

新编科技英语教程

戴炜华 主编

● 上册

NEW HORIZONS IN EST

NEW HORIZONS IN EST

NEW HORIZONS IN EST

● 上海交通大学出版社

新编科技英语教程

(上)

戴炜华主编

上海交通大学出版社

内 容 简 介

本书系根据理工科大学英语教学大纲规定的学习第一级和第二级的要求，用英文编写的一套综合性科技英语教材。全书以语言的功能描写为主，兼顾语言的结构，着重训练学生掌握科技英语的特点和表达方法，力求编排新颖、文字规范、练习形式丰富。全书分上、下两册，各有 16 篇分级的科普英语文章，课文、词汇和语言讲解要点均有大量的例句与练习。书末列出总词汇表，采用英汉对照的形式对生词进行释义，以适应当前理工科大学公共英语教学的需要。

本教材上、下两册还配有相应的教师手册，供教师教学参考。

312 108

新编科技英语教程(上册)

上海交通大学出版社出版

(淮海中路 1984 弄 19 号)

新华书店上海发行所发行

上海市印十二厂排版印装

开本 787×1092 毫米 1/32 印张 10.875 字数 259,000

1986 年 11 月第 1 版 1986 年 12 月第 1 次印刷

印数 1—20,000

统一书号: 13324·38 科技书目: 133-268

定价: 1.90 元

前 言

英语是国际上主要的科技语言。全世界越来越多的科学家和技术人员需要阅读日益增多的英语科技文章和教科书。因此,近十年来,EST (科技英语)这个术语在英语教学文献中已很常见。

《新编科技英语教程》是一套综合性的科技英语系列教材,旨在帮助中上水平的理工科大学学生学习。这套系列教材的主要目的是以各种方式引导学生掌握科技英语(尤其是科普英语)的技巧

整套教材分上、下两册,每册使用60学时,可供学习理工科大学公共英语教学大纲规定的第一级和第二级英语的学生使用。每册分四个单元,每个单元有四课,各单元的最后一课用于复习该单元主要的语言表达形式和巩固读、写技能。

EST 著作有几个学派,结构法和功能法是其中最大的两个学派,各有其优缺点。《新编科技英语教程》这套教材是以这两种方法为基础编写成的,但以语言的功能描写为主,注重科技英语的实用特性,如对事物进行描述、分类、举例、预言、计量、推测、比较、下定义、作普遍性陈述和下结论等的表达方法。

这套教材的重点是掌握科技英语总的概况,包括科技英语的概念、文体和结构、词汇、语法等特点及科技陈述、意义关联和意义连接手段等。讲述方式以功能法为主,表达力求简明,并配有大量的例句和练习。教材中使用一些科技英语术语和语法术语,教师讲解时应解释这些术语的意义。

全套教材包含32篇简短、分级的科普文章。每篇文章都提供了要讲解的语言表达形式的例子，并介绍一定数量的生词。

语言表达是一种只有反复实践才能掌握的艺术，为此本教材提供大量练习。课文、词汇和语言表达等练习都是综合性的，基本上均是口头练习，但某些练习可作为笔头作业。

上册以学生已掌握约2,000个词汇为起点。每册书后面有词汇表，学生很容易找到生词或短语首次出现的课文。大部分词和短语是根据上下文意思进行解释的。

编写这套教材时，参考了许多科技英语原著，课文均选自或摘自这些原著。我们曾借鉴一些原著作者的观点，对此深表感谢。

戴鸣钟教授审阅了这套教材，提出了宝贵的意见，在此谨对他的帮助表示感谢。还要感谢在我系任教的美国教师富兰克·柯克曼先生，承蒙他审阅这套教材并提出不少建议。

编 者

一九八五年于

上海机械学院科技外语系

Preface

English is now established as the main international language of science and technology, and a growing number of scientists and technicians all over the world are obliged to read an increasing proportion of articles and textbooks written in scientific English. Therefore, over the last ten years or so the term EST (English for Science and Technology) has appeared frequently in the literature relating to the teaching of English.

New Horizons in EST series is a comprehensive EST course designed to give help to science and engineering students for intermediate/ advanced level. The main purpose of this series is that students in universities and colleges can be guided by various devices into acquiring good habits and skills of EST, particularly, ECST (English for Common Science and Technology).

The whole series consists of two books, each designed for use within 60 hours. These two books are intended for students who are entering the first and second stages of in-service English courses specified in the syllabus catering to the needs of science and engineering colleges. There are four units in each book, with four lessons in each unit. The last lesson in each unit is designed for reviewing the main language presentation and consolidating reading or

writing skills in the said unit.

Up till now there have been several different schools in EST writings. Structural Approach and Functional Approach are two greatest schools of them, each having its advantages and disadvantages. **New Horizons in EST** series is written on the basis of both approaches. However, it is mainly based on a functional description of the language, laying stress on the pragmatic character of scientific English, for example, describing, classifying, exemplifying, predicting, measuring, speculating, comparing, defining, generalizing, concluding, etc.,

The emphasis of the whole series is on the mastery of general ideas of EST, including the concept of EST, features of EST in style and structure, features of EST in vocabulary, grammatical features of EST, scientific statements, meaning relationships and meaning links, etc.. Explanations are mainly based on the Functional Approach, and are rendered as short and clear as possible, followed by a lot of examples and exercises. Several terms of EST as well as grammatical terms are used in this series. During the explanation the teacher should explain their meaning.

The whole series consists of 32 short, graded ECST writings. Each writing gives examples of the language presentation to be taught as well as a number of new words.

Language presentation is an art to be mastered only through repeated practising. Therefore, each book provides a lot of exercises. The exercises on the passages, vocabu-

lary and language presentations are all comprehensive. All the exercises used throughout Book 1 and 2 are almost oral ones. But some exercises are designed for written work.

Book 1 is written on the assumption that students have already learned about two thousand words. A glossary is provided at the end of each book. The students can readily find the lesson in which the new words and phrases were first explained. For the most part, explanations given are contextual.

In preparing this series we have used a lot of original writings on EST. All the passages are selected and extracted from these originals. We are much indebted to those authors from whom we have adopted the ideas.

Professor Dai Mingzhong read and examined the whole series and offered some valuable comments and suggestions. We would like to take this opportunity to express our appreciation for his highly valuable help. We are also grateful to Mr. Frank Kuhlman, an American teacher working in our Department, who was kind enough to read and examine the series and made suggestions.

Dai Weihua (Editor in Chief)

Chen Wenxiong (Vice-editor in Chief)

Wei Hongguo Lü Le (Editors)

Department of Foreign Languages for
Science and Technology

Shanghai Institute of Mechanical
Engineering (SIME)

NEW HORIZONS IN EST

AN EST COURSE FOR COLLEGE LEVEL

BOOK ONE

Dai Weihua (Editor in Chief)

Chen Wenxiong (Vice-editor in Chief)

Wei Hongguo Lü Le (Editors)

Shanghai Jiao Tong University Press

目 录

第一单元.....	1
第一课.....	1
课文：科学方法.....	1
常用词与习惯表达：	
cause; ought; keep; send	3
理解性练习.....	6
语言表达：	
科技英语特点介绍.....	12
第二课.....	16
课文：电——改变世界的力量.....	16
常用词与习惯表达：	
mean; provide; consist	19
理解性练习.....	19
语言表达：	
非人称科技陈述——被动语态.....	27
第三课.....	32
课文：阿尔弗雷德·伯纳德·诺贝尔.....	32
常用词与习惯表达：	
handle; absorb; report	35
理解性练习.....	37
语言表达：	

论述过去的科技陈述.....	44
第四课	53
课文：英语初学者面临的几个问题.....	53
常用词与习惯表达：	
lack; benefit; respond	55
理解性练习.....	57
复习 I.....	62
第二单元	66
第五课	66
课文：试管婴儿.....	66
常用词与习惯表达：	
happen; bear; deal	68
理解性练习.....	71
语言表达：.....	76
次要陈述与结论.....	76
例证.....	76
第六课	80
课文：计划和人.....	80
常用词与习惯表达：.....	83
involve; engage; adopt	86
理解性练习.....	93
语言表达：.....	93
论证.....	96
第七课	96
课文：制造飞机的人们.....	98
常用词与习惯表达：	
load; account; separate	98

理解性练习	101
语言表达:	109
重复和结论	109
第八课	115
课文: 吸烟与癌	115
常用词与习惯表达:	117
conduct; affect; effect	117
理解性练习	120
复习 II	124
第三单元	125
第九课	125
课文: 实验	125
常用词与习惯表达:	127
recognize; propose; define; shape	127
理解性练习	130
语言表达:	136
描述	136
实验性描述	136
第十课	141
课文: 迈克尔·法拉第	141
常用词与习惯表达:	144
employ; grow; assign; generate	144
理解性练习	146
语言表达:	152
描述(续)	152
第十一课	158
课文: 亚历山大·弗莱明和青霉素的发现	158

常用词与习惯表达:	160
lead; examine; realize	160
理解性练习	163
语言表达:	169
承接词	169
第十二课	175
课文: 蒸汽动力的复活	175
常用词与习惯表达:	178
bring, run; use; used	178
理解性练习	181
复习 III	185
第四单元	191
第十三课	191
课文: 报时	191
常用词与习惯表达:	194
remain; mount; turn	194
理解性练习	196
语言表达:	202
比较和情态动词	202
比较的简单陈述	202
第十四课 :	206
课文: 人口增长和工业	206
常用词与习惯表达:	208
reduce; increase; reach	208
理解性练习	210
语言表达:	218
比较(续)	218

第十五课	221
课文：输油管道.....	221
常用词与习惯表达：.....	224
refine; store; install; lay	224
理解性练习.....	227
语言表达：.....	232
科技英语中使用情态动词的注意事项.....	232
第十六课	236
课文：教学机和按程序进行学习.....	236
常用词与习惯表达：.....	239
operate; present; depend on; replace	239
理解性练习.....	241
复习IV.....	245
词汇表.....	247

CONTENTS

Unit One	1
Lesson One	1
Scientific Method	1
Useful Words and Expressions:	3
cause; ought; keep; spend	3
Comprehension	6
Language Presentation:	12
Introduction to the Features of EST	12
Lesson Two	16
Electricity — the Force That Transformed	16
the World	19
Useful Words and Expressions:	19
mean; provide; consist	21
Comprehension	21
Language Presentation:	27
Impersonal Scientific Statements — The Passive ...	27
Lesson Three	32
Alfred Bernhard Nobel	32
Useful Words and Expressions:	35
handle; absorb; report	35
Comprehension	37

Language Presentation:	44
Scientific Statements Referring to the Past	44
Lesson Four	53
Some Problems Facing Learners of English	53
Useful Words and Expressions:	55
lack; benefit; respond	55
Comprehension	57
Review I	62
Unit Two	66
Lesson Five	66
Test-tube Babies	66
Useful Words and Expressions:	68
happen; bear; deal	68
Comprehension	71
Language Presentation:	76
Secondary Statements and Conclusions	76
Illustrations	76
Lesson Six	81
Planning and People	81
Useful Words and Expressions:	83
involve; engage; adopt	83
Comprehension	86
Language Presentation:	93
Evidence.....	93
Lesson Seven	96
The Planemakers	96
Useful Words and Expressions:	98

load; account; separate	98
Comprehension	101
Language Presentation:	109
Repetition and Conclusions	109
Lesson Eight	115
Smoking and Cancer	115
Useful Words and Expressions:	117
conduct; affect; effect	117
Comprehension	120
Review II	124
Unit Three	125
Lesson Nine	125
An Experiment	127
Useful Words and Expressions:	127
recognize; propose; define; shape	131
Comprehension	136
Language Presentation:	136
Descriptions	136
Experimental Descriptions	136
Lesson Ten	141
Michael Faraday	141
Useful Words and Expressions:	144
employ; grow; assign; generate.....	144
Comprehension	146
Language Presentation:	152
Descriptions (continued).....	152
Explanatory Descriptions	152