

高等学校学术英语（EAP）系列教材自 2012 年出版以来，受到国内众多高校的欢迎，被数百所高校选用。

随着国家对培养国际化人才的重视不断加深，国际间学术交流活动的日渐频繁，学术英语课程的重要性愈加凸显。教育部高等学校大学外语教学指导委员会研制的《大学英语教学指南》（以下简称《指南》）将专门用途英语正式列入大学英语课程体系，学术英语课程成为大学英语课程体系的重要组成部分，旨在培养学生运用英语进行专业学习和学术交流的能力，提升学生学术素养。

在此形势下，我们坚持并发扬第一版原有特色，遵循新时代国家和社会对大学生学术英语水平及能力培养的需求，借鉴近年来大学英语教学改革的成功经验与教学实践的成果，在广泛调研的基础上，对其进行了全面的改版，优化学科分类，丰富学科内涵，完善教材设计，使之更好地满足我国大学英语教学和改革的进一步需要，满足国家、社会和学生个人发展的需要。

编写依据和理念

本系列教材参考《指南》编写，以实现《指南》中提出的大学英语教学提高目标和发展目标为要求，延续第一版教材“用中学”的编写思路，采用语言学习无缝对接专业学习的创新理念，将语言学习、学术能力的培养以及初步的专业知识学习有机结合，培养学生用英语进行学业学习、学术交流和研究的能力，提升学生的学术素养，为学生顺利过渡到专业双语课程和全英语课程的学习打下坚实基础。

教材特色

一、选材地道，内涵丰富，体现大学科特色

本系列教材以大学科概念为划分基础，包括《学术英语 人文》、《学术英语 社科》、《学术英语 理工》、《学术英语 经管》、《学术英语 医学》和《学术英语 综合》。教材内容涵盖人文知识、社会科学知识、医学知识、自然科学知识的诸多方面。每个分册均围绕该领域内重要话题与知识点，精选内容深入浅出的原版文章，引导学生从不同角度学习学科知识，拓宽知识视野，提升思维能力，探讨深层问题。

二、聚焦学术语言共性，提高学生的学术英语水平

本系列教材聚焦语言及其使用的语境，强调同一学科大类中学术语言技能的共性。具体包括听（听学术讲座时能快速有效地记笔记、根据上下文猜测词义等）、说（宣读论文时能有效地组织语篇架构、注意逻辑衔接等）、读（阅读专业文章时能理解重要观点、

批判性阅读等)、写(撰写论文时掌握本专业的学术话语范式及论文写作规范等)、词汇(能运用 Coxhead 的学术核心词族表中的所有单词等)。

三、多元能力，专业素养，培养全面发展的高素质人才

本系列教材强调在提高学生英语语言应用能力的基础上，通过做学科相关调研、进行学术讨论、撰写学科论文、宣读论文等应用型输出任务，培养学生的自主学习及合作式学习能力、探究精神、创新思维、思辨能力、解决问题能力等学术能力和专业素养。

四、输出驱动，项目导向，提高学生的学术综合能力

在学术研究国际化的背景下，撰写规范的学术论文的能力愈加重要。本系列教材为了更好地训练学生的学术英语写作能力，在写作板块采取不同于传统模式的编写思路，强调输出驱动，项目导向。论文写作任务贯穿整个学期，每单元关注一个论文写作要素及语用技能，学生通过相关的阅读、研讨、教师的讲解以及课后的写作，最终完成整篇论文的撰写。这一新颖的教学方法能激发学习热情，学生在用中学，在学中用，更容易从外化的成果中获得成就感并提升学术综合能力。

教学资源

本系列教材提供配套的电子版教师用书和助教课件，包含教学建议、参考答案、课文译文等丰富的教学资源，帮助教师丰富教学内容，为教师备课提供便利。同时，也通过示范课和研修班等形式为教师提供教学指导与培训，帮助教师在教学中不断探索和发展。电子版教师用书、助教课件和示范课视频均可在 HEEP 高等英语教学网的教材支持中心获取。

编写团队

本系列教材由复旦大学学术英语教学团队的教师编写，编者都具有丰富的教授学术英语课程的经验。该团队的研究项目“基于学科内容的大学生学术英语能力培养模式的构建和创新”荣获 2017 年高等教育上海市级教学成果二等奖。

由于编者水平与经验有限，书中难免有不足之处，希望读者批评指正。

编者
2019 年 9 月

本教材为《学术英语（第二版）综合》，属高等学校学术英语（EAP）系列教材中的分册之一，涉及经济学、心理学、数学和医学等学科，适合修完大学英语基础课程，达到一般要求水平的学生。虽然本教材以专业内容而不是以语言训练为主线，但是基于培养学术交流能力为目的的听、说、读、写、译的训练贯穿每个单元，并且各个单元的语言训练内容相互衔接、前后呼应。学生学完本书后，其有效、得体地使用英语进行学业学习与学术交流的能力将得到较全面的提高。

教材结构框架

本教材分为十个单元。每单元设一个主题，内容包括围绕同一主题的两篇课文，与专业相关的学术视听、学术口语、学术写作训练以及相关的重点术语。每单元结构如下：

- 学术阅读（Text A; Text B）
- 学术视听（Viewing: Lecture）
- 学术口语（Speaking: Presentation）
- 学术写作（Writing: Academic essay）
- 重点术语（Key terms for further study）

除此之外，本教材书末还包含一个附录：课文重点学术词汇的汇总。

单元结构详述

本教材单元结构的详细介绍如下：

Reading 为学术阅读。内容包括Text A和Text B两个部分。

Text A 由导入、课文、词表、注释和练习五部分组成。课文前的导入部分（Lead-in）通过思考题、问答题等不同形式让学生先对相关话题进行思考讨论或者搜集背景知识，以便更好地理解课文。课文注释（Notes）采用脚注的形式，主要介绍课文出处、重要人物、概念、事件等。词表（New words and expressions）给出课文重难点词汇的拼写、音标、词性和中英文释义。练习部分（Exercises）主要包括以下两个方面：

• 批判性阅读和思考（Critical reading and thinking）：不仅考查学生对课文内容的理解，也培养学生的思辨能力、探究精神和独立思考能力。其中，口语活动可以结合学术口语部分（Speaking）提供的学术演讲的技巧和策略进行讲解和学习。

• 语言训练（Language building-up）：旨在帮助学生学习学术英语词汇和搭配，了解学术英语的规范表达并增强正式文体的语感。

Text B 由课文、词表、注释和练习组成。其中，练习分为三个部分：第一部分是批判性阅读与思考 (Critical reading and thinking)；第二部分是语言训练 (Language building-up)；第三部分是拓展性研究 (Researching)，该部分要求学生结合本单元所学的专业知识完成一项小型的调查研究任务，既能够加深、巩固学生对课文的理解，还给学生提供自主探索、主动学习的机会，通过学中用、用中学，提升学生自主探求的学术素养。

Viewing 为学术视听。介绍看/听学术讲座的策略，并配有相关的视听练习，培养学生理解专业学术发言、记笔记、整理笔记等能力。

Speaking 为学术口语。内容包括分析演讲受众、明确目标、设计演讲结构、观点衔接、论证与反驳观点、使用视觉辅助工具等技巧，培养学生在做学术演讲时恰当、得体地使用英语的能力。

Writing 为学术写作。内容包括宏观结构和微观技能。宏观结构包括选题、论文结构、引言、论辩、议论、结尾、参考书目等，微观技能包括如何收集资料、设计研究问题、写主题思想、定义、归纳与总结、恰当引用、衔接与连贯等。培养学生规范撰写学术论文的意识和能力。

第二版修订说明

本教材此次修订主要体现在以下几个方面：

替换内容：首先，原来的音频全部替换为视频，由学术听力 (Listening) 变为学术视听 (Viewing)，更符合全通道获取信息的理念。其次，替换部分选篇，使选材更加贴合单元主题，紧跟学术发展的新动向、新理念，与时俱进。

新增内容：根据使用第一版教材的广大师生的反馈和要求，在Text A部分的语言训练 (Language building-up) 板块增加了学术英语词汇和搭配的训练，在Text B部分增加了语言训练 (Language building-up) 板块，引导学生更好地掌握课文中出现的学术词汇并进行迁移性应用。

修订内容：首先，学术口语部分 (Speaking) 改为围绕学术演讲所需要的技巧进行编排，内容系统全面，聚焦清晰，针对性强。其次，学术写作部分 (Writing) 改为突出学术论文写作的宏观结构 (Macro structure) 和微观技能 (Micro skills) 两条主线，旨在帮助学生更加有效地提高学术写作能力。

删减内容：为了精简、优化教材内容，第二版教材删去了第一版教材中每单元的Text C 及其相关内容。另外，第一版教材中有些课文篇幅过长，在不影响文章核心主题和内容的前提下，第二版对这些课文做了适当删减。

本教材的编写从内容到形式都有不少新的尝试，加之编者水平有限，不妥之处，敬请读者批评指正。

编者

2021年4月

Map of the book

UNIT	READING
1 Environment P1	Text A: Global Warming: A Second Inconvenient Truth Text B: Life Without Ice
2 Economics P23	Text A: The Invisible Hand Text B: Governments Can Sometimes Improve Market Outcomes
3 Business Ethics P43	Text A: Striking the Right Balance Text B: The Ethics of Sharing Economy
4 Globalization P67	Text A: Globalization: The Good, the Bad and the Uncertain Text B: Globalization and Poverty
5 Psychology P91	Text A: How Honest Are People on Social Media? Text B: Persons: Judging a Book by Its Cover
6 Sociology P115	Text A: Work and Personal Satisfaction Text B: Are We Happier When We Spend More Time with Others?
7 Mathematics P141	Text A: They've Got Us All Figured Out Text B: Math in College
8 Medicine P165	Text A: Who Needs Doctors? Staying Fresh in Changing Times Text B: Responding to COVID-19—A Once-in-a-Century Pandemic?
9 Philosophy P191	Text A: Mind Text B: Recent Development in Philosophy
10 Language Acquisition P215	Text A: An Instinct to Acquire an Art Text B: The Flowering of Vocabulary
Glossary P237	

VIEWING	SPEAKING	WRITING
Prediction	Analyzing your audience	Macro structure: Choosing a topic Micro skills: Searching for information
Finding major points	Having clear objectives	Macro structure: Shaping an essay & Writing an outline Micro skills: Writing a good research question
Listening for details	Having a clear structure and a sense of timing	Macro structure: Writing an introduction Micro skills: Thesis statement
Note-taking forms	Introduction	Macro structure: Body—Argumentation (1) Micro skills: Definition
Recognizing signal words	Body: Linking the points	Macro structure: Body—Argumentation (2) Micro skills: Supporting evidence & Logical reasoning
Dealing with unfamiliar words	Body: Making an argument	Macro structure: Body—Exposition (1) Micro skills: Quotation and paraphrase & Marking the cited sources
Listening for stressed words	Body: Making a counterargument	Macro structure: Body—Exposition (2) Micro skills: Hedging
Recognizing digressions	Conclusion	Macro structure: Conclusion Micro skills: Summarizing
Drawing on rhetorical questions	Visual aids	Macro structure: References Micro skills: Coherence
Listening for examples	Rehearsal and delivery	Macro structure: Proofreading Micro skills: Proofreading

UNIT

1

Reading

Text A: Global Warming: A Second Inconvenient Truth

Text B: Life Without Ice

Viewing

Prediction

Speaking

Analyzing your audience

Writing

Macro structure: Choosing a topic

Micro skills: Searching for information

Environment

The past 50 years has witnessed human beings' efforts to protect the environment for sustainable development. However, the result is not as satisfactory as we have expected. How can we protect our planet and strike the balance between human beings and nature? Read the texts in this unit, and you will gain some insights.

Text A

Lead-in

Task Work in groups of 4-5 and brainstorm a list of the impact of human activities on global warming.

1 _____

2 _____

3 _____

4 _____

Now read Text A to identify the author's view on man-made global warming.

Global Warming: A Second Inconvenient Truth¹

- 1 People think in terms of stories (or narratives). Tell the wrong story and you get yourself into trouble. American linguist-anthropologist-hobbyist Benjamin Lee Whorf² documented this phenomenon in the 1920s. In his day job as a fire-prevention engineer he noticed a large number of fires occurred at gas stations. Putting his linguistics to work, Whorf discovered that the workers who handled the gasoline drums then used to transport gasoline chose to light up for a smoke around barrels they “knew” were “empty.”
- 2 A similar bit of linguistics is now getting the world into a great deal of trouble. Every few years the world's leaders gather in grand conclave (editor's notes: *conclaves*): Rio de Janeiro³, Kyoto⁴, Johannesburg⁵, Copenhagen⁶. Solemn pronouncements are made, but the can of global warming action is once again kicked down the road. The language of global warming doesn't

¹ The text is taken from the journal *Finance & Development* (September 2014).

² **Benjamin Lee Whorf**: an American linguist. He is widely known for his ideas about linguistic relativity, the hypothesis that language influences thought. 本杰明·李·沃尔夫 (美国语言学家)

³ **Rio de Janeiro**: 里约热内卢 (巴西城市)

⁴ **Kyoto**: 京都 (日本城市)

⁵ **Johannesburg**: 约翰内斯堡 (南非城市)

⁶ **Copenhagen**: 哥本哈根 (丹麦首都)



motivate individuals, on the one hand, and their governments, on the other, to take action today.

- 3 One simple story is both compelling and true. The Earth's atmosphere acts like a protective blanket around us. This blanket allows the energy from the sun to penetrate, so the sun warms the Earth, and then the atmosphere benignly slows the rate at which that warmth radiates out.
- 4 Collectively we humans have a baby: the Earth. Year by year, inexorably, the atmosphere-blanket around our baby is getting heavier and heavier and heavier. Even a short road trip of 50 miles each way, using five gallons of gasoline, adds

100 pounds of carbon dioxide to the atmosphere. Through such innocent activities, the average US family, for example, thus adds 1,800 pounds a week to the Earth's blanket. Add up all the families around the world, and with a dollop of science on top of our intuitive understanding about babies and blankets, and it's easy to see that the world is, in all likelihood, getting warmer and warmer and warmer.

- 5 Any parent would rush to rescue a baby in such circumstances. But the stories we tell ourselves about global warming are too cold and too cautious. We read the proclamations of the Intergovernmental

7 the Intergovernmental Panel on Climate Change (IPCC): the United Nations body for providing regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation 政府间气候变化专门委员会

Panel on Climate Change⁷. We defer to the conclusions of “scientists.” The scientists have spoken, with all but unanimous voice and often with great passion and force, but the professional dispassion of science muffles the message. I remember sitting next to a famous astronomer at a dinner some 20 years ago. Not knowing what to say to an astronomer, I brought up climate change. “We do not yet have confirmation that there is global warming due to anthropogenic climate change⁸,” he told me.

- 6 That statement was correct in science-speak, appropriately wrapped as it was in his degree of doubt. But for the purposes of public policy, given the high probability of man-made global warming, such caution is foolhardy. Parents don't take a baby's temperature to decide whether the room is too warm; likewise, for global warming we need a story that spurs us to do what is necessary.
- 7 We need such a rhetoric not just for ourselves but so our governments will have the legitimacy and the will they need

to take action. The economics of global warming is as well understood as any economic problem could be. The best way to fight it (but not without considerable expense) is to place a uniform tax on carbon emissions; that tax should escalate until emissions fall to desirable levels. Optimal policy also calls for subsidization of research and development into ways to reduce emissions.

- 8 But global warming is a global problem and emissions come from everywhere, so taxes and subsidies must be global. Each country must view it as its duty to come running. We need to enter into a global alliance in which “we” are all in this globally together. We must tell ourselves that we all need to pull together. We must pull as hard as we can, whatever the others do. Why? Because the Earth is our beautiful baby.
- 9 There are thus two inconvenient truths. The first is global warming itself. The second is that we aren't yet telling ourselves the stories that compel us to

⁸ **anthropogenic climate change**: the production of greenhouse gases that occur specifically as a result of human activity 人为气候变化

New words and expressions

combat it.

inconvenient /,ɪnkən'vi:niənt/ *a.* troublesome, awkward, or difficult 引起麻烦的; 令人为难的; 造成困难的

linguist /'lɪŋgwɪst/ *n.* a person who studies linguistics 语言学家

anthropologist /,ænrə'pɒlədʒɪst/ *n.* a social scientist who specializes in anthropology 人类学家

hobbyist /'hɒbiɪst/ *n.* a person who pursues an activity in their spare time for pleasure 业余爱好者

linguistics /lɪŋ'gwɪstɪks/ *n.* the scientific study of language 语言学

conclave /'kɒŋkleɪv/ *n.* a confidential or secret meeting 秘密会议

pronouncement /prə'naʊnsmənt/ *n.* an official or authoritative statement or announcement 公告, 声明

kick the can down the road avoid or delay dealing with a problem 拖着不解决问题; 缓兵之计

compelling /kəm'pelɪŋ/ *a.* very interesting or exciting 引人注目的

penetrate /'penɪ'treɪt/ *v.* find or force a way into or through 穿透

benignly /brɪ'nainli/ *ad.* in a gentle manner 温和地

radiate /'reɪdiət/ *vi.* send out rays or waves 散发, 发射 (光或热)

collectively /kə'lektɪvli/ *ad.* as a group 共同地, 集体地

inexorably /ɪn'eksərəbli/ *ad.* in an unstoppable manner 不可阻挡地

dollop /'dɒləp/ *n.* a small amount 少量, 些许

proclamation /,prɒklə'meɪʃən/ *n.* a public and official announcement 宣言; 公告

intergovernmental /,ɪntə'gʌvə'mentl, -vən-/ *a.* conducted between or involving two or more governments 政府间的

defer to agree to accept sb.'s opinion or decision because you have respect for that person 听从, 遵从

unanimous /ju:'nænɪməs/ *a.* in complete or absolute agreement 全体一致的; 一致同意的

dispassion /dɪs'pæʃən/ *n.* freedom from passion, bias, or emotion; objectivity 冷静; 客观

muffle /'mʌfəl/ *vt.* make vague or obscure 使 (声音) 减弱 (低沉)

anthropogenic /,ænrəpə'dʒenɪk/ *a.* created by people or caused by human activity 由人类活动引起的, 人为的

appropriately /ə'prəʊpri-ətli/ *ad.* correctly or suitably for a particular time, situation, or purpose 适当地

foolhardy /'fu:lhɑ:di/ *a.* heedlessly rash or adventurous 鲁莽的; 有勇无谋的

rhetoric /'retərɪk/ *n.* speech or discourse that sounds impressive but lacks true meaning 华丽的词藻; 华丽虚饰的语言

legitimacy /lɪ'dʒɪtɪməsi/ *n.* lawfulness by virtue of being authorized or in accordance with law 合法; 合理; 正当

escalate /'eskəleɪt/ *v.* increase in intensity, extent, or amount (使) 升高; (使) 升级

optimal /'ɒptɪməl/ *a.* most favorable or desirable; best 最理想的; 最佳的

subsidization /,sʌbsɪ'daɪ'zeɪʃən/ *n.* money (or other benefits) obtained as a subsidy 补助; 补助金

subsidy /'sʌbsɪdi/ *n.* a financial aid supplied by a government 津贴, 补助金

Critical reading and thinking

Task 1 / Overview

Complete the following table about the main points of the text.

Introduction	Para. 1	Opening (An anecdote): _____ _____ _____
	Paras. 2-4	Background: Although solemn pronouncements are made in grand conclaves, _____ _____. Year by year, inexorably, the atmosphere-blanket around our baby is _____.
Body	Paras. 5-6	Problem: The stories we tell ourselves about global warming are _____. The scientists have spoken about global warming, with all but unanimous voice and often with great passion and force, but _____ _____.
	Paras. 7-8	Solution: The best way to fight global warming is _____ _____. But global warming is a global problem and emissions come from everywhere, so _____ _____.
Conclusion	Para. 9	There are two inconvenient truths: 1) Global warming itself. 2) _____.

Task 2 / Points for discussion

Work in groups of 4-5 and discuss the following questions.

- Besides the measures taken by the government, what else has been mentioned in the text?
- What can companies or individuals do to help solve the problem of global warming?
- Do you know the first inconvenient truth and its origin? Which of the two inconvenient truths do you think we should attach more importance to? Why?

Language building-up

Task 1 / Specialized vocabulary

1 Translate the following expressions from English into Chinese or vice versa.

- 1 全球变暖 _____
- 2 the Earth's atmosphere _____
- 3 carbon dioxide _____
- 4 人为气候变化 _____
- 5 碳排放 _____
- 6 tax and subsidy _____
- 7 global alliance _____

2 Complete the following sentences with the words and expressions from Exercise 1.

Change the form where necessary.

- 1 _____ is the unusually rapid increase in the Earth's average surface temperature over the past century primarily due to the greenhouse gases released by people burning fossil fuels.
- 2 Environmental _____ are considered by the economic theory as useful policy instruments to enhance environmental protection and encourage sustainable modes of consumption and production.
- 3 The group is a _____ of attorneys, scientists and advocates that supports grassroots efforts to secure clean air, clean water and a healthy planet.
- 4 It is necessary to explore methods to improve the efficiency of energy consumption and minimize _____ that accompany economic development and rapid urbanization.
- 5 _____ is an important heat-trapping gas, which is released through human activities such as deforestation (人为毁林) and burning fossil fuels, as well as natural processes.
- 6 The _____ is an extremely thin sheet of air extending from the surface of the Earth to the edge of space.

Task 2 / Academic vocabulary

Complete the following sentences with the words from the box. Change the form where necessary.

panel	motivate	subsidy	phenomenon	considerable
likewise	document	transport	appropriately	confirmation

- 1 The local government introduced a new 4,000 euro _____ for buyers of new electric cars.
- 2 With ongoing biodiversity loss in agricultural landscapes, there is an increasing demand to _____ how farmers preserve and enhance biodiversity on their farmland.
- 3 The newly released report is the most detailed _____ that humans are driving climate change and that people in many countries are already adapting to and suffering from its effects.
- 4 This book details how to use community-based social marketing to _____ environmental protection behaviors.
- 5 Wildfire smoke aerosols (烟雾气溶胶), once emitted, can _____ over long distances and affect surface air quality in downwind regions.
- 6 Change in world climate would influence the functioning of many ecosystems and their member species. _____, there would be impacts on human health.
- 7 Collapsing gullies (深沟) is a serious _____ in the red soil region in Southern China, which not only damages the local ecological environment but also directly affects production and life.
- 8 A(n) _____ reviewing preliminary data from the survey did not find any obvious evidence of water pollution.
- 9 There was a(n) _____ positive correlation between consumptive water use and energy consumption in coal production.
- 10 We will invest in fossil fuels and want to be rewarded _____.

Task 3 / Collocations

Complete the following sentences by translating the Chinese in brackets into English, using the given words in proper forms and collocations.

- 1 According to the World Economic Forum, rising water pollution is the foremost global risk _____ (在……方面; term) its potentially devastating impact on society.

- 2 The government continues to _____ (拖着不解决问题; kick) on addressing climate issues.
- 3 A group of students at the university _____ (采取行动; take) to protect the environment. They are actively raising awareness about ecological issues, and encouraging participation in environmentally sustainable practices.
- 4 The Earth's climate is the result of a balance between the amount of incoming energy from the sun and energy being _____ (向外辐射; radiate) into space.
- 5 Climate science tells us that further warming is unavoidable over the next decade at least, and _____ (很可能; likelihood) beyond.
- 6 Rather than investigate the evidence for catastrophic climate change from human action, groups like Greenpeace _____ (听从; defer) authorities.
- 7 An Emissions Tax would _____ (征税; place) pollution—greenhouse gasses and toxic emissions that are devastating to our environment and harmful to human health.
- 8 In the documentary, we see that the members of the local community _____ _____ (齐心协力; pull) and adopt a number of tactics to reduce pollution.

Task 4 / Formal English

Replace the underlined words and expressions with more formal ones from Text A.

- _____ 1 American linguist-anthropologist-hobbyist Benjamin Lee Whorf recorded this phenomenon in the 1920s.
- _____ 2 In his day job as a fire-prevention engineer he noticed a large number of fires happened at gas stations.
- _____ 3 Every few years the world's leaders gather in grand meetings: Rio de Janeiro, Kyoto, Johannesburg, Copenhagen.
- _____ 4 Solemn statements are made, but the can of global warming action is once again kicked down the road.
- _____ 5 We conform to the conclusions of "scientists."
- _____ 6 The best way to fight it (but not without considerable expense) is to place a uniform tax on carbon emissions; that tax should increase until emissions fall to desirable levels.
- _____ 7 The second is that we aren't yet telling ourselves the stories that force us to combat it.

Text B

The ice cap of the Arctic is melting down due to climate change and global warming. Text B will touch upon the effects of the decline of sea ice and possible solutions to it.

Life Without Ice¹

¹ For millions of years, Arctic sea ice has expanded and retracted in a rhythmic dance with the summer sun. Humans evolved in this icy world, and civilization relied on it for climatic, ecological, and political stability. But the world creeps ever closer to a future without ice. Last year, new reports documented how record Arctic warmth is rapidly eroding sea ice,

and the United Nations Intergovernmental Panel on Climate Change detailed the manifold impacts from declining sea ice in a Special Report on the Ocean and Cryosphere in a Changing Climate². As the northern sea ice declines, the world must unite to preserve what remains of the Arctic.



¹ The text is adapted from the journal *Science* (February 2020).

² a *Special Report on the Ocean and Cryosphere in a Changing Climate*: approved in 2019 by the 195 IPCC member governments. It provides new evidence for the benefits of limiting global warming to the lowest possible level. 气候变化中海洋和冰冻圈特别报告

- 2 The National Snow and Ice Data Center³ reported that last year's minimum Arctic sea ice extent was the second lowest on record. Similarly, the Polar Science Center⁴ found that 2019 ended with the second lowest Arctic sea ice volume on record. The sea ice is now 40% smaller than it was 40 years ago, and the remaining ice is younger, thinner, and more temporary. Arctic summers could become mostly ice-free in 30 years, and possibly sooner if current trends continue.
- 3 Although most people have never seen the sea ice, its effects are never far away. By reflecting sunlight, Arctic ice acts as the Earth's air conditioner. Once dark water replaces brilliant ice, the Earth could warm substantially, equivalent to the warming triggered by the additional release of a trillion tons of carbon dioxide into the atmosphere. The ice also determines who gets rain. Loss of Arctic sea ice can make it rain in Spain, dry out Scandinavian⁵ hydropower, and set California ablaze. And declining sea ice threatens wildlife, from the iconic polar bear to algae that grow beneath the sea ice, supporting an abundance of marine life.
- 4 Unfortunately, the sea ice conceals not just algae, but also 90 billion barrels of oil and 1.7 trillion cubic feet of natural gas that neighboring countries would like to claim. If extracted and burned, these fossil fuels would exacerbate climate change greatly. Arctic nations are now racing to find undersea evidence that extends their continental shelves poleward, which would allow them to control these resources and substantiate military claims. If conflicts over Arctic ownership intensify, the thawing ice cap could spark a new—more aptly named—cold war.
- 5 To avoid these consequences, the scientific community should advocate not just for lowering greenhouse gas emissions, but also for protecting the Arctic from exploitation. The Antarctic shows the way. In the 1950s, countries raced to claim the Antarctic continent for resources and military installations. Enter the scientists. The 1957–1958 International Geophysical Year⁶ brought together scientists from competing countries to study Antarctica, and countries temporarily suspended their territorial disputes. Afterward, scientists lobbied national leaders to

3 **The National Snow and Ice Data Center:** an organization that archives and manages scientific data issued from polar and glacier ice research (美国) 国家冰雪数据中心

4 **the Polar Science Center:** a group of investigators conducting interdisciplinary research on the oceanography, climatology, meteorology, biology and ecology of the ice-covered regions on Earth and elsewhere in the solar system 极地科学中心

5 **Scandinavian:** of or relating to Scandinavia or to its peoples, languages, or cultures 斯堪的纳维亚的 (斯堪的纳维亚为北欧地区, 包括丹麦、挪威和瑞典)

6 **The 1957-1958 International Geophysical Year:** an international effort to coordinate the collection of geophysical data from around the world, which marked the beginning of a new era of scientific discovery at a time when many innovative technologies were appearing 1957-1958 国际地球物理年

protect Antarctica in perpetuity. In 1959, 12 countries signed the Antarctic Treaty⁷ to preserve the continent for peaceful scientific discovery rather than territorial and military gain.

- 6 Sixty years later, we must now save the Arctic. A new Marine Arctic Peace Sanctuary (MAPS) Treaty—a proposed addendum to the United Nations Convention on the Law of the Sea—would protect the Arctic Ocean as a scientific preserve for peaceful purposes only. Similar to Antarctica, MAPS would prohibit resource extraction, commercial fishing and shipping, seismic testing, and military exercises. So far, only 2 non-Arctic countries have signed MAPS; 97 more need to sign on to enact it into law. Scientists can help—just as they did for the Antarctic—by giving statements

of support (at signmaps.org), asking scientific organizations to endorse the treaty, communicating the importance of protecting the Arctic to the public and policymakers, and ultimately by convincing national leaders to sign the treaty. In particular, Arctic nations must agree that designating the Arctic as an international preserve is better than fighting over it. In 2018, these countries successfully negotiated a 16-year moratorium on commercial fishing in the Arctic high seas, demonstrating that such agreements are possible.

- 7 Humans have only ever lived in a world topped by ice. Can we now work together to protect Arctic ecosystems, keep the northern peace, and allow the sea ice to return?

⁷ **the Antarctic Treaty**: a treaty signed in Washington on December 1, 1959 by the 12 countries whose scientists had been active in and around Antarctica during the 1957-1958 International Geophysical Year 南极条约

New words and expressions

Arctic /'ɑ:ktɪk/ *a.* relating to the most northern part of the world 北极的

retract /rɪ'trækt/ *v.* draw back (使) 缩回; 收回

rhythmic /'rɪðmɪk/ *a.* characterized by rhythm, as in movement or sound 有节奏的; 有韵律的

erode /ɪ'rəʊd/ *v.* wear down or away 腐蚀, 侵蚀

manifold /'mænɪfəʊld/ *a.* of several different kinds; multiple 多种多样的; 多方面的

cryosphere /'kraɪəsfiə/ *n.* those portions of the Earth's surface where water is in solid form 冰冻圈; 低温层

substantially /səb'stænʃəli/ *ad.* to a great extent or degree 大量地, 可观地

trillion /'trɪljən/ *num.* a million million 一万亿

hydropower /'haɪdrəʊ,pəʊə/ *n.* hydroelectric power 水力发电

ablaze /ə'bleɪz/ *a.* on fire; burning 着火的; 闪耀的

iconic /aɪ'kɒnɪk/ *a.* symbolic, emblematic, or representative 标志性的

algae /'ælgə/ *n.* (*pl.* algae) a very simple plant without stems or leaves that grows in or near water 海藻; 水藻

extract /ɪk'strækt/ *vt.* withdraw, pull out, or uproot by force 提取; 拔出

exacerbate /ɪg'zæsəbeɪt/ *vt.* make a bad situation worse 使加重; 使恶化

undersea /'ʌndəsi:/ *a.* below the surface of the sea 海面下的; 海底的

poleward /'pəʊlwəd/ *ad.* toward a pole 向南(或北)极

substantiate /səb'stænʃieɪt/ *vt.* prove the truth of or support with proof or evidence 证实, 证明

thaw /θɔ:/ *v.* (cause to) melt from a solid frozen state (使) 融解

Antarctic /æn'tɑ:ktɪk/ *n.* (the ~) the region around the South Pole 南极地区

a. at or near the South Pole 南极的

geophysical /,dʒi:əʊ'fɪzɪkl/ *a.* relating to the study of the movements of parts of the Earth, and the forces involved with this 地球物理学的

Antarctica /æn'tɑ:ktɪkə/ *n.* a continent around the South Pole 南极

perpetuity /,pɜ:pə'tju:ɪti/ *n.* time without end; eternity 永恒, 永久

sanctuary /'sæŋktʃuəri, -tʃəri/ *n.* a peaceful place that is safe and provides protection 保护区

addendum /ə'dendəm/ *n.* sth. added; an addition 附录; 补编

seismic /'saɪzmɪk/ *a.* subject to or caused by an earthquake or earth vibration 地震的

sign on be in agreement with sth.; accept or support 签约

enact /ɪ'nækt/ *vt.* make a proposal into a law 制定法律

endorse /ɪn'dɔ:s/ *vt.* give approval or sanction to 赞同, 支持; 背书

policymaker /'pɒlɪsi,meɪkə/ *n.* sb. who decides what an organization's or government's policies will be 决策者; 政策制定者

designate /'deɪzɪneɪt/ *vt.* indicate or specify 指定; 标明

moratorium /,mɒrə'tɔ:riəm/ *n.* an official stopping of an activity for a period of time 暂停

ecosystem /'i:kəʊ,sɪstəm/ *n.* a system involving the interactions between a community of living organisms in a particular area and its nonliving environment 生态系统

Critical reading and thinking

Task / Overview

Complete the following table about the main points of the text.

Thesis statement	
<hr/> <hr/>	
Effects	<p>Although most people have never seen the sea ice, its effects are never far away.</p> <p>1. Once dark water replaces brilliant ice, _____;</p> <p>2. _____;</p> <p>3. _____;</p> <p>4. The sea ice conceals not just algae, but also _____</p> <p>_____;</p> <p>_____.</p>
Solutions	<p>The scientific community should _____</p> <p>_____.</p> <p>A new Marine Arctic Peace Sanctuary (MAPS) Treaty, a proposed addendum to the United Nations Convention on the Law of the Sea, would</p> <p>_____</p> <p>_____</p>

Language building-up

Task 1 / Academic vocabulary

Complete the following sentences with the words from the box. Change the form where necessary.

stability	advocate	expand	evolve	minimum
demonstrate	equivalent	trigger	convince	ultimately

- The residential and institutional center is built with _____ impact to the environment while embracing the highest technological standards.
- Through the reduction of our consumption behavior and by _____ others to change their daily consumption behavior, everyone can make a huge impact to mitigate (使缓和) the global warming issue.

- 3 Earthquakes are a major landslide trigger, and evaluation of the dynamic _____ of landslides under seismic action is very important.
- 4 For the United States and Europe, air pollution is _____ in detrimental health effects to smoking 0.4 to 1.6 cigarettes per day.
- 5 They should strongly _____ for conservation of resources and promote environment-friendly manufacturing.
- 6 A remotely _____ rockburst is a typical engineering geology disaster that occurs during the excavation of hard rock at depth.
- 7 Assisting these countries in working toward sustainable socioeconomic development and enhancement of marine environment protection will _____ result in cleaner coasts and increased tourism.
- 8 This research _____ scientific understanding of the impact of environmental factors on fertility outcomes.
- 9 Researchers _____ the effectiveness of an environmental warning system to monitor the coast.
- 10 The new study examined four independent, geographically-separated populations of fish, each of which has _____ resistance to industrial chemicals.

Task 2 / Collocations

Complete the following sentences by translating the Chinese in brackets into English, using the given words in proper forms and collocations.

- 1 It wouldn't be wise to _____ (完全依赖; rely) technology to save our planet. We will also need to change our lifestyles in order to start rolling back the damage we've done.
- 2 May 2020 was the warmest May _____ (记录在案的; record), according to one internationally recognized dataset.
- 3 G7 (Group of Seven) environment talks _____ (以……结束; end) a wide gap between the US and the other six countries on climate.
- 4 The material, while provided with intrinsic properties _____ (相当于; equivalent) those of conventional materials, does not contain toxic heavy metals and thus imposes little impact on the environment at the time of landfill and incineration.
- 5 The study finds that the Central Plains could become drier, even though it may not receive less rain in the future, simply because warmer temperatures will drive evaporation to _____ (使干透; dry) the rich soils.

- 6 _____ (大量的; abundance) clean water enables food production and protects the environment.
- 7 The water-rich country promises to maintain at least 60% of the landmass under forest _____ (永久地; perpetuity) at any given point of time.
- 8 The retailers _____ (签约; sign) to raise awareness of climate change.

Researching

Task With its unprecedented economic growth, China has taken active steps toward protecting the environment. China is now making great efforts to strengthen pollution prevention and control, restore and protect ecosystems, and promote the environmental protection industry. Work in groups of 4-5 and brainstorm the cases of environmental protection in some regions of China. Then choose one case to conduct a survey. The following prompts may be helpful to you.

- 1 What was the environmental status of the region in former years?
- 2 What measures has the local government taken to solve the environmental problems in the region?
- 3 What achievements has the local government made?
- 4 What are your reflections on the case?

Present the findings of your survey to the class.

Prediction

A valuable skill for listening comprehension is prediction. That is, instead of relying on the actual words or sounds, you use background information and common sense to develop expectations about what you will hear and then confirm or reject them as you listen. This strategy is considered as an effective way of processing speech because it makes the most use of the resources available to you.

Word bank

drastic /'dræstɪk/ *a.* 严厉的, 猛烈的

veggie /'vedʒi/ *n.* (also veggy) 素食主义者

Task 1 You will watch a video clip about what people can do to reduce carbon emissions. Before watching, write down what you expect to hear.



Task 2 Watch the video clip and complete the following table that shows what people can do to stop global temperatures rising in the UK.

What can be done?	How much CO ₂ would be reduced if all did it?
1) _____	128 thousand tonnes
2) _____	_____
3) _____	3.2 million tonnes
4) _____	_____
5) _____	_____
6) _____	79 million tonnes

Analyzing your audience

Who will see and hear your presentation—and why? Will you be speaking to a general audience or to specialists in your field? If you can put yourself in their shoes and understand what they need, you'll be well on your way to a successful presentation. Keep the audience in mind throughout the preparation of your presentation. Here are some points you may consider when analyzing your audience:

- Background information: Try to relate your message directly to your audience's nationality, field of study, occupation, age, gender, etc.
- Knowledge of the subject: Try to select the topics that your audience are interested in. Don't present a topic that is too technical or too specialized for them.
- Wants and needs: Find your audience's wants and needs despite the fact that they vary from person to person and group to group.
- Level of English proficiency: Find out your audience's level of English proficiency. Make sure that you use language that everyone can understand.

Task Make a group presentation about a case of environmental protection in some region of China on the basis of your work in Researching. Before the presentation, analyze your audience in terms of: 1) background information; 2) knowledge of the subject; 3) wants and needs; 4) level of English proficiency.

Writing an essay or a research paper is necessary to be successful in the academic world. Students in academic courses are often required to write term papers or research papers, which present the result of systematic investigations on a particular topic. While writing essays and papers, they are expected to follow certain conventions and guidelines in terms of content, structure, and language. This textbook will introduce to you some important guidelines for writing an essay as follows:

Academic essay

	Macro structures	Micro skills
1	Choosing a topic	Searching for information
2	Shaping an essay & Writing an outline	Writing a good research question
3	Writing an introduction	Thesis statement
4	Body—Argumentation (1)	Definition
5	Body—Argumentation (2)	Supporting evidence & Logical reasoning
6	Body—Exposition (1)	Quotation and paraphrase & Marking the cited sources
7	Body—Exposition (2)	Hedging
8	Conclusion	Summarizing
9	References	Coherence
10	Proofreading	Proofreading

Macro structure: Choosing a topic

Let's start with the first step—deciding upon a topic on your own. Keep in mind the following points:

- Choose a topic that really intrigues you. Your attitude determines the amount of effort put into your research.
- Narrow down a topic. Some topics are too broad to make a manageable essay. Begin by doing some general reading about something you are interested in and then try to find a focus. For instance, you may narrow down a topic from “Wal-Mart” to “Wal-Mart’s marketing strategies” to “single-minded focus on low price.”
- Avoid a topic that has very limited relevant source materials.
- Remember that an initial topic may not be the topic you end up writing about, because you may find some fresh points in the ongoing research.

Following the above guidelines, you may start thinking about a topic for your essay now.

Thinking early leads to starting early.

Micro skills: Searching for information

When you write an essay or a research paper, you should use various types of resources to provide background information on your topic to support your ideas. As soon as you have chosen your topic, you should start to look for such resources. There are two resources available: your college library and the Internet.

- **Library**
The library provides both paper resources—books, journals, newspapers—and

electronic resources such as online journals and databases. It might be helpful if you take a training session on how to use your college library. Or you may ask a librarian for assistance in your research. You should narrow down your topic, choose appropriate key words or phrases related to your topic for searching electronic references, and find relevant journal articles and books. Furthermore, you should make full use of electronic databases that list articles in different disciplines.

- **the Internet**

The Internet is a vast global computer network that enables users to store and share information and resources quickly and easily. However, not all the information on the Internet is reliable for academic writing. You need to read resources with a critical eye or check with your instructor.

Task 1 Which of the following topics are suitable and manageable for a 1,000-word essay?

Tick (✓) your choices and give your reasons.

- Global warming
- Importance of studying mathematics
- Gender relations in *Jane Eyre*
- Robert Frost's attitude toward death
- Discrimination against migrant workers
- Chinese university students' attitudes toward DINK family
- Effects of globalization on people's life
- A survey of some resident physicians' life

Task 2 Write down the topics that you are curious about. Make sure they are specific and feasible.

Key terms for further study

anthropogenic climate change	人为气候变化
anthropologist	人类学家
carbon dioxide	二氧化碳
carbon emissions	碳排放
climate change	气候变化
continental shelf	大陆架
global warming	全球变暖
high seas	公海
ice cap	冰冠
sea ice extent	海冰范围
sea ice volume	海冰体积
tax and subsidy	税收与补贴
the Earth's atmosphere	地球大气层