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系列



艾萨克·牛顿的三大运动定律

奇妙科学馆

Timed Reading Science III

第3辑

阅读提高·知识扩充·文化解读·思维拓展

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Timed Readings Plus in Science III

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前言

英国思想家培根说过：阅读使人深刻。阅读的真正目的是获取信息，开阔视野和陶冶情操。从语言学习的角度来说，学习语言若没有大量阅读就如隔靴搔痒，因为阅读中的语言是最丰富、最灵活、最具表现力、最符合生活情景的，同时读物中的情节、故事引人入胜，进而能充分调动读者的阅读兴趣，培养读者的文学修养，至此，语言的学习水到渠成。

“麦格希中英双语阅读文库”在世界范围内选材，涉及科普、社会文化、文学名著、传奇故事、成长励志等多个系列，充分满足英语学习者课外阅读之所需，在阅读中学习英语、提高能力。

◎难度适中

本套图书充分照顾读者的英语学习阶段和水平，从读者的阅读兴趣出发，以难易适中的英语语言为立足点，选材精心、编排合理。

◎精品荟萃

本套图书注重经典阅读与实用阅读并举。既包含国内外脍炙人口、耳熟能详的美文，又包含科普、人文、故事、励志类等多学科的精彩文章。

◎功能实用

本套图书充分体现了双语阅读的功能和优势，充分考虑到读者课外阅读的方便，超出核心词表的词汇均出现在使其意义明显的语境之中，并标注释义。

鉴于编者水平有限，凡不周之处，谬误之处，皆欢迎批评指正。

我们真心地希望本套图书承载的文化知识和英语阅读的策略对提高读者的英语著作欣赏水平和英语运用能力有所裨益。

丛书编委会

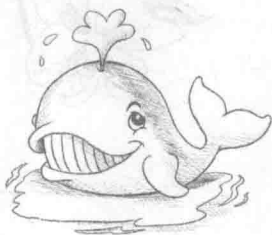
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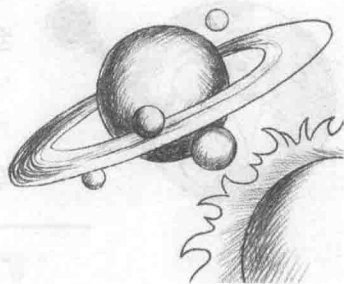
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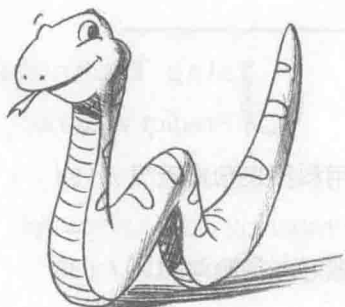
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1

Isaac Newton's Three Laws of Motion

Isaac Newton was an English scientist who lived from 1642 to 1727. Before Newton, scientists had little understanding of how the forces of nature *influenced* objects. Newton not only explained how matter responds to forces, he also suggested that all forces are governed by a single set of natural



艾萨克·牛顿的三大运动定律

牛顿是一位英国科学家，他生于1642年，1727年去世。在牛顿之前，科学家对自然界的力是如何影响物体运动的所知甚少。牛顿不仅解释了物体是如何对自然界的力作出反应的，他也提出所有的力都是由一条简单的自然定律控制的。牛顿的自然定律为先前科学家不能解释的许多自然事件提供了科学的解释。

influence v. 影响

laws. Newton's natural laws provided scientific explanations for many natural *occurrences* that scientists had previously been unable to explain.

In 1687 Newton *revolutionized* the field of physics with his book *Principia Mathematica*. In it, he described some of the most fundamental principles of physics, now known as Newton's Three Laws of Motion. These laws, together with Newton's theory of gravity, make up what *contemporary* physicists call classical physics, or Newtonian physics.

Newton's first law of motion proposes that moving objects continue moving and that *stationary* objects continue resting, unless an external force alters their movements. Newton used the term

在1687年，牛顿以《数学原理》一书使物理学领域发生了彻底变革。在书中，牛顿描述了一些最基本的物理学原理，如今被称为牛顿的三大运动定律。这三条定律与牛顿的万有引力学说一起构成了当代物理学家所称的经典物理学或牛顿物理学。

牛顿物体运动的第一运动定律提出，一切运动着的物体将持续运动，而静止的物体仍然保持静止，直到有外力作用于它们，才能改变它们的运动或静止状态。牛顿用“惯性”这个术语描述了一个物体抵抗运动中的变

occurrence *n.* 事件

contemporary *adj.* 当代的

revolutionize *v.* 使发生巨大变革

stationary *adj.* 静止的

inertia to describe the *tendency* of an object to resist a change in motion. He speculated that if nothing external acted upon the motion of an object, the motion would continue indefinitely. To visualize these principles, imagine what happens to a ball dropped from a tall building. Gravity pulls the ball downward, and inertia causes the ball to continue moving down until it hits the ground. *Conversely*, a stationary rock on the ground will not move unless another force causes it to move.

Newton's second law states that the force exerted by an object is equivalent to the mass of the object multiplied by its *acceleration*; the equation is $\text{force} = \text{mass} \times \text{acceleration}$. To understand this principle, imagine one person trying to throw a bowling ball across a

化的趋势。牛顿推测，如果没有外力作用于运动着的物体，该物体将无限期地运动下去。为让这几条定律形象化，想象一个从高楼坠落的球会发生什么。引力使球向下，而惯性使球持续下降直到落地。相反，地面上一块静止的岩石不会运动，除非有其他外力迫使它运动。

牛顿物体运动的第二定律阐明，一个物体所受的外力等于施力物体的质量乘以它的加速度。公式是力=质量×加速度，要理解这条法则，想象

inertia *n.* 惯性
conversely *adv.* 相反地

tendency *n.* 倾向；趋势
acceleration *n.* 加速度

field and another person trying to throw a soccer ball. Because the bowling ball has a greater mass than the soccer ball, a larger force is required to accelerate the bowling ball to the same speed as the soccer ball. In addition, Newton's second law states that objects accelerate in the same direction as the forces applied to them; thus, the balls move in the direction in which they are thrown.

The third law of motion states that for every action there is an equal and opposite reaction. Therefore, a standing person *exerts* a force on the floor that is equivalent to the force that the floor exerts on the person. This keeps nature's forces in a state of *equilibrium*.

一下一个人试图将保龄球扔过某个区域，而另一个人想要扔足球。因为保龄球的质量远大于足球的质量，要想把保龄球的速度加速到与足球相同的速度需要更大的力。此外，牛顿的第二条定律也指出，给物体朝某个方向施加外力，物体将朝着这个方向做加速运动；因此，球将朝着所受外力的方向运动。

牛顿物体运动的第三定律提出，对每一个运动来说，有一个相等的反作用力。因此，一个站在地板上的人对地板施加的外力，等同于地板对这个人施加的反作用力。这就让自然界的力处于一种平衡状态。

exert *v.* 施加

equilibrium *n.* 平衡

2

Eating for Good Health

When it comes to nutrition, people in the United States often make poor choices. Sometimes bad eating habits are not the *consequence* of a lack of nutritional information or the *unavailability* of nutritious foods; some people simply choose to eat poorly. They prefer to eat only the foods that taste



健康饮食



谈及营养，美国人经常做出糟糕的选择。有时候坏的饮食习惯不是缺乏有关营养的信息或是吃不到有营养的食物所导致的；而是有些人就是选择吃糟糕的食物。他们更喜欢吃那些品尝起来味道好的食物。不幸的是，吃糟糕食物的这一决定带来了持续的恶果。有一半的美国人体重超重，而且，许多人患有像心脏病、高血压和糖尿病这样的疾

consequence *n.* 结果

unavailability *n.* 不可获得

delicious to them. *Unfortunately*, the decision to eat poorly has lasting consequences. As many as half of all Americans are overweight. Furthermore, many suffer from conditions such as heart disease, high blood pressure, and adult-onset *diabetes* that can result from these poor lifestyle choices. If we want to live long, healthy lives, we must make better nutritional decisions. Otherwise, we could be risking our health and our futures.

Proper nutrition begins with knowledge. The United States Department of Agriculture (USDA) issues food guidelines to help people to make appropriate nutritional choices. These guidelines are *summarized* in a USDA chart called the Food Guide Pyramid. The Pyramid is based on research into the specific types of nutrients

病，这些都是因为选择了糟糕的生活方式所导致的。如果我们想长寿、健康地活着，就必须做出更好的营养选择。否则，我们就是在拿我们的健康和将来冒险。

恰当的营养从知识开始。美国农业部门发布食物指南以帮助人们做出适当的营养选择。这些指南被汇总在美国农业部一个叫做《食物指南金字塔》的图表里。这个金字塔是以对抵御疾病和适当体重所需的特定种类的营养物进行调查研究为基础的。

unfortunately adv. 不幸地

summarize v. 总结

diabete n. 糖尿病

needed for disease *resistance* and proper body weight.

According to the Pyramid, Americans should get most of their daily calorie intake from bread, *cereal*, rice, and pasta, eating 6 to 11 servings of these foods per day. Whole-grain products are the best. The larger numbers of servings are intended only for people such as athletes, whose work includes a great deal of physical activity. Following this category are the fruit and vegetable categories, with a total suggested *consumption* of from 5 to 9 servings per day. This emphasizes the importance of fiber, vitamins, and minerals in maintaining a healthy lifestyle. The Pyramid's other *recommendations* include 2 to 3 servings of dairy products and 2 to 3 servings from a group that includes meat, fish, beans, and nuts. The USDA

根据这个金字塔，美国人应该从面包、谷类、大米和意式面食中获得他们每天大部分的卡路里，每天要食用6到11份的量。全谷类产品是最好的。较多的食量仅适合于像运动员及工作需要大量体力活动的人。对于蔬菜和水果这个类别建议每天的食用量是5到9份。这强调了纤维、维他命和矿物质在维持一个人健康生活方式方面的重要性。这个金字塔的其他建议包括2到3份奶制品，以及2到3份肉、鱼、豆类和坚果这类食物。美国农业部门建议脂肪和糖应该要少吃。

resistance n. 抵御

consumption n. 使用

cereal n. 麦片

recommendation n. 建议

recommends that fats and sweets be eaten *sparingly*. There are many risk factors that contribute to poor health. Among these are such lifestyle choices as *improper* nutrition and *inadequate* exercise. Current research by the American Heart Association shows that heart disease very often begins when a person is a child. Despite this, many Americans think they can postpone healthy eating and proper exercise until they have health problems. Unfortunately, diseases are not generally detected until *symptoms* begin, and by then it may be too late. To live long and productive lives, we must make proper choices now, including healthy nutritional choices.

有很多危险因素会导致身体糟糕。像不恰当的营养和缺乏运动就是其中的一些危险因素。由美国心脏协会进行的近期调查显示，心脏病通常从小孩时就开始了。尽管如此，很多美国人认为他们可以把健康饮食和适当运动推迟到健康问题出现时。不幸的是，疾病直到有症状时才能大体上被发现，而当发生时或许一切都太晚了。为了长寿而充实高效地生活，我们必须现在作出适当的选择，包括健康的营养选择。

sparingly *adv.* 节约地；保守地
inadequate *adj.* 不充足的

improper *adj.* 不适当的
symptom *n.* 症状