Mc Graw Hill Education

美国高中主流理科教材

科学发现者

生物

生命的动力

第二版

[美] 奥尔顿·比格斯 等 著　林静 等 译

Biology

The Dynamics of Life

上册

浙江教育出版社
ZHEJIANG EDUCATION PUBLISHING HOUSE

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贵州师范学院内部使用

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Alton Biggs has been a biology educator in Texas public schools for more than 30 years. He has a BS and an MS in biology from Texas A & M University—Commerce. Mr. Biggs was the founding president of the Texas Association of Biology Teachers in 1985, received the National Association of Biology Teachers' (NABT) Outstanding Biology Teacher Award for Texas in 1982 and 1995, and in 1992 was the president of the NABT.

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William G. Holliday is a science education professor at the University of Maryland (College Park), and before 1986, a professor at the University of Calgary (Alberta, Canada). He served as president of the National Association for Research in Science Teaching and later as an elected board member to the National Science Teachers Association. He has an MS in biological sciences and a PhD in science education. Dr. Holliday's multifaceted teaching experience totals more than 40 years.

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Science Kit and Boreal Laboratories
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译前言

培养学习者的科学素养是国内外公认的科学教育目标，其内涵的界定一直包含两种视角：一种是朝向科学自身的，关注科学概念、科学本质、科学探究、科学伦理等科学的过程与结果；另一种是朝向科学现实应用的，注重让学习者从社会公民会遇到的与科学相关的情境中去理解科学的角色和作用，理解科学与社会、人类、技术、环境等之间的关系。侧重第一视角的科学教育，更多的是从科学家、科学实验室的角度，让学习者体验与理解何谓科学，掌握科学的基本知识与过程方法等。侧重第二视角的科学教育，则是从社会公民、现实世界的角度，培养学习者作为社会公民而非科学家的科学素养，更体现科学素养作为大众科学教育目标的本意。

在当前的国内外科学教育实践中，能很好整合第二视角的科学课程与教材并不多见。所以，当看到美国麦格劳-希尔（McGraw-Hill）教育出版（亚洲）公司出版的第二版《生物》时，甚为欣喜，认为很有必要介绍给国内广大科学教育工作者及学习者，欣赏一下从公民科学素养角度来教授生物学的美国高中生物教材。

第二版《生物》虽然基本保留了第一版各单元名称，但全书行文风格与具体内容已经完全不同于第一版，所以无法从第一版的译稿中修订出第二版，只能重新翻译第二版全书。全书各单元每一节的开篇，都有联系学习者实际的点睛之语。例如，在讲进化的化石证据时，书中写到“你知道吗，当你在夜晚仰望群星时，你就是在回望过去。这是因为星星距离我们太过遥远，以至于你看到的星光，实际上是星星在数千年前甚至是数百万年前发出的。同样，当你观察岩石时，你也是在回望过去。岩石是数千年前甚至是数百万年前形成的。岩石可以告诉我们，过去地球是什么样子的，它

有时还能告诉我们，那个时代生活着哪些生物”。书中各单元在图文并茂阐述生物学内容后，会设置实验活动、测评、复习指南、标准化测试等丰富多样的学习栏目，还会介绍相关内容领域的职业生涯，例如微生物学家、古生物学家是做什么的，怎么工作的，等等。相信无论是教师还是学生，翻阅第二版，都将是一个阅读津津有味、科学素养深受启迪的愉悦学习过程。

本书的文字翻译工作历时一年多，编辑进行文字加工和配图工作也历时一年多，现在最终出版为上册、中册、下册。其中上册的第一单元由李红菊翻译，第二单元和第三单元由马小凤翻译；中册的第四单元和第五单元由王燕翻译，第六单元由王燚翻译；下册的第七单元由王燚、傅梦媛翻译，第八单元由李红菊翻译，第九单元由傅梦媛翻译；王淑卿翻译了第1章和最后的技能手册。本人对全书译稿进行统稿与校订。因时间与水平有限，译文中难免会有错误及不妥之处，敬请读者批评指正。

林　静

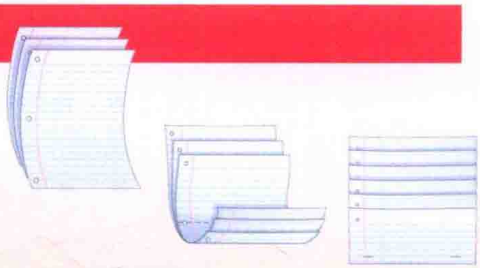
2018年9月

折叠式
学习卡

制作指南

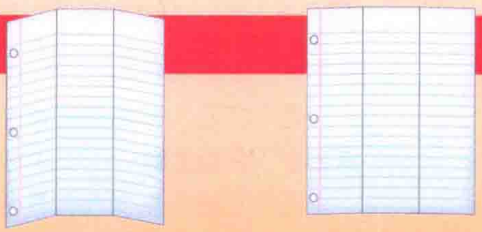
请按以下步骤制作折叠式学习卡。

多层视图式学习卡



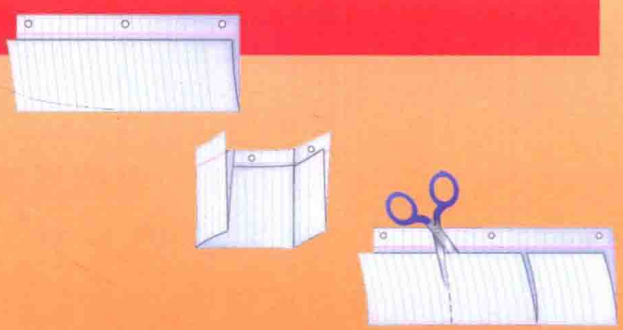
1. 取三张纸，在垂直方向上每张纸之间分别间隔1.3厘米，注意对齐纸张边缘。
2. 将三张纸向上折叠，形成六张从上到下均匀排列的学习卡。
3. 将纸张对折整齐，沿着折痕用订书机装订，并给每张学习卡标上序号。

三栏式学习卡



1. 将一张纸按垂直方向折成三等分。
2. 将纸张展开铺平，分别给每一份标上序号。

三片式学习卡



1. 将纸张沿着水平方向对折，前面纸张的边缘要比后面纸张的边缘短2厘米。
2. 将纸张沿垂直方向折成三等分。
3. 将纸张展开，只沿前面纸张的折痕剪开，分别给每一份标上序号。

两片式与四片式学习卡

1. 将纸张沿水平方向对折成两半，即两片式学习卡。
2. 若是制作四片式学习卡，则在制作两片式学习卡的基础上将纸张沿垂直方向再次对折成两半。
3. 将纸张展开，只沿前面纸张的折痕剪开，分别给每一份标上序号。

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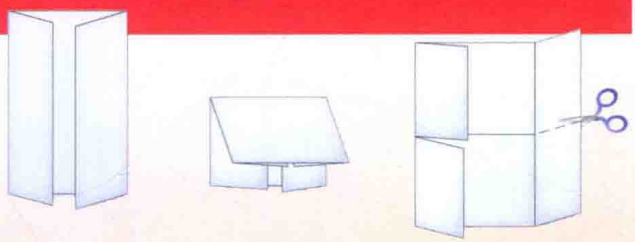
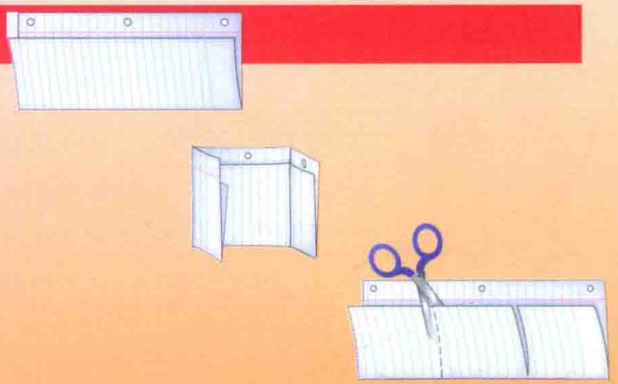
折叠式学习卡

四门式学习卡



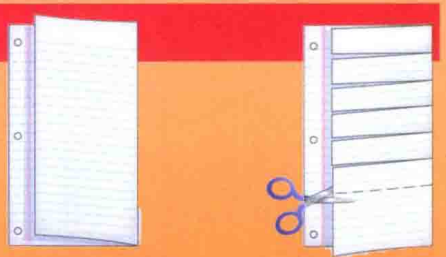
1. 将纸张横放并找到其中心线，将左右边缘对齐中心线折叠。
2. 将纸张上下边缘对齐折叠。
3. 将纸张展开，沿着最左和最右两扇“门”的水平折痕剪开，分别给每一扇“门”标上序号。

概念图学习卡



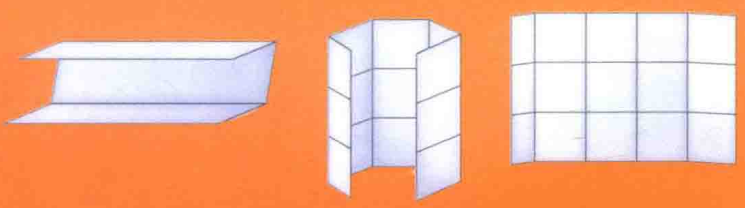
1. 将纸张垂直放置，将底部边缘向上对折，底部边缘要比顶部边缘低2厘米。
2. 将纸张沿垂直方向折成三等分。
3. 将纸张展开，只沿垂直折痕将位于前面的纸张剪开，分别给每一份标上序号。

词汇学习卡



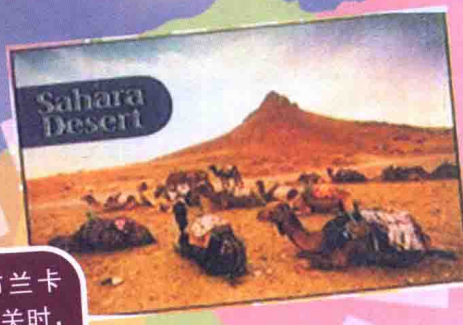
1. 取一张纸，将纸张沿垂直方向对折一次。
2. 将位于前面的纸张按照每三行为一份进行裁剪，分别给每一份标上序号。

表格式学习卡



1. 将纸张水平放置，沿水平方向折成三等分。
2. 沿垂直方向将其折成五等分。
3. 将纸张沿水平方向展开，沿着折痕画线，分别给每一份标上序号。

科学探索



1 旅行的起点是摩洛哥的卡萨布兰卡(Casablanca, Morocco)。通过海关时,需要你回答几个问题:本书共有多少个单元?总共包含多少章?

格伦科生物(Glencoe Biology) 有许多工具可用来指导你的学习。下面列出的是部分资源。请完成科学探索来发现更多的资源!

- **内容聚焦** 位于每一章的开头以及"复习指南"栏目。
- **本章概要** 位于每一章的开头。
- **本节主旨** 位于每一节的开头。
- **本节预览** 位于每一节的开头,包括核心问题、术语回顾、关键术语。
- **折叠式学习卡** 可供你整理笔记。

出发前往塞拉利昂(Sierra Leone),研究当地的热带雨林。利用索引找一找本书中有关热带雨林的信息。

2

在本书中找到两处有实验安全标志的地方。

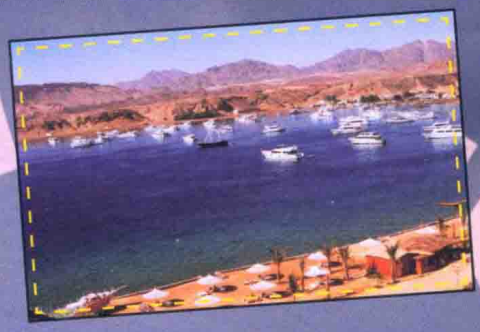
3

你已经穿过了与人类文明隔绝的热带雨林。

4

在旅途中,你看见了一个指示牌,告诉你距离南非的开普敦(Cape Town, South Africa)还有多少千米。

5



9

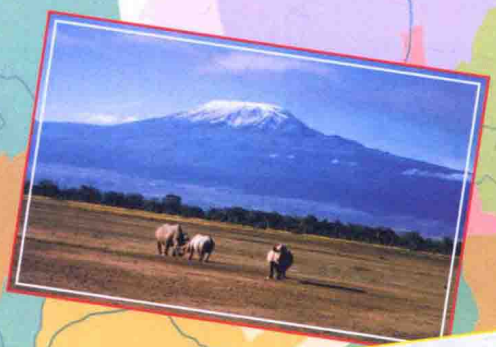
你偶遇一家位于埃及开罗(Cairo, Egypt)的网吧。你现在能通过网络获得有关格伦科生物的什么资源?

8

你乘坐骆驼穿越撒哈拉沙漠(Sahara Desert)。撒哈拉在阿拉伯语中意为“最大的沙漠”。

10

尼罗河(Nile River)代表一个水生生态系统。本书中题为“水生生态系统”的一节的“本节主旨”是什么?



11

你勘察了肯尼亚(Kenya)的大裂谷(the Great Rift Valley),当地曾出土过一些早期的人类化石。在本书的哪一页可以看到人类进化的时间轴?

7

格伦科生物有五个主题。第18章的主题是什么?

祝贺你!你已经完成了穿越非洲的旅行,并且发现了格伦科生物中可以帮助你进行生物课堂学习的方法。请翻页进入下一个冒险旅程!

你乘坐缆车前往南非开普敦的桌山山顶(Table Mountain)。总结回顾一章内容的栏目的名字是什么。

6

总目录

目 录

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