

新视界大学英语系列教材

N PROSPECT
NEW COLLEGE ENGLISH

科技英语 综合教程

主 编 张英莉 武学锋 姜忠全
副主编 郭月琴 郑 琳 邹文轩 臧嫦艳

 中国人民大学出版社

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前言

教育部 2004 年 6 月制定颁布的《大学英语课程教学要求（试行）》将大学英语教学分为三个层次：一般要求、较高要求和更高要求。根据这一要求和英语学习的特点，我们编写了这本教材，希望能为已经完成了英语基础阶段学习的学生提供进一步提高英语水平的学习素材和途径。

编写原则：

一、语言学习的特点是日积月累、循序渐进、不断提高。语言的学习又如逆水行舟，不进则退。因此我们提出大学英语学习四年不断线的英语教学理念。基于这一理念，在完成了大学英语前两年的基础阶段学习之后，在学生接触本专业的专业英语学习之前，对其开设科技英语方面的课程，使其了解科技英语的文体结构，掌握一定的科技英语知识和科技翻译、写作的技巧，从而使学生能够顺利地完成了从基础英语到专业英语的过渡和衔接，为以后的专业英语学习打下良好的基础。

二、当今社会科技高度发达，信息日益丰富。本书选取社会生活不同领域科技发展的文章提供给学生，集知识性、趣味性、实用性为一体，让学生真正通过英语这种工具去学习知识，了解科技，提高语言应用能力。

教材特点：

一、选材新颖，语言地道，体现当代科技、社会发展的特色

本书选取了能源、社科、计算机、环境、金融、太空、经济、生命科学、交通、健康保健 10 个领域的内容，紧跟时代步伐，通过英语阅读了解相关的科技发展动态，从而真正实现英语的工具作用。

二、结构合理，融合多种技能，培养综合素质

本书共分 10 个单元，每个单元都由简介、问题导入、课文（3 篇）、练习、科技翻译讲解和练习、科技写作讲解和练习组成。教材融合了听、说、读、写、译多种功能。每个单元都是从一段综合而精辟的介绍主题的介绍开始，将学生引入本单元的学习，并通过精心设计的问题，开启学生对本单元内容的思考并进行口语操练和热身，使学生能够有备、有序、充满兴趣与期待地进入单元阅读。

三、练习丰富，内容广泛，形式多样，可供学生自学挑选

针对课内学习时间较少的限制，本教材的练习设计内容丰富，形式多样。练习包含不同形式的阅读理解练习题、填写并概括文章大意练习、词汇练习、完形填空、科技术语翻译、句子英汉互译以及科技英语写作练习等，内容广泛而丰富，为学生课下自主学习提供了丰富的资源。



四、优化教学模式，提供立体资源，构建自主学习平台

本教材建有学习网站，针对每一个单元的内容都有相关的视频材料（比如第六单元关于太空，就有嫦娥1号、嫦娥2号发射的现场录像和相关英文报道等）。对每单元的生词和课文配有标准录音，学生可以登录网站，下载或在线听声音文件，还可以和教师或同学进行网上交流。丰富的教学资源，个性化、自主化的学习环境弥补了课时少的不足，同时有助于学生进一步提高学习兴趣、语言能力和学习能力。

使用对象：

本书是为大学英语应用提高阶段编写的可用于必修课也可用于选修课的一部教材。这部教材适用于理工类大学非英语专业大学三年级学生。

由于本教材所涉及的学科领域比较广，在编写过程中对专业知识的把握难免有疏漏之处，恳请各位专家和读者指正。

编者

2010年12月



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Unit 1 Sources of Energy

The discussion of the future of oil is a difficult one. Although new sources may be found, there will be a time when the oil of the world will be gone. It is very important to emphasize conservation efforts and new sources of energy to counter this threat. Hopefully, in the coming years, new tools such as hydrogen fuel cells and solar power will become true alternatives to petroleum. The need to push new technology and development of “unconventional oil” is paramount. With such large reserves available around the world, the end of oil may be delayed long enough so that true alternatives will come into being.



Warm-up Questions

1. What kind of sources of energy do you know? Which is the most important one?
2. Do you think the sources of energy on Earth are running out? Why or why not?
3. What can we do to protect our existing sources of energy and discover new sources?



Text A

Petroleum

By Isaac Asimov

- ① Petroleum, like coal, is found in sedimentary rocks, and was probably formed from long-dead living organisms. The rocks in which it is found are almost always of ocean origin and the petroleum-forming organisms must have been ocean creatures rather than trees.
- ② Instead of originating in accumulating woody matter, petroleum may be the product of the accumulating fatty matter of ocean organisms such as plankton, the myriads of single-celled creatures that float in the surface layers of the ocean.
- ③ The fat of living organisms consists of atom combinations that are chiefly made up of carbon and hydrogen atoms. It does not take much in the way of chemical change to turn that into petroleum. It is only necessary that the organisms settle down into the ooze underlying shallow arms of the ocean under conditions of oxygen shortage. Instead of decomposing and decaying, the fat accumulates, is trapped under further layers of ooze, undergoes minor rearrangements of atoms, and finally is petroleum.
- ④ Petroleum is lighter than water and, being liquid, tends to ooze upward through the porous rock that covers it. There are regions on Earth where some reaches the surface and the ancients spoke of pitch, bitumen, or asphalt. In ancient and medieval times, such petroleum seepages were more often looked on as medicines rather than fuels.
- ⑤ Of course, the surface seepages are in very minor quantities. Petroleum stores, however, are sometimes overlain with nonporous rock. The petroleum seeping upward reaches that rock and then remains below it in a slowly accumulating pool. If a hole can be drilled through the rock overhead, the petroleum can move up through the hole. Sometimes the pressure on the pool is so great that the petroleum gushes high into the air. The first successful drilling was carried through in 1859 in Titusville, Pennsylvania, by Edwin Drake.
- ⑥ If one found the right spot (and prospectors eventually learned to recognize the kind of geologic formations that made it likely for a pool of trapped petroleum to exist underground) then it was easy to bring up the liquid material. It was much easier to do that than to send men underground to chip out chunks of solid coal. Once the petroleum was obtained, it could be moved overland through pipes, rather than in freight trains that had to be laboriously loaded and unloaded, as was the case with coal.
- ⑦ The convenience of obtaining and transporting petroleum encouraged its use. The petroleum could be distilled into separate fractions, each made up of molecules of a particular size. The smaller the molecules, the easier it was to evaporate the fraction.
- ⑧ Through the latter half of the nineteenth century, the most important fraction of petroleum was kerosene, made up of middle-sized molecules that did not easily evaporate. Kerosene was



used in lamps to give light.

- 9 Toward the end of the nineteenth century, however, engines were developed which were powered by the explosions of mixtures of air and inflammable vapors within their cylinders. The most convenient inflammable vapor was that derived from gasoline, a petroleum fraction made up of small molecules and one that therefore vaporized easily.
- 10 Such internal combustion engines are more compact than earlier steam engines and can be made to start at a moment's notice, whereas steam engines require a waiting period while the water reserve warms to the boiling point.
- 11 As automobiles, trucks, buses, and aircraft of all sorts came into use, each with internal combustion engines, the demand for petroleum zoomed upward. Houses began to be heated by burning fuel oil rather than coal. Ships began to use oil; electricity began to be formed from the energy of burning oil.
- 12 In 1900, the energy derived from burning petroleum was only 4 percent that of coal. After World War II, the energy derived from burning the various fractions of petroleum exceeded that of coal, and petroleum is now the chief fuel powering the world's technology.
- 13 The greater convenience of petroleum as compared with coal is, however, balanced by the fact that petroleum exists on Earth in far smaller quantities than coal does. (This is not surprising, since the fatty substances from which petroleum was formed are far less common on Earth than the woody substances from which coal was formed.) There is another complication in the fact that petroleum is not nearly so evenly distributed as coal is. The major consumers of energy have enough local coal to keep going but are, however, seriously short of petroleum. The United States has 10 percent of the total petroleum reserves of the world in its own territory, and has been a major producer for decades. It still is, but its enormous consumption of petroleum products is now making it an oil importer, so that it is increasingly dependent on foreign nations for this vital resource. Russia has about as much petroleum as the United States, but it uses less, so it can be an exporter.
- 14 Nearly three-fifths of all known petroleum reserves on Earth is to be found in the territory of the various Arabic-speaking countries. Kuwait, for instance, which is a small nation at the head of the Persian Gulf, with an area only three-fourths that of Massachusetts and a population of about half a million, possesses about one-fifth of all the known petroleum reserves in the world. The political problems this creates are already becoming crucial.

(877 words)



New Words

sedimentary	[ˌsedi'mentəri]	a. 沉积的
organism	['ɔ:gənizəm]	n. 有机物
originate	[ə'ridʒineit]	vt. 发源, 发起
accumulate	[ə'kju:mjuleit]	v. 积累
plankton	['plæŋktən]	n. 浮游生物



myriad	['miriəd]	<i>n./a.</i> 极大数量 (的), 无数 (的)
single-celled	['siŋəl'seld]	<i>a.</i> 单细胞的
combination	[,kɒmbi'neiʃən]	<i>n.</i> 组合, 结合
carbon	['kɑ:bən]	<i>n.</i> [化] 碳
hydrogen	['haɪdrədʒən]	<i>n.</i> [化] 氢
ooze	[u:z]	<i>n.</i> 淤泥 <i>v.</i> 渗出
decompose	[,di:kəm'pəuz]	<i>v.</i> 分解
decay	[di'keɪ]	<i>v.</i> 腐烂
trap	[træp]	<i>v.</i> 困住 <i>n.</i> 陷阱
undergo	[,ʌndə'gəʊ]	<i>v.</i> 经历
rearrangement	[,ri:ə'reɪndʒmənt]	<i>n.</i> 重新排列
porous	['pɔ:rəs]	<i>a.</i> 多孔的
pitch	[pɪtʃ]	<i>n.</i> 沥青; 音高
bitumen	['bɪtjumin]	<i>n.</i> 沥青, 柏油, 土沥青
asphalt	['æsfælt]	<i>n.</i> 柏油, 异庚烷
medieval	[,medi'i:vəl]	<i>a.</i> 中世纪的, 古老的
seepage	['si:pɪdʒ]	<i>n.</i> 油苗; 渗出
overlie	[,əʊvə'lai]	<i>v.</i> 覆盖在上面
seep	[si:p]	<i>vi.</i> 渗出, 渗漏
gush	[gʌʃ]	<i>v.</i> 喷出; 滔滔不绝地说
prospector	[prə'spektə]	<i>n.</i> 勘探人员, 探矿者
geologic	[dʒi'ɒlədʒɪk]	<i>a.</i> 地质 (学) 的
chunk	[tʃʌŋk]	<i>n.</i> 大块, 厚片
overland	['əʊvələnd]	<i>ad.</i> 经由陆地
freight	[freɪt]	<i>n.</i> 货运
laboriously	[lə'bɔ:riəsli]	<i>ad.</i> 辛苦地, 费力地
distill	[di'stɪl]	<i>vt.</i> 蒸馏; 提炼
molecule	['mɒlɪkjʊ:l]	<i>n.</i> 分子
evaporate	[i'væpəreɪt]	<i>v.</i> 蒸发; 消失
fraction	['frækʃən]	<i>n.</i> 馏分; 部分
kerosene	['kerəsi:n]	<i>n.</i> 煤油
explosion	[ɪks'pləʊʒən]	<i>n.</i> 爆炸
flammable	[ɪn'flæməbl]	<i>a.</i> 易燃的
vapor	['veɪpə]	<i>n.</i> 蒸汽
cylinder	['sɪlɪndə]	<i>n.</i> 汽缸; 圆柱体
vaporize	['veɪpəraɪz]	<i>v.</i> 蒸发; 汽化
internal	[ɪn'tə:nəl]	<i>a.</i> 内部的
combustion	[kəm'bʌstʃən]	<i>n.</i> 燃烧
compact	[kəm'pækt]	<i>a.</i> 紧密的, 紧凑的; 小巧的
zoom	[zu:m]	<i>v.</i> 急升, 猛涨
exceed	[ɪk'si:d]	<i>v.</i> 超过
substance	['sʌbstəns]	<i>n.</i> 物质
complication	[,kɒmplɪ'keɪʃən]	<i>n.</i> 复杂



distribute	[dis'tri:bju:t]	v. 分布; 分配
territory	['teritəri]	n. 领土, 领域
enormous	[i'nɔ:məs]	a. 巨大的
consumption	[kən'sʌmpʃən]	n. 消费
vital	['vaitəl]	a. 重要的
crucial	['kru:ʃəl]	a. 关键的, 至关重要的



Phrases and Expressions

be of...origin	起源于……
settle down	沉积; 定居
shallow arms	浅湾
carry through	进行到底, 完成
chip out	削出, 铲出
derive from	源自……
internal combustion engine	内燃机
at a moment's notice	一会儿, 顷刻
the boiling point	沸点
come into use	开始被使用
not nearly	远远不, 根本不



Proper Names

Titusville	['taitʌsvil]	泰特斯维尔 (美国宾夕法尼亚州的城市)
Pennsylvania	[ˌpensil'veiniə]	(美国) 宾夕法尼亚州
Edwin Drake	['edwin dreik]	埃德温·德雷克
Kuwait	[ku'weit]	科威特 (中东国家)
Arabic	['ærəbik]	阿拉伯的; 阿拉伯语
the Persian Gulf	['pɜ:ʃən gʌlf]	波斯湾 (简称海湾, 位于伊朗和阿拉伯半岛之间)
Massachusetts	[ˌmæsə'tʃu:sits]	(美国) 马萨诸塞州

Exercises

Comprehension

► **Ex. 1 Directions:** Choose the one that best answers the following question or completes the statement according to the text.

1. Petroleum is unlike coal in the way that _____.

A. petroleum is found in sedimentary rocks and was probably formed from long-dead living organisms



- B. once the petroleum was obtained, it could be moved overland in freight trains
 - C. petroleum is not nearly so evenly distributed as coal is
 - D. petroleum exists on Earth in far greater quantities than coal does
2. The use of petroleum is greatly encouraged by the fact that _____.
- A. petroleum is lighter than water
 - B. petroleum is the product of the accumulating fatty matter of ocean organisms
 - C. obtaining and transporting petroleum is very convenient
 - D. the energy derived from burning petroleum is only 4 percent that of coal
3. Which of the following is a petroleum fraction made up of small molecules and one that therefore vaporizes easily?
- A. Kerosene.
 - B. Gasoline.
 - C. Asphalt.
 - D. Vapor.
4. Internal combustion engines, in comparison with steam engines, have great advantages EXCEPT that _____.
- A. they are smaller in size
 - B. they are easier to start
 - C. they require shorter waiting period
 - D. they demand less energy consumption
5. The author's attitude towards the problems related to petroleum is best described as _____.
- A. indifferent
 - B. neutral
 - C. approving
 - D. critical

► **Ex. 2 Directions:** Read through the text and answer the following questions briefly.

1. How is petroleum formed from long-dead living organisms? (Para. 2~3)
- _____
2. Where is it likely to find petroleum? (Para. 4~5)
- _____
3. Why did petroleum begin to be used widely at the end of the 19th century? (Para. 9)
- _____
4. What are the disadvantages of petroleum compared with coal? (Para.13~14)
- _____
5. Why is it that the United States with relatively large petroleum reserves of the world has to depend on foreign nations for petroleum? (Para.13)
- _____
6. What might the paragraph following this passage write about? (Para.14)
- _____



Vocabulary

► **Ex. 3 Directions:** Choose the one that best fits into each blank.

- While it's true that we all need a career, it is equally true that our civilization has _____ an incredible amount of knowledge in fields far removed from our daily life.
A. accumulated B. accustomed C. accomplished D. accounted
- The smaller and newer universities do not _____ the staff or equipment to carry out the practical research projects possible in larger institutions.
A. protect B. prevent C. possess D. process
- The oil industry goes with the high end of the range, which could equal as much as 10% of U.S. _____ for as long as six years.
A. assumption B. presumption C. resumption D. consumption
- What she achieved in her research might _____ what she had been expecting and might make contribution to the domain.
A. exceed B. exclaim C. excess D. extend
- The successful _____ of the first atom bomb in China aroused wide attention and amazement all over the world.
A. exploration B. explosion C. exploitation D. explosive
- Whoever wishes to succeed may have to _____ disappointment and failure before experiencing success.
A. undergo B. underlie C. undermine D. underline
- This generation of fuels are extraordinarily environment-friendly and also easily _____ into the soil without pollution.
A. decompose B. decompress C. decrease D. decorate
- Before we _____ this marketing plan, we have to make certain the potential of the target market in order to ensure whether it is feasible or not.
A. carry on B. carry out C. carry through D. carry off
- More aggressive animals, such as tigers and bears, use teeth and nails to attack other creatures or defend their own _____.
A. field B. territory C. land D. terrace
- Differences between languages _____ the different modes of thinking as thinking is the basis of language.
A. distinguish from B. deviate from
C. deliver from D. derive from

► **Ex. 4 Directions:** Complete the sentences with the correct form of the words given in the brackets.

- (organism) A living organism would take in the radioactive carbon and convert it to _____ material.



- 2.(origin) The viruses do not _____ in the wild birds or animals but in the polluted waterways or food sources due to human dumping.
- 3.(compose) Bodies of these dead animals _____ and are quickly destroyed by the weather or eaten by some other creatures.
- 4.(arrange) If you do have to change an appointment, you should inform the person by telephone or with a written note as soon as possible, so that he or she can make an _____.
- 5.(lie) The channel sandbar is the main sand body and is usually directly _____ by floodplain deposits.
- 6.(prospect) A foreign _____ recently announced it had detected 500 million barrels of crude oil, worth around \$25 billion.
- 7.(flame) Do not use nylon or other _____ materials to put out the fire, for they can only aggravate it.
- 8.(substance) The _____ rise since the beginning of the year largely reflects the impact of higher energy and food prices.
- 9.(complicate) The opinion of the world brought up still another _____ to make the understanding of the situation even more difficult.
- 10.(consume) It can largely reduce the _____ of power for vibration in the working process.

► **Ex. 5 Directions:** Choose the best answer on the right side of the paper to fill in each numbered blank.

A land free from destruction, plus wealth, natural resources, and labor supply—all these were important (1) in helping England to become the center for the Industrial Revolution. (2) they were not enough. Something (3) was needed to start the industrial process. That something special was men—(4) individuals who could invent machines, find new (5) of power and establish business organizations to reshape society.

The men who (6) the machines of the Industrial Revolution (7) from many backgrounds and many occupations. Many of them were (8) inventors than scientists. A man who is a (9) scientist is primarily interested in doing his research (10). He is not necessarily working (11) that his findings can be used.

- | | |
|------------------|-----------------|
| 1. A. cases | B. reasons |
| C. factors | D. situations |
| 2. A. But | B. And |
| C. Besides | D. Even |
| 3. A. else | B. near |
| C. extra | D. similar |
| 4. A. generating | B. effective |
| C. motivating | D. creative |
| 5. A. origins | B. sources |
| C. bases | D. discoveries |
| 6. A. employed | B. operated |
| C. created | D. controlled |
| 7. A. came | B. arrived |
| C. stemmed | D. appeared |
| 8. A. less | B. better |
| C. more | D. worse |
| 9. A. stupid | B. practical |
| C. pure | D. clever |
| 10. A. happily | B. occasionally |
| C. reluctantly | D. accurately |
| 11. A. now | B. and |



An inventor or one interested in applied science is (12) trying to make something that has a concrete (13). He may try to solve a problem by using the theories (14) science or by experimenting through trial and error. Regardless of his method, he is working to obtain a (15) result; the construction of a harvesting machine, the burning of a light bulb, or one of (16) other objectives.

Most of the people who (17) the machines of the Industrial Revolution were inventors, not trained scientists. A few were both scientists and inventors. Even those who had (18) or no training in science might not have made their inventions (19) a groundwork had not been laid by scientists years (20).

- | | | |
|-----|----------------|--------------|
| | C. all | D. so |
| 12. | A. seldom | B. sometimes |
| | C. usually | D. never |
| 13. | A. plan | B. idea |
| | C. use | D. means |
| 14. | A. of | B. with |
| | C. to | D. as |
| 15. | A. single | B. sole |
| | C. specialized | D. specific |
| 16. | A. few | B. those |
| | C. many | D. all |
| 17. | A. proposed | B. developed |
| | C. supplied | D. offered |
| 18. | A. little | B. much |
| | C. some | D. any |
| 19. | A. as | B. if |
| | C. because | D. while |
| 20. | A. ago | B. past |
| | C. ahead | D. before |

Translation

► **Ex. 6 Directions:** Translate the following Chinese terms into English or vice versa.

- | | |
|------------------------------|-------------------------------|
| 1. 沉积岩 _____ | 2. 石油储备 _____ |
| 3. 内燃机 _____ | 4. 沸点 _____ |
| 5. 脂肪物质 _____ | 6. in minor quantities _____ |
| 7. petroleum fractions _____ | 8. inflammable vapors _____ |
| 9. geologic formations _____ | 10. in the territory of _____ |

► **Ex. 7 Directions:** Translate the following sentences into Chinese.

1. The rocks in which it is found are almost always of ocean origin and the petroleum-forming organisms must have been ocean creatures rather than trees. (Para. 1)
- _____
- _____

2. Instead of decomposing and decaying, the fat accumulates, is trapped under further layers of ooze, undergoes minor rearrangements of atoms, and finally is petroleum. (Para. 3)
- _____
- _____

3. Once the petroleum was obtained, it could be moved overland through pipes, rather than in freight trains that had to be laboriously loaded and unloaded, as was the case with coal. (Para. 6)
- _____
- _____

4. Such internal combustion engines are more compact than earlier steam engines and can be made to start at a moment's notice, whereas steam engines require a waiting period while the water reserve warms to be boiling point. (Para.10)

5. The greater convenience of petroleum as compared with coal is, however, balanced by the fact that petroleum exist on Earth in far smaller quantities than coal does. (Para.13)

► **Ex. 8 Directions:** *Translate the following sentences into English with the words or phrases given in the brackets.*

1. 正如大家所了解的，水是由氢原子和氧原子组成的。(consist of)
2. 无数的海底生物组成了丰富多彩的水下世界。(the myriads of)
3. 单只依赖进口发展国民经济是不可能的。(be dependent on)
4. 城市垃圾产生的燃气既能发电也能供暖。(derive from)
5. 无论我们遇到什么困难，都要把这项实验坚持到底。(carry through)

Text B

The Future of Alternative Energy

- ① Residential energy use in the United States will increase 25 percent by the year 2025, according to U.S. Department of Energy (DOE) forecasts. A small but increasing share of that extra power will trickle in from renewable sources like wind, sunlight, water, and heat in the ground.
- ② Last year alternative energy sources provided 6 percent of the nation's energy supply, according to the DOE.
- ③ The future belongs to renewable energy, said Brad Collins, the executive director of the American Solar Energy Society, a Boulder, Colorado-based nonprofit. Scientists and industry experts may disagree over how long the world's supply of oil and natural gas will last, but it *will* end, Collins said.
- ④ While renewable energy is generally more expensive than conventionally produced supplies, alternative power helps to reduce pollution and to conserve fossil fuels.

