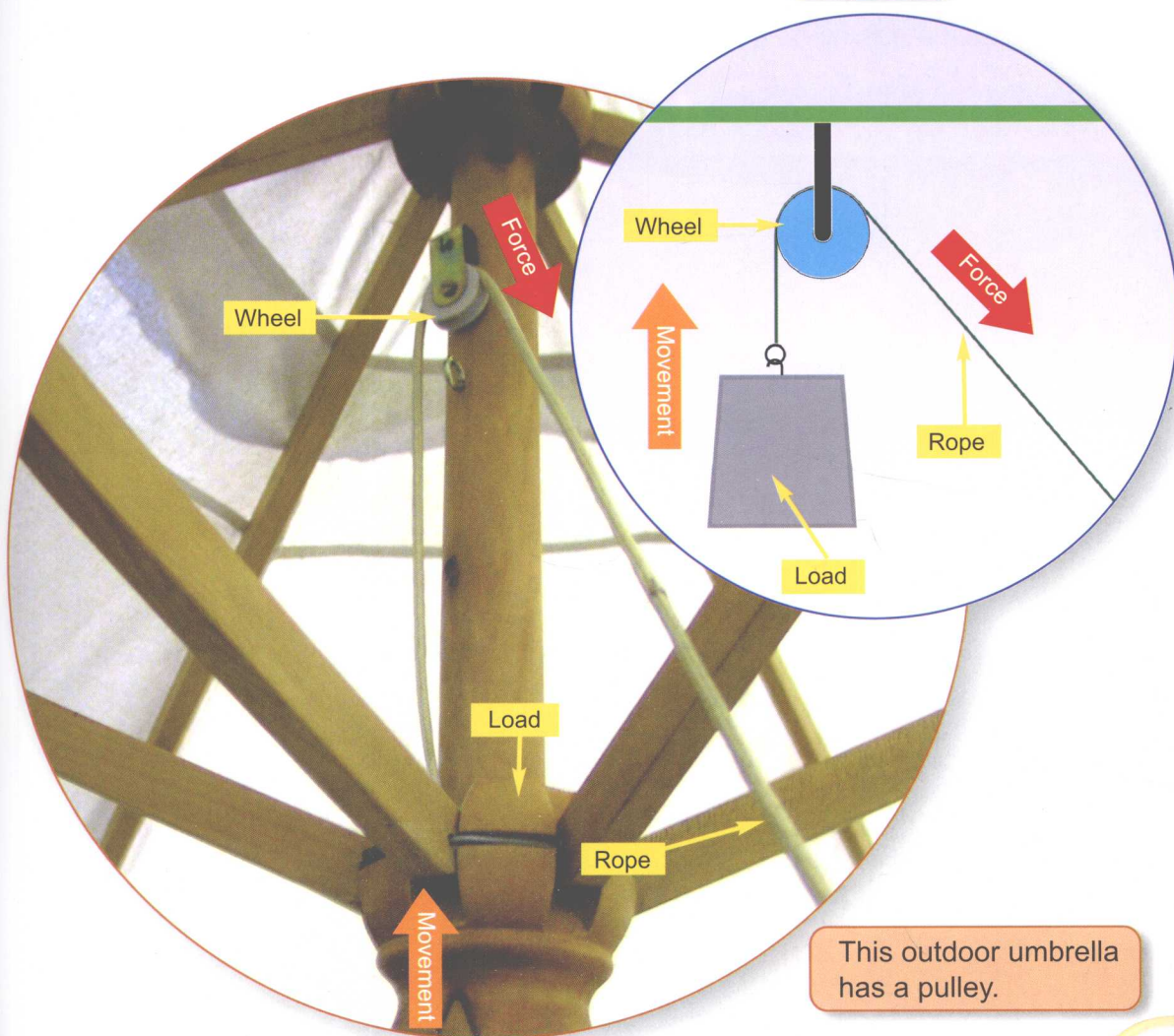
wrap /ræp/ v. 包, 裹

阅读参考词汇

pulley /'pʊli/ n. 滑轮
groove /gru:v/ n. 凹槽
rim /rɪm/ n. (圆形物的) 边缘

People use pulleys to raise, lower, and move loads. Some outdoor umbrellas have pulleys. When you raise or lower these umbrellas, you use a pulley.

Pulley



This outdoor umbrella has a pulley.