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普通高等教育“十二五”重点规划教材

Nucleus 新核心 大学英语

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阶梯阅读3

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新核心 大学英语

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内容提要

本书包括八个单元，每个单元包括五篇阅读材料。两篇短篇文章长度为200~500词，两篇长篇文章长度为700~1 200词，最后一篇文章是关于中国文化的，文后不设习题，主要是帮助学生了解中国历史文化的英语表达方式，提高他们对外交流能力。阅读材料的内容突出知识性，涉及自然学科和人文学科，体裁以说明文和议论文为主。

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前　言

21世纪以来，我国相继出版了一批优秀的大学英语教材。如果说这些教材都是以趣味性、可思性、文学性和人文性为课文选材原则，提倡人文素质教育的话，那么《新核心大学英语》系列教材将在这些方面有一个新的突破。

2013年出版的《新核心大学英语快速阅读》系列教材得到广大师生的充分肯定。随着大学英语改革的推进，随着英语四、六级考试改革的深入，我们及时对其进行了改版，出版此套《新核心大学英语阶梯阅读》教材。

一、教材编写依据

《新核心大学英语阶梯阅读》是以《新核心大学英语读写教程》为依托，从内容上对《新核心大学英语快速阅读》做进一步改进，提倡科学素质教育，以content-based为编写原则，文章选材上偏向提高学术能力的科普性文章。

目前，我国大学英语教学不再是单单打基础的阶段，不再是单纯地为学语言而学语言，而是趋向于与某一方面的专业知识或某一个学科结合的发展方向结合起来，换句话说，大学英语应当与学生的专业内容结合起来，这样才能体现新时期语言教学中的“需求分析”原则。《新核心大学英语阶梯阅读》正是为了适应我国大学英语教学转型要求而编写的，是为了帮助大学生达到《大学英语课程教学要求》中阅读部分的一般要求、较高要求和更高要求而编写的一套具有鲜明时代特色的大学英语教材；是培养学生查阅学术文献能力的需要，培养学生在较短时间里通过快速阅读，查到自己所需要的信息。

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二、教材结构框架

《新核心大学英语阶梯阅读》是《新核心大学英语》主干教材的配套教材，包括《新核心大学英语阶梯阅读 基础级》、《新核心大学英语阶梯阅读 1》、《新核心大学英语阶梯阅读 2》、《新核心大学英语阶梯阅读 3》、《新核心大学英语阶梯阅读4》五册。《新核心大学英语阶梯阅读》系列教材旨在培养学生语篇信息查找能力，训练学生快速阅读能力以及水平考试中阅读理解文章的能力。

每册包括八个单元，每个单元包括五篇阅读材料。教材中每个单元所选阅读材料基本与《新核心大学英语读写教程》相应单元的主题内容一致，难度略低于《新核心大学英语读写教程》，两篇短篇文章长度为200~500词，两篇长篇文章长度为700~1 200词，最后一篇文章是关于中国文化的，文后不设习题，主要是帮助学生了解中国历史文化的英语表达方式，提高他们对外交流能力。阅读材料的内容突出知识性，涉及自然学科和人文学科，体裁以说明文和议论文为主。

三、教材使用说明

作为《新核心大学英语读写教程》的配套使用教材，我们建议《新核心大学英语阶梯阅读》每个单元的总学时数不少于2个课时，课内学时数不少于1个学时，学生课外自主阅读时间不少于1个学时。在每周大学英语课堂教学中教师根据具体授课进度、单元主题内容指定《新核心大学英语阶梯阅读》中相应的文章让学生进行阅读训练，教师也可以将本系列教材作为学生课后自主阅读的材料，教师对学生自主学习过程进行监督与评价。

编　者

2014年3月

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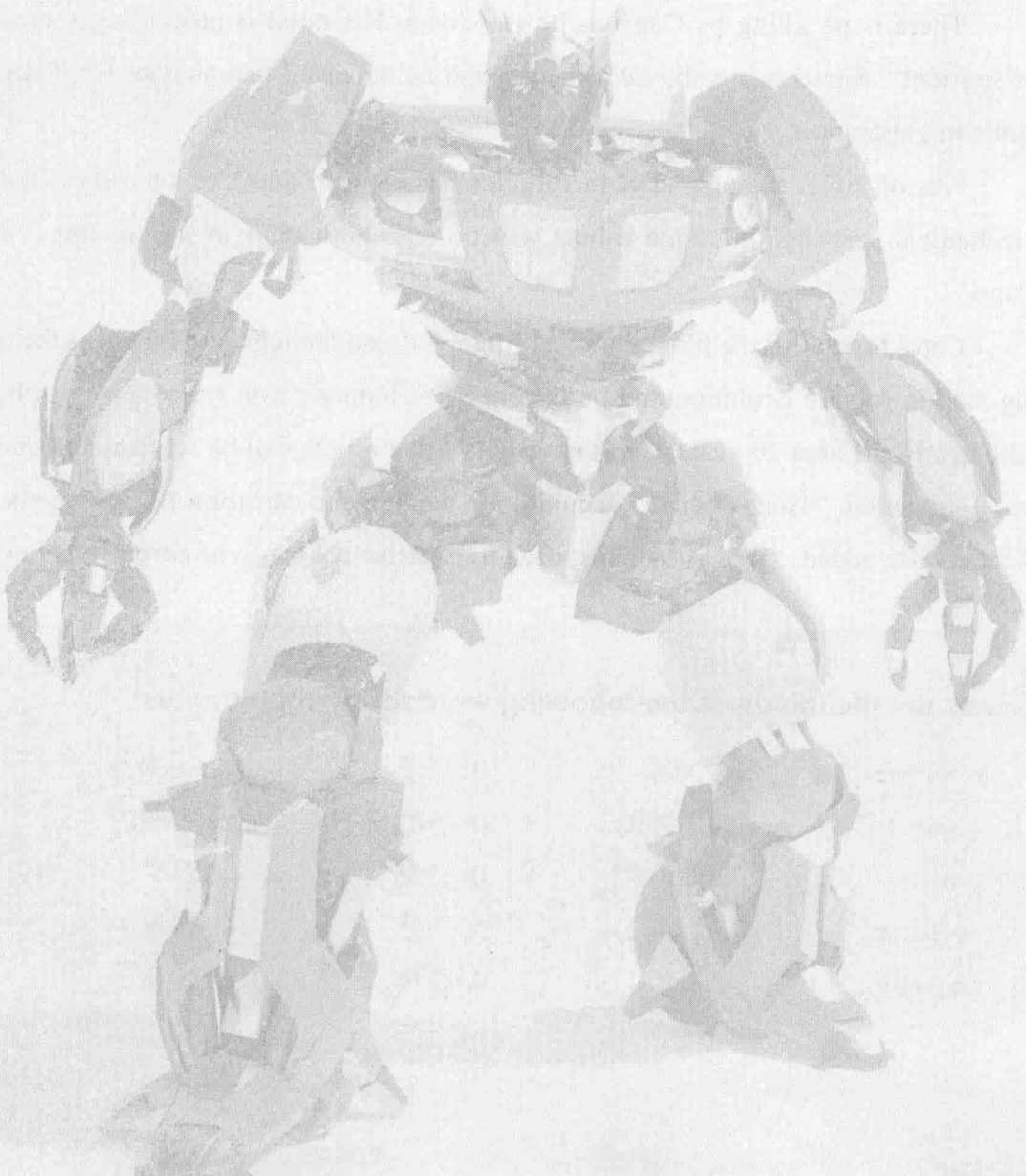
Unit 1
The Age of Robots

Nucleus



Passage 1

Time Taken: _____ minutes

A Dream of Robot's Rights

Capri makes small talk to the familiar barista (咖啡师), then takes his chai latte (印度奶茶拿铁咖啡) to a window table where he sits alone and **ruminates**[1] about whether all this human interaction will disappear in the near future as robots will have a bigger role in society.

There is no idling by Capri as he sits down. His mind is processing scenarios of **sentient**[2] robots being abused as slaves and he is fearful that another Civil Rights battle might erupt.

"As of 2011, the emphasis in robotics has been to make robots functional as mechanical servants, but soon robots will possess both thought and feeling," said Capri.

Capri **foresees**[3] the programming of thoughts and feelings into robots as the next big step in robotic evolution and he is concerned humans won't recognize a robot's feelings. In the next 20 years, Capri **envisions**[4] that robots will be sentient and they'll need protection. "This is where I would draw the line and call for a Bill of Rights for Robots." He added, "We, as humans, need to exercise our sense of **empathy**[5] toward

Guess the meanings of the following words from their context.

(1) ruminate	A. 沉思	B. 反刍	C. 玩味
(2) sentient	A. 伤感的	B. 有感情的	C. 敏感的
(3) foresee	A. 朝前看	B. 预见	C. 看见
(4) envision	A. 看见	B. 视线	C. 想象
(5) empathy	A. 可怜	B. 移情	C. 敏感

the robots we are creating, and robots should be programmed with a sense of empathy toward us and each other."

Capri's knowledge as a cosmologist-futurist has him worried that as robots become more advanced, humans will fail to realize that robots are more than machines to simplify their lives.

"As we program robots at higher levels, I'll be lobbying for programming an **ethic**[6] of empathy." More empathy is something humans could benefit from as well, believes Capri. "As humans, with at best a shaky record when it comes to avoiding war and harsh prejudices towards one another, we could do with some reprogramming ourselves." The stronger the empathy, the less likely one's tendency toward violence as a means of solving problems, explains Capri. "The hope of the future is not technology alone," Capri adds. "It's the empathy necessary for all of us, human and robot, to survive and thrive."

"The evolution of robots is inevitable," Capri states forebodingly. The line between human and machine is already beginning to blur, and Capri wonders what will life be like for people who have had limbs and human features replaced by robotic parts. Humans will become more robotic as robots become more human. *(392 words)*

Abridged and revised from
http: //www.botmag.com/index.php/a-dream-of-robot-rights

(6) ethic　　A. 伦理　　B. 种族　　C. 人种

Select the most appropriate answer for each of the following questions.

(1) Robots are supposed to be _____ in this passage.

A. sentient　　B. lonely

C. sentimental　　D. emotionless

(2) Capri believes robots are so sentient that they may ask for _____.

A. voting rights B. democratic rights

C. civil rights D. refusal rights

(3) Capri is concerned humans won't recognize a robot's _____.

A. love B. hate

C. revenge D. feelings

(4) Capri believes robots should be programmed with a sense of _____.

A. empathy B. humor

C. pain D. happiness

(5) It can be inferred from the passage that _____.

A. robots may be the slaves of human beings

B. robots may become dominant in human beings' society

C. robots may serve human beings

D. robots may become more violent in the future

Passage 2

Time Taken: _____ minutes

Pipeline Exploration Robot

Regular inspection of pipelines is a key factor in ensuring safe transport and finding pipe leakages or **blockages**[1] for a wide variety of **applications**[2], e.g. oil

Guess the meanings of the following words from their context.

(1) blockage	A. 封锁	B. 堵塞	C. 收缩
(2) application	A. 用途	B. 申请	C. 实施

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and gas transport. Using pipeline exploration robots to enter pipelines and carry out inspection work with HD cameras greatly increases efficiency and quality of inspection. A pipeline exploration robot system includes a control station and a robot.

A control station is a single board computer or a PC responsible for receiving, storing and displaying video signals sent by robots as well as controlling robots' behavior by sending instructions.

Pipeline exploration robots consist of a multimedia application processor, status and environment information, camera and a communication system. The application processors controls robots' movements and **operate**[3] the camera system based on the instructions sent by the control station, while simultaneously sending robot status and encoded video signals back to the control station. Pipeline exploration robots usually use wheels or caterpillar tracks(履带)as their moving system because gas/oil pipelines always have a large diameter. An individual moving system of this kind is equipped with multiple brushless motors to ensure the capability of overcoming obstacles. The status and environment information system is composed of a rotary encoder(旋转编码器), an electronic compass, a 3-axis accelerometer and temperature & humidity sensors. The system can provide general information about robots' locations, speed and inclination angle, temperature & humidity data which are helpful for the operators to make decisions on robot behavior control. The camera system consists of motion control and video processing units, and usually is coupled with an ultrasonic sensor to detect the thickness status of pipelines. The motion control unit has a servo motor to adjust the camera's height and rotation so that all the areas in the pipelines can be scanned by camera. The task of video signal processing is handled by imaging sensors and multimedia application processors which work together to implement video **capture**[4], signal conversion and encoding processes. In order to achieve better communication quality and longer distance, the encoded video and

(3) operate	A. 做手术	B. 操作	C. 经营
(4) capture	A. 采集	B. 俘虏	C. 抓住

control signals are combined into a single signal by a FPGA(现场可编程门阵列) included in the communication system, and then processed by a serializer to produce LVDS (Low Voltage Differential Signal) to be transmitted through twisted-pair cables. If signals have to travel a much longer distance, fiber-optic cables could be a good option as they can cover distances up to several kilometers.

As robotics technology develops, future pipeline exploration robots would feature more sophisticated A. I. (Artificial Intelligence), making them capable of "thinking and working" with minimum human intervention. *(417 words)*

Abridged and revised from

http: //fr.farnell.com/jsp/bespoke/bespoke7.jsp?bespokepage=common/fr/technology-first/applications/robotics/pipeline-exploration-robot.jsp

Select the most appropriate answer for each of the following questions.

(1) Pipeline exploration robots can greatly increase _____.

A. the variety of applications of pipelines

B. the efficiency and quality of inspection

C. the frequency of inspections

D. the application of robots

(2) A pipeline exploration robot system includes a(n) _____ and a(n) _____.

A. single board computer, PC

B. control station, robot

C. rotary encoder, electronic compass

D. sensor, processor

(3) Pipeline exploration robots usually use _____ as their moving system.

A. wheels or caterpillar tracks

B. legs and feet

C. supports

D. propellers

(4) The motion control unit has a _____ to adjust the camera's height and rotation.

A. propeller B. machine

C. servo motor D. mechanical arm

(5) The author believes pipeline exploration robots in the future will be able to _____.

A. walk and run

B. speak and communicate

C. stand up and kneel down

D. think and work

Passage 3

Time Taken: _____ minutes

Directions: *In this section, there is a passage with ten blanks. You are required to select one word for each blank from a list of choices given in a word bank following the passage. Read the passage through carefully before making your choices. Each choice in the bank is identified by a letter. Please mark the corresponding letter for each item. You may not use any of the words in the bank more than once.*

Artificial intelligence (AI) is a ___(1)___ trend in computer automation systems. Several types of AI technology are available. These ___(2)___ robotics, voice-recognition systems, and many smart computer systems. Artificial intelligence refers to any computer system that uses a ___(3)___ process to learn and improve based on the surrounding environment and prior mistakes.

Robotics is an area that is ___(4)___ with artificial intelligence technology. Historically, robots were ___(5)___ computers that could only move with manual remote controls. Modern robots include environment ___(6)___ that can detect

explosives and other materials. This creates a smarter robot that can be used in dangerous conditions including accidents involving hazardous materials and nuclear disasters.

One of the most basic systems that uses AI technology is the automatic vacuum. This household gadget can actually learn and map the logistics of a living area. The automatic vacuum cleaner is a device that ___(7)___ these coordinates based on hitting the walls and furniture of the home. Once the vacuum has ___(8)___ the rooms, it can clean the rooms without hitting any obstacle.

Voice-recognition systems are ___(9)___ form of artificial intelligence technology. This computer technology is quickly becoming available in most cars and cell phones. Voice-recognition systems were one of the most ___(10)___ systems to build because voices have specific characteristics that are hard to decipher. Modern voice-recognition systems learn commands based on the user voice, and then learn to accept commands based on that pattern. *(237 words)*

Abridged and revised from

http: //www.wisegeek.com/what-are-the-different-types-of-artificial-intelligence-technology.htm

(A) include	(I) logical
(B) sensors	(J) growing
(C) learns	(K) mapped
(D) another	(L) drawn
(E) evolving	(M) average
(F) target	(N) dumb
(G) latest	(O) invest
(H) difficult	

Passage 4

Time Taken: _____ minutes

Directions: *In this section, you are going to read a passage with ten statements attached to it. Each statement contains information given in one of the paragraphs. Identify the paragraph from which the information is derived. You may choose a paragraph more than once. Each paragraph is marked with a letter.*

Digital Technology — A Third Industrial Revolution

A "As manufacturing goes digital, it will change out of all recognition," says Paul Markillie. And some of the business of making things will return to rich countries. Outside the Frankfurt Messe (法兰克福博览会), home of innumerable German trade fairs, stands the "Hammering Man", a 21-metre kinetic statue that steadily raises and lowers its arm to bash a piece of metal with a hammer. Jonathan Borofsky, the artist who built it, says it is a celebration of the worker using his mind and hands to create the world we live in. That is a familiar story. But now the tools are changing in a number of remarkable ways that will transform the future of manufacturing.

B One of those big trade fairs held in Frankfurt is EuroMold (欧洲模具展销会), which shows machines for making prototypes of products, the tools needed to put those things into production and all manner of other manufacturing kit. Old-school engineers worked with lathes, drills, stamping presses and molding machines. These still exist, but EuroMold exhibits no oily machinery tended by men in overalls. Hall after hall is full of squeaky-clean American, Asian and European machine tools, all highly automated. Most of their operators, men and women, sit in front of computer screens. Nowhere will you find a hammer. And at the most recent EuroMold fair, last November, another group of machines was on display:

three-dimensional (3D) printers. Instead of bashing, bending and cutting material the way it always has been, 3D printers build things by depositing material, layer by layer. That is why the process is more properly described as additive manufacturing. An American firm, 3D Systems, used one of its 3D printers to print a hammer for your correspondent, complete with a natty wood-effect handle and a metalized head.

C This is what manufacturing will be like in the future. Ask a factory today to make you a single hammer to your own design and you will be presented with a bill for thousands of dollars. The makers would have to produce a mould, cast the head, machine it to a suitable finish, turn a wooden handle and then assemble the parts. To do that for one hammer would be prohibitively expensive. If you are producing thousands of hammers, each one of them will be much cheaper, thanks to economies of scale. For a 3D printer, though, economies of scale matter much less. Its software can be endlessly tweaked and it can make just about anything. The cost of setting up the machine is the same whether it makes one thing or as many things as can fit inside the machine; like a two-dimensional office printer that pushes out one letter or many different ones until the ink cartridge and paper need replacing, it will keep going, at about the same cost for each item.

D Additive manufacturing is not yet good enough to make a car or an iPhone, but it is already being used to make specialist parts for cars and customized covers for iPhones. Although it is still a relatively young technology, most people probably already own something that was made with the help of a 3D printer. It might be a pair of shoes, printed in solid form as a design prototype before being produced in bulk. It could be a hearing aid (助听器), individually tailored to the shape of the user's ear. Or it could be a piece of jewelery, cast from a mould made by a 3D printer or produced directly using a growing number of printable materials.

E But additive manufacturing is only one of a number of breakthroughs leading to the factory of the future, and conventional production equipment is becoming smarter and more flexible, too. Volkswagen has a new production strategy called

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