

ACADEMIC ENGLISH  
AUDIO-VISUAL COURSE

# 学术英语 视听说教程

主编 徐国萍 周红红  
主审 侯小龙



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# 学术英语视听说教程

Academic English Audio-Visual Course

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## 内 容 简 介

本教程为非英语专业研究生或高年级本科生拓展学术英语能力的教材。学术英语包括掌握正式的学术词汇,听懂英语课程及记笔记,阅读、总结及诠释学术文章,通晓口语交际方法和撰写学术论文五大技能。本教程包含自然科学、人文社会科学和现代科技三大板块的15个学科,每单元以各学科的经典或热点问题作为“头脑风暴”训练材料,以该学科核心词汇为铺垫,通过原汁原味的相关专题迷你课堂和真实的视听语料输入训练,提升学生听课及记笔记的能力;通过输出训练和口语技巧点拨,提升学生的翻译能力、抓住问题关键参与讨论的能力和概括总结视听语料的能力。

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# 前 言

提起学术英语，你是否觉得说不清道不明，甚至觉得高不可攀？学术英语中“学术”的范畴是什么？它与通识英语的差别何在？学术英语真的如此重要、如此高冷吗？

国外某大学语言学习中心的学术英语课程的教学目标是：“English for academic purposes (EAP) courses teach you the language and skills you'll find most useful in your future study.”，即 EAP 课程教给你在今后学习中遇见的最有用的语言和技能。这里“最有用的技能”指的是正规教育体系中以学业用途为目的的英语交流技巧，包括：掌握正式的学术词汇（formal academic vocabulary development），听懂英语课程及记笔记（listening and note-taking in lectures），阅读、总结及诠释学术文章（reading, summarizing and paraphrasing academic texts），通晓口语交际方法（communicative approaches in speaking），撰写学术论文（writing extended academic essays）。

由此可见，学术英语已经超越通识英语的层面，成为学生获取专业知识、进行学术交流、锻炼思辨能力和培养跨文化交际能力的重要渠道。国外某调查机构针对英国剑桥大学海外学生的语言学习所做的调查显示，参加讨论（28%）、论文写作（23%）、听课与课堂笔记（20%）被列为学习技能中最难掌握的几大部分。

本教程在观察、分析和总结中国学生英语学习的问题和困难的基础上，创新性地将学术英语的 5 种基本能力训练有机结合，将学术英语视听和课堂讨论、总结发言与书面表达、口译和笔译融为一体，使学生的学术英语能力通过有限的训练得到最大限度的提高。

本教程共 15 个单元，包含自然科学、人文社会科学和现代科技三大板块。自然科学板块囊括天文、地理、海洋、生物和自然灾害，人文社会科学板块涵盖心理学、政治制度、经济学、人文科学和社会问题，现代科技板块涉及医学、生物学、电子信息、机电学和工程学。每单元以本学科的经典或热点问题作为“头脑风暴”训练材料，以本学科核心词汇为铺垫，通过原汁原味的相关专题迷你课堂和真实的视听语料输入训练，提升学生听课及记笔记的能力；通过输出训练和口语技巧点拨，提升学生的翻译能力、抓住问题关键参与讨论的能力和概括总结视听语料的能力，使学生能够清晰、准确地表达自己的观点和见解，并对其作出客观、公允的评论。相信这些全方位、大剂量的训练将解锁学生的英语天赋，为英语学习插上“学术”的翅膀，使学生可以在自己的研究领域自由翱翔。

衷心感谢美国加州大学文学博士侯小龙女士抽出大量时间通读全部书稿，并提出宝贵的修改意见。

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2017年春于北京交通大学红果园

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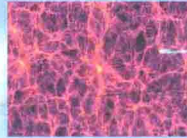
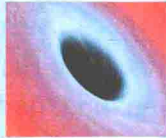
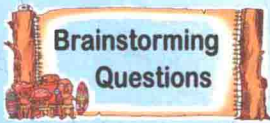
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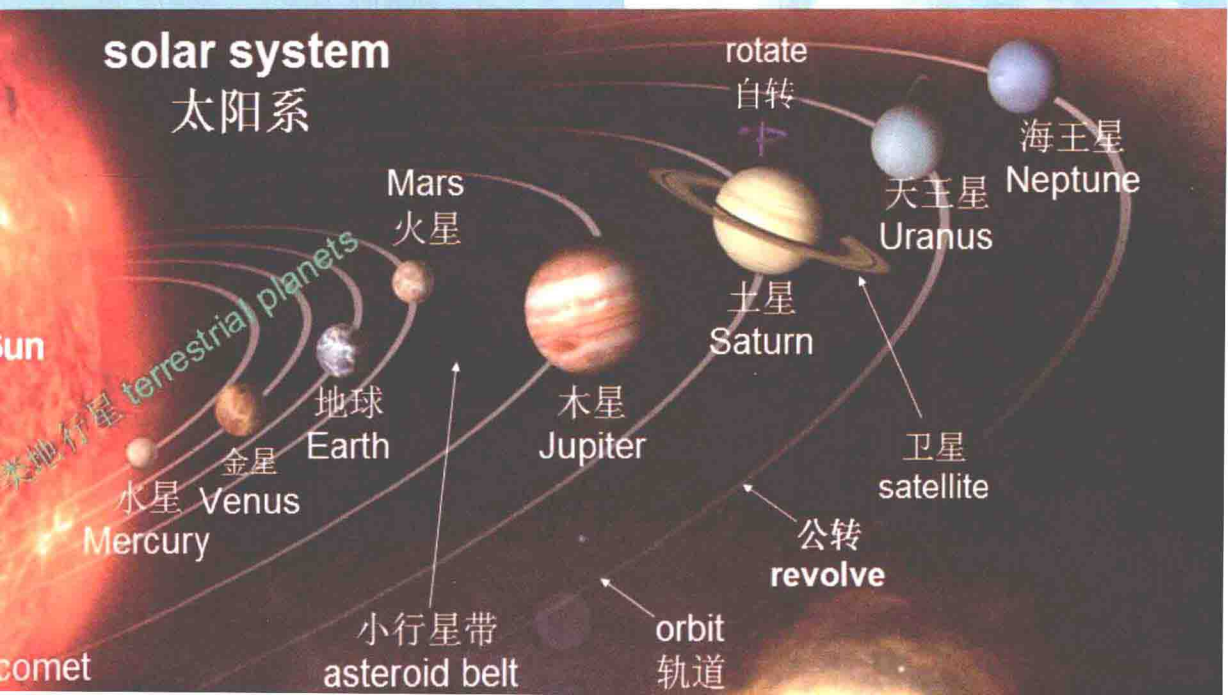


# Unit 1

## The Distant Universe



1. Have you ever heard of Multiverse Hypotheses and Paralleled Universe? Has the universe a beginning or an ending? Do you agree with the Genesis, i.e. divine creation hypothesis?
2. What are wormhole, black hole and white hole?
3. What does ET stand for? Do you believe in the existence of aliens, such as the little green Martians? What does Stephen Hawking say about the existence of aliens? Have you watched some sci-fi movies about other life forms from outer space, such as stories about mutants?
4. How many kinds of celestial bodies do you know? Can you define the following items: fixed star, planet, moon, shooting star, meteor, meteorite, quasar, asteroid, supernovae? Is meteorology the study of meteor?
5. Can you name the planets in the solar system?
6. What does "Goldilocks Puzzle" imply? The Mars is too cold, the Venus is too hot, why is the Earth just right for human survival?





7. Can you compare the following pairs of words and learn about its meaning: "astrology" and "astronomy", "geocentric" and "heliocentric", "solar" and "lunar", "temporal" and "spatial"?
8. What is Dyson Sphere? Can you explain it to the class?
9. How much do you know about Einstein's Relativity? How is his theory applied to the prediction of heavenly bodies' movement? And how precise is it as compared with the observation result by using Newton's Theory?
10. What is nebular hypothesis about? What is Big Bang model like?
11. Can you define "anti-matter", "antibaryon" and "dark matter"?
12. Who is the first that puts forward the "superstring theory" and what is this theory about?

*Lexical items*



astronomy	天文学	cosmology	宇宙学
galaxy	银河系	cosmography	宇宙志
solar system	太阳系	cosmic	宇宙的
fixed star	恒星	vacuum	真空
planet	行星	intergalactic	星系间的
Mercury	水星	radial	辐射状的
Venus	金星	corona	冠状
Earth	地球	particle	微粒
Mars	火星	propagation	传输
Jupiter	木星	spectral	光谱的
Saturn	土星	elliptical orbit	椭圆轨道
Uranus	天王星	eccentric	离心的
Neptune	海王星	superluminal	超光速
satellite	卫星	supersonic	超声速
comet	彗星	wavelength	波长
meteor	流星	velocity	速率
revolve	公转	low velocity zone	低速层
rotate	自转	probe detector	探测器
photon	光子	oxygen	氧气
quantum	量子	hydrogen	氢气
molecule	分子	nitrogen	氮气
gravity wave	引力波	helium	氦气



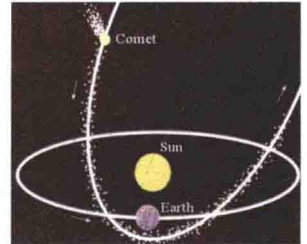
## Part A Mini-Lecture



Task

*Listen to part of a lecture in an astronomy class on comets (4'51").  
Find out the answers to the following questions.*

- What is the lecture mainly about?
  - The orbits of comets.
  - Unique characteristics of a famous comet.
  - The structure of comets.
  - The origin and life cycle of comets.
- According to the professor, what happens as a comet approaches the Sun? (Click on 2 answers)
  - Its nucleus loses some material.
  - Its core becomes brighter.
  - It moves faster.
  - It absorbs gases from the Sun.
- Why does the professor emphasize the amount of time Hailey's Comet is beyond the orbit of Jupiter?
  - To account for the comet's composition of ice and dust.
  - To show the effect of Jupiter's gravity on the comet's orbit.
  - To argue that the comet's orbit should not be considered periodic.
  - To explain why the comet is not visible from the Earth very often.
- What does the professor imply about the history of Hailey's Comet?
  - Hailey's Comet did not always have the same orbit it has now.
  - Hailey's Comet used to be much smaller than it is now.
  - Hailey's Comet has always had the same orbit that it has now.
  - Hailey's Comet is much younger than the rest of the solar system.
- What is the professor's opinion about the name "parabolic-orbit comets"?
  - It is not widely accepted among astronomers.
  - It is probably not strictly accurate.
  - It is not a term that the students need to learn.
  - It will probably be replaced soon with a new name.





6. According to the professor, what can change a parabolic-orbit comet into a periodic-orbit comet?
- A. The loss of some of the comet's material.
  - B. The force of escaping gases.
  - C. The gravitational influence of a planet.
  - D. Energy from the Sun.



## Part B Input Practice



### Section A

*In this section, you are going to listen to a VOA report (4'58"). First read the following words and phrases aloud and then do the tasks below.*



### Word Tips

extreme [ɪk'stri:m]	a. 极端的, 极限的
evidence ['evidəns]	n. 证词, 证据, 迹象
lunar ['lu:nə]	a. 月球的, 阴历的
millimeter ['mɪlɪ.mi:tə]	n. 毫米
pole [pəʊl]	n. 极点, 顶点
comet ['kɒmɪt]	n. 彗星
mineralogy [ˌmɪnə'rælədʒɪ]	n. 矿物学

### Culture Tips

**NASA** (National Aeronautics and Space Administration) is the agency of the United States Federal Government responsible for the civilian space program as well as aeronautics and aerospace research.

**Moon Mineralogy Mapper (M<sup>3</sup>)** is the instrument that NASA contributed to its mission to the Moon, Chandrayaan-1, launched October 22, 2008. The instrument is led by principal investigator Carle Pieters of Brown University, and managed by NASA's Jet Propulsion Laboratory.



## Task 1

**Listen to the report carefully and fill in the blanks with proper words or phrases.**

The moon (1) \_\_\_\_\_ to be a dry and dead place. Scientists have long believed that Earth's (2) \_\_\_\_\_ lacks the ability to hold water near its surface because it has no (3) \_\_\_\_\_. So the announcement by the United States space (4) \_\_\_\_\_ shocked many in the scientific community.

“Widespread water has been detected on the surface of the moon.”

That was Carle Pieters, a professor at Brown University, in Providence, Rhode Island. She is the investigator for a NASA team studying the lunar findings.

The NASA scientists discovered water (5) \_\_\_\_\_ mainly in the moon's extreme northern and southern areas. The researchers note, however, that they could also be seeing evidence of another molecule, hydroxyl.

Hydroxyl is the combination of one (6) \_\_\_\_\_ atom and one oxygen atom. Water is made of one oxygen atom and two hydrogen atoms. The NASA team still is not sure how much of what they have found is water and how much is hydroxyl.

Instruments on three separate spacecraft have now shown evidence of lunar water. NASA's Moon Mineralogy Mapper provided the most recent (7) \_\_\_\_\_. It was one of eleven scientific devices carried by the Chandrayaan spacecraft of the Indian Space Research Organization.

The Mapper is a spectrometer, a device that measures (8) \_\_\_\_\_ light wavelengths. It is able to show scientists what an object is made of from great distances. Similar devices on NASA's Cassini and Epoxi spacecraft also reported the (9) \_\_\_\_\_ of water. But those observations were made years ago and NASA scientists had not trusted the results without clear (10) \_\_\_\_\_. Now, Ms Pieters calls the new results completely conclusive. The findings were published in the journal *Science*.



## Task 2

**Listen to the report again. Focus on the specific information and then decide whether the following statements are true or false. Write T for true and F for false.**



- \_\_\_\_\_ 1. The announcement that the moon is a very dry place shocked the scientific community.
- \_\_\_\_\_ 2. The water molecules were mainly discovered in the moon's extreme northern and southern areas.
- \_\_\_\_\_ 3. Hydroxyl has more hydrogen atoms than water.
- \_\_\_\_\_ 4. The Mapper is a device that detects light waves.
- \_\_\_\_\_ 5. The Mapper also reports the presence of water.
- \_\_\_\_\_ 6. The Moon Mineralogy Mapper can observe the soil on the moon only to a depth of a few millimeters.
- \_\_\_\_\_ 7. The surface of the moon near its poles has less water than the driest desert on the Earth.
- \_\_\_\_\_ 8. Scientists still don't know for sure how water was brought to the moon.
- \_\_\_\_\_ 9. LCROSS stands for the Lunar Craft Observing and Sensing Satellite.
- \_\_\_\_\_ 10. NASA scientists are now searching for water as deep as five meters beneath the surface of the moon.

*In this section, you are going to watch a video clip (2'52").  
Read the following words and phrases aloud first and then do the tasks below.*



**Word Tips**

far-fetched ['fɑ:'fetʃt]	a. 深远的, 遥不可及的
perception [pə'sepʃn]	n. 认识, 观点
dilation [dai'leiʃn]	n. 膨胀, 扩张
pronounced [prə'naʊnst]	a. 明显的
essentially [ɪ'senʃəli]	ad. 根本上
nano second ['nænəʊ'sekənd]	n. 纳秒
surpass [sə'pɑ:s]	v. 超越
eventually [ɪ'ventʃuəli]	ad. 最终
barrier ['bæriə]	n. 障碍
approach [ə'prəʊtʃ]	v. 接近
preposterous [pri'pɒstərəs]	a. 反复无常的
skeptic ['skeptɪk]	a. 怀疑的

**Culture Tips**

**Albert Einstein** (1879–1955) is a German-born theoretical physicist. He developed the general theory of relativity, one of the two pillars of modern physics (alongside quantum mechanics). Einstein's work is also known for its influence on the philosophy of science. He is best known in popular culture for his mass-energy equivalence formula  $E=mc^2$ . Einstein received the 1921 Nobel Prize.

**Chuck Yeager** (1923–) is a retired brigadier general in the United States Air Force and record-setting test pilot. In 1947, he became the first pilot confirmed to have exceeded the speed of sound in level flight.

**Task 1**

*Answer the following questions before watching the video clip.*

1. Can people travel through time?

---

2. How are our perceptions of time and space defined according to Albert Einstein?

---

3. What does dilation refer to when talking about travel in time?

---

4. Can people travel faster than the speed of light?

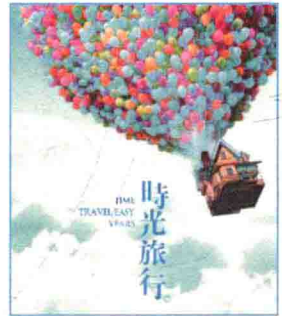
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5. Can people travel faster than the speed of sound?

---

6. What would happen when people start to break the light barrier?

---

**Task 2**

*Watch the video clip and then answer the questions. Choose the best answer to each question from the four choices given below.*

1. What is this passage mainly about?

A. Space travel.

B. Travel to the future.



- C. Travel through time. D. Travel to the past.
2. You may be younger than you think because \_\_\_\_\_.
- A. you travel faster than others
  - B. you travel slower than others
  - C. you develop slower than others
  - D. every time you travel by air, you actually jump a little into the future
3. According to Einstein's special theory of relativity, \_\_\_\_\_.
- A. our perceptions of time and space are defined by motion
  - B. our perceptions of time and space are defined by speed
  - C. our perceptions of time and space are defined by speed and motion
  - D. our perceptions of time and space are defined by gravitational laws
4. Why was the two atomic clocks placed differently?
- A. Because scientists wanted to find out how accurately each clock went.
  - B. Because scientists were skeptic of the notion that time goes faster when people travel fast.
  - C. Because scientists wanted to figure out the qualities of the clocks.
  - D. Because scientists wanted to confirm that the clock on the plane would go faster.
5. The astronaut would jump 3.8 seconds into the future if \_\_\_\_\_.
- A. he travels at 17,000 miles an hour
  - B. he travels at 17,000 miles an hour for a full year
  - C. he travels at 500 miles an hour
  - D. he travels at 500 miles an hour for a full year
6. Chuck Yeager was mentioned to imply that \_\_\_\_\_.
- A. someday we might go faster than the speed of light
  - B. someday we might be able to travel at supersonic speed
  - C. space travel is possible
  - D. time travel is possible
7. If we can travel faster than the speed of light, \_\_\_\_\_.
- A. scientists believe that we will shift further into the future
  - B. we might actually be going backwards in time
  - C. everything would seem to go reversely
  - D. all of the above
8. Skeptics mean \_\_\_\_\_.
- A. to be doubtful about things
  - B. to believe in everything they have seen or heard
  - C. to be positive about life



- D. to be negative about life
9. The laws of physics suggest that \_\_\_\_\_.
- it is impossible for people to travel at a speed exceeding that of light
  - natural law must be revered
  - we are allowed to travel almost as fast as light
  - we are allowed to travel as fast as light
10. According to this passage, can we build machines that can go faster than light?
- Highly possible.
  - Unlikely, but not absolutely impossible.
  - Impossible.
  - It's possible to achieve this with the supersonic technology.

 Task 3

*You are going to hear three sentences twice each (2'16"). Listen to each of them carefully and write down the sentences.*

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_



## Part C Output Practice



### Section A

*In this section, you are going to watch some video clips about the Universe. Watch them first and then do the tasks below.*

 Task 1

*Watch the video clip "Light Year" (1'21"). Retell the message with the help of the following clues.*