

英语版

全日制普通高级中学教科书 (试验修订本·必修)

GEOGRAPHY

上册

课程教材研究所 组译
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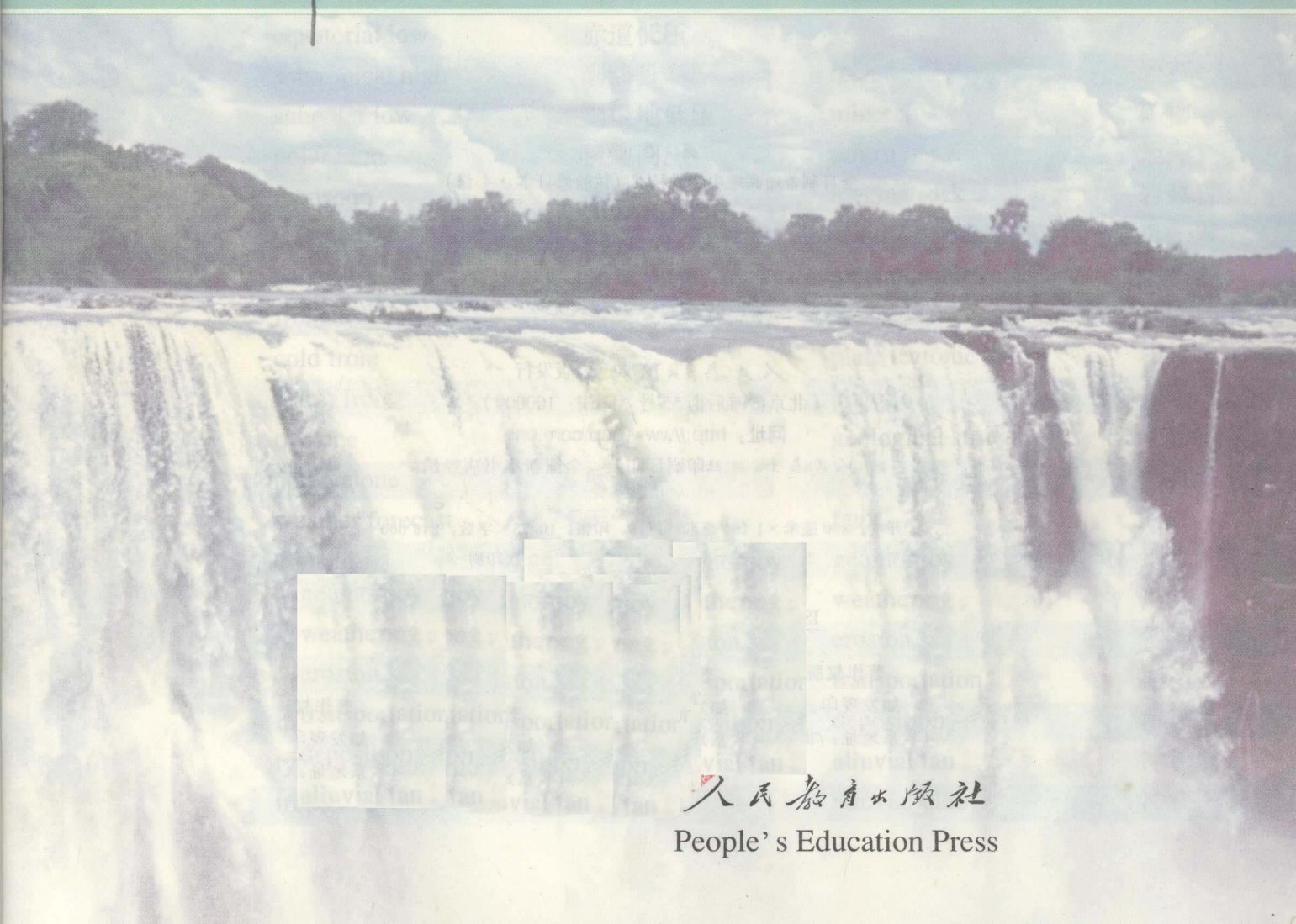
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说 明

随着改革开放的不断扩大，中国在经济、文化、教育等诸多方面与各国间的交往日益增强，中国人学习英语的热情也日趋高涨。当今社会，是否熟练掌握英语，已成为衡量一个人的知识结构甚至综合素质的一个重要方面。在这样的形势下，多角度、多渠道提高人们的英语水平，特别是提高基础教育阶段在校高中学生的英语水平，已经成为社会的迫切需要。

为了适应这种新的形势和需要，作为教育部直属单位的课程教材研究所着手研究开发这套英语版普通高中教材，包括数学、物理、化学、生物、历史、地理六门必修课程，由人民教育出版社出版。

这套英语版高中教材，根据经国家教育部审查通过、人民教育出版社出版的《全日制普通高级中学教科书（试验修订本·必修）》翻译而成，主要供实行双语教学的学校或班级使用，也可以作为高中生的课外读物，其他有兴趣的读者也可以作为参考书使用，使学科知识的掌握与英语能力的提高形成一种双赢的局面。

为了使这套新品种的教材具有较高的编译质量，课程教材研究所双语课程教材研究开发中心依托所内各科教材研究开发中心，在国内外特聘学科专家和英语专家联袂翻译，且全部译稿均由中外知名专家共同审校。

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高中《地理》教科书

说 明

《全日制普通高级中学教科书(试验修订本·必修)地理》是根据教育部2000年颁布的《全日制普通高级中学课程计划(试验修订稿)》和《全日制普通高级中学地理教学大纲(试验修订版)》的规定,遵照1999年全国教育工作会议的精神,在两省一市进行试验的《全日制普通高级中学教科书(试验本)地理(必修)》的基础上进行修订的。此次修订的指导思想是:遵循“教育要面向现代化,面向世界,面向未来”的战略思想,贯彻教育必须为社会主义现代化建设服务,必须与生产劳动相结合,培养德、智、体、美全面发展的社会主义事业的建设者和接班人的方针,以全面推进素质教育为宗旨,全面提高普通高中教育质量。

普通高中教育,是与九年义务教育相衔接的高一层次的基础教育。高中教材的编写,旨在进一步提高学生的思想道德品质、文化科学知识、审美情趣和身体心理素质,培养学生的创新精神、实践能力、终身学习的能力和适应社会生活的能力,促进学生的全面发展,为高一级学校和社会输送素质良好的合格的毕业生。

《全日制普通高级中学教科书(试验修订本·必修)地理》分上、下两册,分别供高中一年级上、下学期使用。

本册教材原试验本由徐岩、韦志榕主持编写。各部分的执笔人是:致同学们,徐岩;第一单元,韦志榕;第二单元,刘淑梅;第三单元,丁尧清;第四单元,陆军、刘健、韦志榕;各单元“技能篇”,王树声。地图由博涛、周德芳等编制,其他插图由孙平编绘。

在本册教材的编写过程中,北京师范大学赵济教授、彭望碌教授,中国气象科学研究院陈联寿研究员、朱瑞兆研究员,国家海洋局信息中心许启望研究员,杭州大学刘南教授,分别对部分书稿提出了修改意见。人民教育出版社陈尔寿编审审阅了全部书稿。对于上述专家,以及所有关心和支持本书编写工作的人员,在此一并表示感谢。

参加本次修订的有:韦志榕、高俊昌、陆军、丁尧清、博涛。天津、山西、江西的地理教研员和教师,对本册教材的修改提出了很好的意见,谨表谢意。

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To Students

We have learned geography in middle school, and we have the basic knowledge of the physical and cultural environment of the world and China. And we know the association between human activities and the geographical environment. Now, we will start learning high school geography (required course).

1. What is the high school geography (required course)

Geography is a discipline study of the environment that helps us to understand human survival and developments and how humans and their geographical environment affect each other. The study of geography is very extensive. It involves both natural science and social science. Some problems discussed in geography include world, national, and regional questions, and how they affect people everywhere.

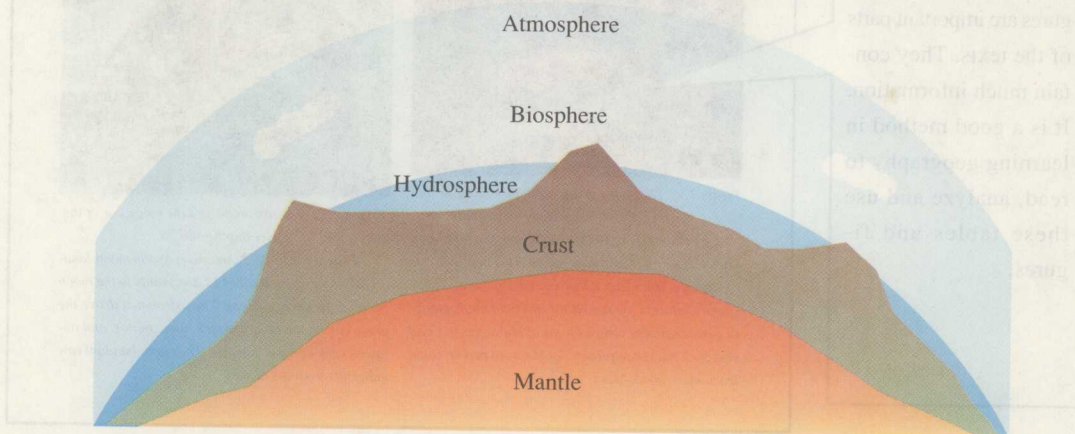
For example, what do the sun and other stars mean to humans living on the earth? What makes weather and climate and why does it change? What role will the ocean play in human lives during the 21st century? How do land components interact with each other so as to create the splendid land environment? Why do we encourage professional agriculture in some country areas and comprehensive agriculture in other country areas? Why do factories produce different products and why

do they get different benefits? What industry should be developed in a certain region to develop the economy, as well as to make money and helps the people? How do world problems as population, food, and environment happen? How do they affect humans? How do we, as Chinese, develop a way to continue to develop both the economy and the society? How can we help to solve these problems? All these questions will be studied in geography.

The content studied in high school geography (required course) is so large, that we can only learn some basic geography knowledge. This begins with the most important events and phenomena in the environment in the limited time.

In this high school geography (required course), we will first learn about the earth's surface, which is the natural environment helping humans to survive and develop. It is made of the atmosphere, hydrosphere, biosphere, and lithosphere (including crust and mantle), which overlap each other. The earth's surface is an open, intricate, and very large system. It is affected by space, but also by the interior of the earth.

Only gradually do humans recognize and understand the natural environment develop. We live on land, so we first understand the land environment. With the development of voyages, we expanded our knowledge of the



oceans. The development of flight and space technology resulted in new knowledge of the atmosphere and outer space. When we discuss the environment, we begin with the largest environment, the world, then the atmosphere, the oceans, and lastly the land, which is closest to us.

After we have the basic knowledge of the natural environment, we will discuss such topics in high school geography (required course) as agriculture and industry, town and country settlements, transportation, trade, and communication. Then, we will discuss how to decide which suit local conditions, how to use nature and improve nature, and to develop productivity. We will show how human activities and environment affect each other and how to get things humans need such as clothing, food, housing, and transportation.

Human activity is affected by its environment, and

it influences the environment too. Environmental problems in the world are closely affected by the relationship between humans and the environment. The method to successfully solve environmental problems is to carry out sustainable development. In high school geography we discuss such topics as: what is a sustainable development strategy; what should each of us do, and what rules should we obey in carrying out sustainable development.

2. The Structure of High School Geography (required Course)

(1) The textbook is divided into eight units (the first and second volume contain 4 units each). Each unit is about an independent topic and is divided into several lessons. Each lesson has text (including words, tables,

The text is the major part of the book. We should understand the main difficult points, and important concepts, principles, and data. When we study the texts we should try our best to find the relationship between the different parts.

The tables and figures are important parts of the texts. They contain much information. It is a good method in learning geography to read, analyze and use these tables and figures.

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Unit 1 The Universe Environment

1.3

New Mankind Exploration of the Universe

The development of the universe exploration

Since ancient times, people have dreamed of flying through the sky, or through the aerosphere. In October 1957, the former Soviet Union sent the first man-made earth's satellite into space. This opened a new era for people to observe and study the earth, and the whole universe from outer space. For example, with various science satellites and space explorers going into the sky, people found



Figure 1.12 The photo of Mars sent back by the former Soviet Union's Mars Detector probe.

From 1962 to 1973, the former Soviet Union launched seven Mars space explorers. Their task was to explore Mars and its surrounding space. These space explorers measured the physical characteristics and chemical compositions of Mars' surface and sent back television pictures of Mars, so people could learn more about Mars.

that was an earth's magnetic field outside the earth's atmosphere and there were x rays and γ rays in the universe. Also people measured the physical characteristics and chemical compositions of the surfaces of many planets (Figure 1.12).

Since the 1960s, many kinds of manned spaceships, space stations, and space shuttles have entered outer space. People can closely observe the moon and large planets and directly obtain samples from these celestial bodies. They can also explore the universe directly. Human knowledge about the solar system and the universe has been greatly enriched (Figure 1.13 and 1.14).

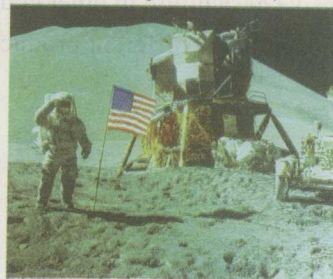


Figure 1.13 The astronaut and the moon car of the spaceship Apollo 16

From 1962 to 1972, American Apollo moon-landing missions sent a total of 12 astronauts to the moon on six different occasions. The astronauts drove the moon car on the lunar surface, took photos, and obtained rock and soil samples. They got abundant raw materials from the moon.

6 Unit 1 The Universe Environment

from the ocean. These are temperature, atmosphere, water and so on. So, there is no wonder that living things came forth and evolved.

So, the earth is in a steady and secure environment, and the earth itself, has the essential conditions necessary to the survival of organisms.


Exploring extraterrestrial civilization

Modern astronomical observation and experiment gradually supports the view that if the conditions are suitable, life can be found on any celestial body in the universe, and it will gradually evolve to advanced forms of life. In order to find out whether there is any extraterrestrial life and to try to contact intelligent creatures outside the earth, human beings have taken a series of steps. For example, people have transmitted lots of radio waves by telegraph, radio, television, and radar for more than half a century. They have been sent out through dozens of light-years. In the mean time, people constantly increased the reception of waves possibly transmitted by intelligent creatures from outer space. Additionally, people have sent space probes with a lot of data into outer space. They include images of the human body, maps of the solar system, some essential constants in the binary system, more than 100 slides showing the earth's civilization and landscapes, and various languages, music, and sounds, etc. recorded on a gold-plated copper board. People are waiting for a response from extraterrestrial intelligent creatures.

Activities

Give a short talk
Topics:

1. *If we have an accurate understanding of the earth's place in space, we will reject blindness and superstition, which hurts our society.*
2. *Take good care of the earth, for we have only one earth.*



The reading materials are designed to enrich and complement knowledge. We can read them in class helped by teachers or read them ourselves after class.

Activities are arranged at the end of each lesson to supply us with the chance to think, to make presentations, and to take part in active learning.

and figures. The little letters below the figures express the meaning of figures or raise questions), reading materials and activities.

(2) There is a "self-study garden" at the end of each unit. Self-study includes readings, skills, and practices in three parts.

Practices—Three to four questions about the important and difficult points will help us think and review.

Skills—Letting us learn some useful skills through practice in geography.

Readings—Some readings will help us to widen our thoughts and help us to understand some principles.

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Self-study Garden

【Practices】

【Skills】

【Readings】

The thought change of the human's universe-earth relationship

Only after humans discovered that where they lived was only a tiny celestial body, did they understand the earth. Before that, humans did not think that where they lived had any relation with the stars in the sky. They regarded the stars in the sky as jinn and with respect. Jinn lies in the sky; humans lie on the ground. There is a great gulf between jinn and mankind. Everything on the earth was commanded by heaven. Government, religion, and social consciousness were all full of fate, and the rela-

3. How to Learn High School Geography (required course)

Studying high school geography (required course) will not only let us learn the geographical environment that we live in and the relationship between human activity and the environment, but can also let us analyze questions with dialectical materialism and historical materialism. This also encourages the ideas that help continued development so that humans work with nature to develop space perception and improve the ability of analyzing and solving geographical problems.

To study geography, we need to remember some basic concepts, data and distribution of geographical facts. We also need to know how to observe and analyze questions fully. We also need to study with a world or regional view about such questions as soil, water, climate, vegetation, animal, population, human economic activity and living style. This will help us to analyze how they interact, and to find out the principles of changing geographical events.

To study geography, we need to use the compara-

tive method. We can use our old and new knowledge to find the difference through comparing such information as data, events, and phenomena, and regions. We can find the important information about geographical events and phenomena through comparison, which allows us to enlarge the already learned geography knowledge.

To study geography, we also need to pay attention to studying, comparing, analyzing and understanding maps, tables, and pictures. We can also gain knowledge from various media, such as textbooks, newspapers, and televisions. Maps, tables, and other visual materials store and show a lot of information, which can help us learn the distribution, relations and interactions between geographical events and phenomena, and to improve our ability to use maps.

Finally, if we understand geography, it is important that we use the knowledge we have studied to analyze and settle problems, and direct our behavior.

We will introduce geography study skills in turn. We will use a good method that suits our study.

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Unit 1

The Universe Environment

The word “universe” usually refers to all that exists in the world. In ancient times, Chinese people called space “yu” and time “zhou”, and took space and time to describe the universe. With the every means of observation, modern astronomers understand that the universe is made of different kinds of substance, and it is in an unceasing movement and development.

The earth is one of the celestial bodies in the universe. Many natural phenomena on earth are because of their place in the world. The earth is the place of human life and the source of human wealth. Humans will have to develop new space to increase and develop more social activities. So, people first have to know about the earth for a better living and increased development.



1.1 The Universe that Humans know

The universe humans have observed at present

Human beings have recognized the universe for a long time. The astronomical universe dis-

cussed in ancient natural philosophy is no more than the earth and heaven. In 16th century, Copernicus proposed the heliocentric model of the universe. He believed the sun was the center



① A nebula is a celestial body made of gas and dust. It is mainly made of hydrogen. The Crab Nebula is a shapeless expanded gas cloud in Taurus. Its size is 12 light years \times 7 light years. Its luminosity is several thousand times greater than that of the sun.



② Saturn is a planet turning around the sun. It has bright and beautiful rings and several dozen satellites. Its volume is about 740 times that of the earth, and its mass is about 95 times that of the earth.

③ A meteoroid is an interplanetary dust particle or small fragment that exists between planets. The number of meteoroids is very large. A large group of meteoroids that go around the sun in the same orbit is called a meteor stream. When a meteor stream meets the earth, people can see an increasing number of meteors in a certain region of the sky at intervals of several hours, several days, or even longer amounts of time. Sometimes it looks like rain. This phenomenon is called a meteor shower. Most meteor showers are named after the constellation or the star near its radiation center. Astronomers in Spain took this photo of the constellation Leo in 1998 (there are five meteors in the photo).

④ A comet is a celestial body with a tiny mass, turning around the sun in a long and flat orbit. It has a nebulous appearance. The famous Halley's comet was the first which to have a successful forecast of its return. The revolution cycle of Halley's comet is 76 years.



Figure 1.1 The universe is composed of matter

of the universe. That means the universe is actually the solar system. In the 1800s, astronomers introduced the word “galaxy,” and, in some sense, it meant the same as the word universe. Since the 20th century, particularly the 1960s, with the use of large telescopes and the progress of space technology, the scale of astronomical knowledge has extends to more than 10 billion years and reaches back more than 10 billion light years^①. Thus, people’s knowledge of the universe has increased.

The universe is a physical world, and it has different forms (Figure 1.1). On a clear night, with the naked eye or with the help of a telescope, we can see the gleaming stars, moving planets, and the moon changing between full and new cycles.

Some times, we can also see nebulae with vague outlines, meteors flashing, trailing comets. We can also observe the gases and dust of interstellar space with the help of astronomical telescopes and other space surveying methods. All these are called celestial bodies. Celestial bodies are different in their size, mass, brightness, and temperature, etc.

The universe is in an unceasing movement and development. Stars and planets attract and turn around each other, forming the celestial star system. By now, the celestial star systems human have recognized rank from small to large (Figure 1.2).

● The moon revolves around the earth, and

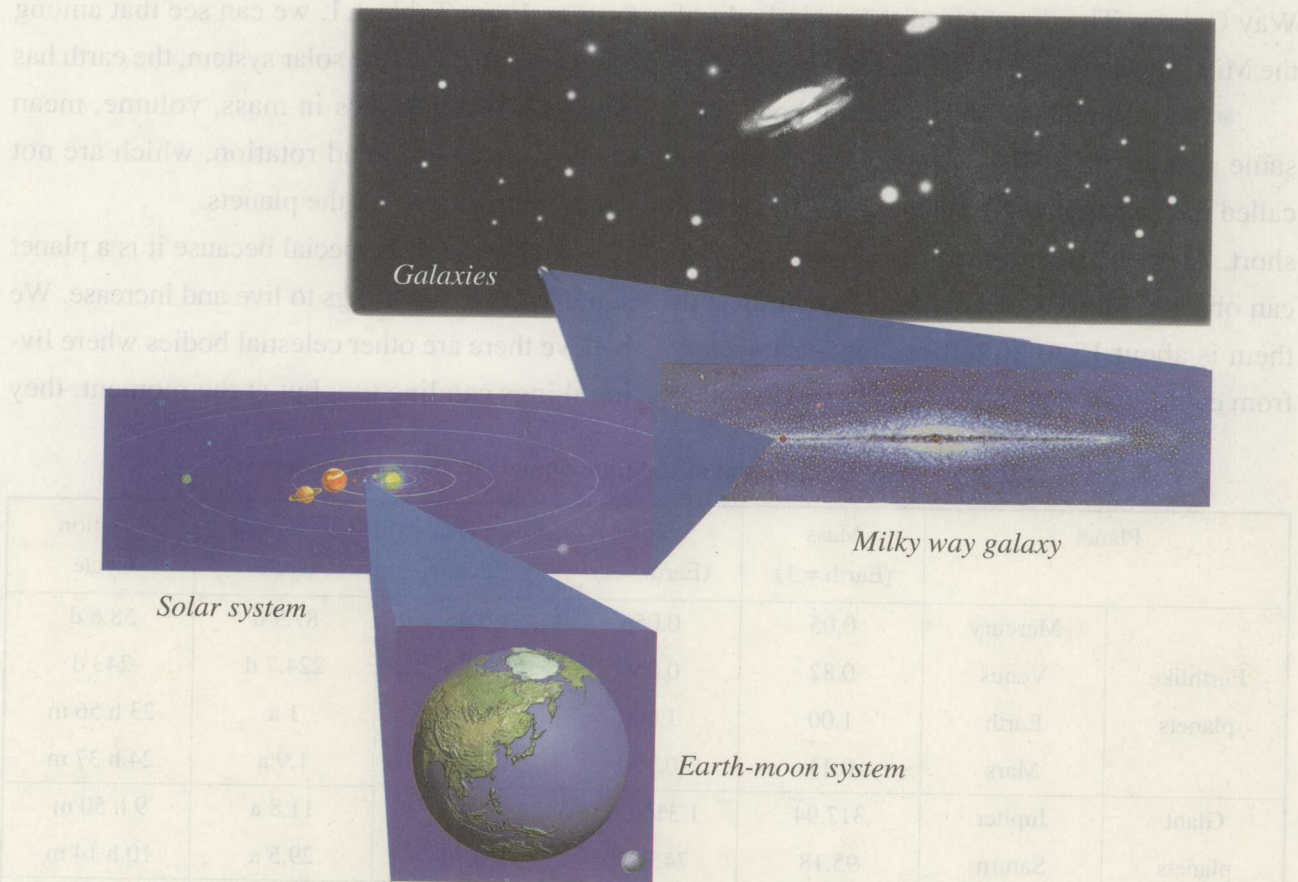


Figure 1.2 The hierachical celestial system in the universe

① A light year is a unit measuring long distances, and it is the distance that light travels in 1 year. A light-year equals 9.4605 trillion kilometers.

they form the earth-moon system. The average distance from the earth to the moon is 384 thousand kilometers.

- The planets such as Earth, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, and other celestial bodies, such as small planets, comets, meteors, etc., all revolve around the sun. They form the solar system. The sun is the central celestial body of the solar system. It makes up 99.86% of the total mass of the solar system. Pluto is the farthest planet from the sun. Its orbit diameter is about 12 billion meters.

- The sun and thousands of other stars form a huge star group, called the Milky Way Galaxy. There are 200 billion stars like the sun in the Milky Way Galaxy. The diameter of the main body of the Milky Way Galaxy is 80 thousand light-years.

- There are many other celestial bodies the same size as the Milky Way Galaxy. They are called the Extragalactic Galaxies, or galaxies for short. At present, with the largest telescope, we can observe billions of galaxies. The farthest of them is about 15 to 20 billion light-years away from earth. The Milky Way Galaxy and the other

Galaxies that have been observed are together called the metagalaxy. This is the universe range we can now observe.

Celestial bodies in the universe were not formed at the same time. They all had their own origin, development, and decline. As a whole, the universe has developed from a high temperature to a low temperature, and from a high density to a low density.

The earth in the universe

The earth is a planet of the solar system. Its distance from the sun is 149.6 million kilometers.

The earth is a common planet in the solar system. From Table 1.1, we can see that among the 9 big planets of the solar system, the earth has its own characteristics in mass, volume, mean density, revolution and rotation, which are not uncommon among all the planets.

But the earth is special because it is a planet suitable for living things to live and increase. We believe there are other celestial bodies where living things can live too, but at the moment, they

Table 1.1 Data comparison of the nine planets in the solar system

Planet		Mass (Earth = 1)	Volume (Earth = 1)	Mean Density (g/cm ³)	Revolution Cycle	Rotation Cycle
Earthlike planets	Mercury	0.05	0.056	5.46	87.9 d	58.6 d
	Venus	0.82	0.856	5.26	224.7 d	243 d
	Earth	1.00	1.000	5.52	1 a	23 h 56 m
	Mars	0.11	0.150	3.96	1.9 a	24 h 37 m
Giant planets	Jupiter	317.94	1 316.000	1.33	11.8 a	9 h 50 m
	Saturn	95.18	745.000	0.70	29.5 a	10 h 14 m
Far planets	Uranus	14.63	65.200	1.24	84.0 a	About 16 h
	Neptune	17.22	57.100	1.66	164.8 a	About 18 h
	Pluto	0.0024	0.009	1.50	247.9 a	6 d 9 h

have not been discovered. Why did living things emerge on the earth? This answer is closely related to where the earth is, and the conditions on earth.

It has been a long time from the beginning of the solar system to the appearance of primitive living things. In this period of time, the sun changed little. The earth received steady sunshine.

The living things evolved without interruption from low to high stages of development.

In interplanetary space, near the earth, big or small planets turn around the sun in the same direction, and in nearly the same orbital plane (Figure 1.3). Big or small planets all have their own paths and do not intersect with one another. This allows the earth stay in a secure universe environment.

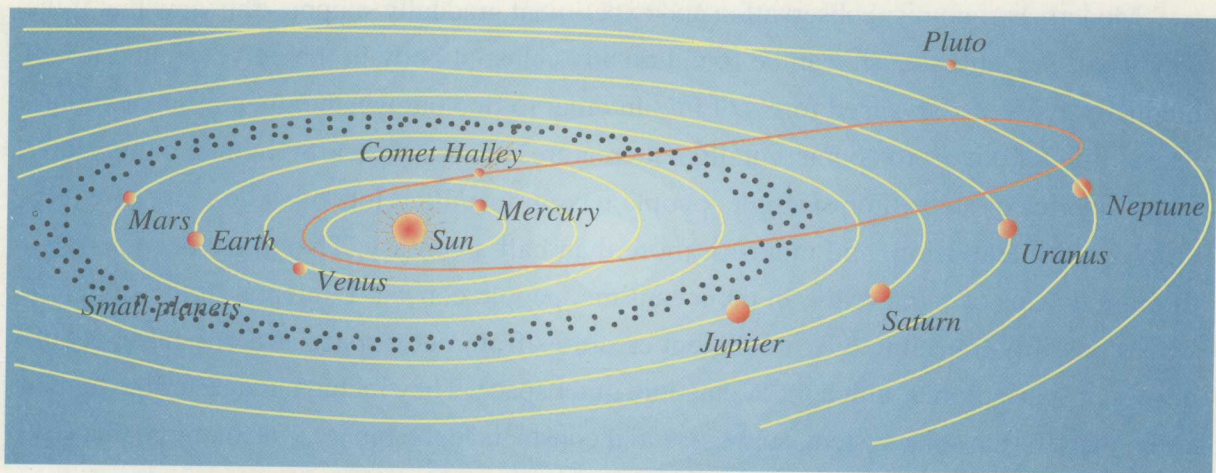


Figure 1.3 The position of the earth in the solar system

The distance from the earth to the sun is moderate. This makes the average temperature of the earth's surface about remain 15°C . It is useful for the origin and development of living things. If the distance had been too small, the temperature would have been too high, so the heat would have stopped the atoms joining together. It would have been impossible for molecules to form, to say nothing of complicated living things. If the distance had been too large, the temperature would have been too low for the molecules to combine together in a solid or crystal shape. The living things would not have survived.

The volume and mass of the earth is moderate. The earth's gravity gathers a large amount of gas around the earth. The gas forms the atmosphere, which wraps up the earth. But the early

atmosphere lacked oxygen. It was mainly composed of carbon dioxide, carbon monoxide, methane, and ammonia. After a long period of evolution, the atmosphere gradually became composed of nitrogen and oxygen, and became suitable for living things to breathe.

Both the decay of radioactive elements inside the earth that generate heat, and the gravitational contraction of the original earth, caused the inner earth temperature to increase. The crystalline water turned to gas. The inner earth's activities, such as volcanic eruptions, accelerated the loss of water vapor from the earth's interior. As the temperature of the earth's surface gradually fell, water vapor gathered by condensation and rainfall. Eventually, it formed the proto-ocean. Primitive one-celled organisms on the earth came