B3U5 Journey to the stars

Unit overview

This unit focuses on human space exploration and the experiences of astronauts in space. Its purpose is to assist Ss in recognizing the importance of space exploration for humanity and the significant role that China has played. The text in *Active reading* describes China's achievements in space exploration, emphasizing the motives behind such endeavors and the positive impact they have on scientific discovery, technological advancement, and daily life. The text in *Further exploration* narrates the difficulties encountered by the astronauts involved in the Apollo 13 mission throughout their space voyage. Then the audio introduces some tips on staying healthy in space, further informing Ss about the work and life of astronauts. In *Project*, Ss are asked to give an interactive talk at an exhibition about China's space exploration, focusing on China's achievements and how Chinese astronauts deal with challenges in space. The essay in *Extended reading* is a revised excerpt from Jules Verne's novel *From the Earth to the Moon*, describing the launch of a projectile to the moon. By learning this unit, Ss are expected to embrace human qualities of curiosity, innovation, and courage etc., and take pride in China's achievements in space exploration.

Scenario
在中国航天博物馆，学生以志愿导览员的身份为参加夏令营的国际学生介绍中国航天成就以及宇航员在太空中所遇到的挑战。

Active reading
(Sailing the ocean of stars)
阅读介绍人类航天成就的文章，了解人类航天发展历史，航天科技应用，以及中国航天所取得的伟大成就。

Further exploration – Text
(Apollo 13)
阅读关于美国登月飞船阿波罗 13 号的太空历险故事，了解宇航员在执行太空任务时所面临的巨大挑战。

Further exploration –Audio
(Staying healthy in space)
听音频，了解太空旅行对人体的影响及应对方法。

Project
介绍中国航天成就及中国宇航员所面对的太空挑战，并以问答的形式与参观者积极互动。

Extended reading
(Fire!)
阅读儒勒·凡尔纳科幻小说《从地球到月球》选段，了解 19 世纪人类对探索太空的想象，激发对科学知识和技术创新的追求。

Self-reflection
回顾整个单元的学习，反思在内容、语言、结构、交际和行为上的收获。

结合所学知识和信息查阅，介绍中国航天成就和宇航员的太空生活，认识科学探索对人类发展的多重意义，了解中国航天的开拓进程，培养民族自豪感。

本单元课程思政元素备选清单

素材	课程思政参考点	二十大精神
Active reading (Sailing the ocean of stars)	• 了解载人航天等一些关键核心技术的突破使中国进入了创新型国家行列。要大力弘扬载人航天精神，锐意进取、攻坚克难，团结协作、拼搏奉献； • 了解培养造就大批以中国航天员为代表的德才兼备的高素质人才对国家发展的重要意义； • 了解中国在航天事业不断取得新进展的同时，积极推动国际太空合作，为人类太空探索事业作出的重要贡献。	通过本单元的学习，学生能够回顾人类太空探索发展历史，理解中国载人航天取得的成就及其对人类和平发展的意义，认识到科技创新、贯彻新发展理念、推进高质量发展、建设航天强国的重要性。
Further exploration – Text (Apollo 13)	• 了解载人航天的艰苦与风险，学习“特别能吃苦、特别能战斗、特别能攻关、特别能奉献”的载人航天精神。	
Further exploration – Audio (Staying healthy in space)	• 了解关于航天员太空生活的科学常识和技术创新，思考如何将这些知识应用到解决地球上的问题，并激发对科学和技术发展的兴趣以及参与未来太空探索的动力。	
Extended reading (Fire!)	• 认识到好奇、勇气与探险精神是通往更广阔世界的钥匙。	

Scenario

The scenario in this unit can be analyzed from the following aspects：
Setting: The China Space Museum
Topic: China's achievements and the challenges Chinese astronauts face in space
Identity: Speaker – Volunteer guides
Audience – International visitors
Purpose: To welcome the visitors to enjoy the exhibition, inform them about China's space exploration and the life of taikonauts, and invite them to engage in discussions

Teaching suggestions

T can help Ss generate ideas about how to give an interactive talk by asking them to search online for China's achievements in space exploration and the challenges that Chinese astronauts face while in space. Remind Ss to use credible sources and gather relevant statistics and success stories. Then divide Ss into small groups, ask them to exchange ideas on the content they plan to include in their talk, prompt them to discuss the historical background, key milestones, technological advancements, and notable missions in China's space program, and encourage them to brainstorm engaging and interactive ways to present this information to the international visitors.

After the tryout, T can ask Ss to reflect on their difficulties in four aspects, i.e., content (how to introduce China's achievements and how Chinese astronauts deal with challenges in space), language (the expressions and sentence structures they have used and feel hard to use), structure (how to organize a talk clearly and logically), and communication (how to make the talk interactive), and write them down in the table in the Student's Book.

Active reading

In *Scenario*, Ss are expected to give an interactive talk on China's achievements and the challenges Chinese astronauts face in space. The text provides a historical review of human exploration of space, with special highlights on the achievements made by China. It opens with a description of the Tiangong class hosted by Chinese astronauts, which serves as an example of the writing technique of using a specific lead-in to introduce a grand theme. The main points of this text are as follows: the driving force behind space exploration, human findings about the universe and the solar system, the latest development in manned spacecraft, and the benefits of space technology in daily life. The text concludes with an exciting prospect of future space exploration. On the whole, this part offers multiple examples of China's achievements which will facilitate Ss' preparation for the task in *Project*.

Before you read

Reference answers

1 The first picture depicts the ancient legend of Chang'e, a Chinese goddess, who flew to the moon. The second picture showcases Chinese astronauts on board the Tiangong space station, representing China's human space exploration endeavors.

2 The two pictures are related and symbolize the enduring fascination of the Chinese people with the mysteries of the universe: from ancient times, when celestial exploration captivated their imaginations, to the present, when modern China has achieved remarkable milestones in space exploration. The first picture showcases China's fascination with lunar exploration, while the second picture represents the nation's ability to independently build and operate a space station. These images embody the continuous realization of China's space aspirations and the culmination of centuries of dedication and progress. China's remarkable achievements in space exploration reflect the nation's collective strength and unwavering commitment to pursuing the dream of space.

Sailing the ocean of stars

Text interpretation

本文采用说明文体，讲述了人类太空探索取得的成就和中国的伟大贡献。文章第一部分（第一段）由中国宇航员“天宫课堂”开篇，以事例讲述的方式引入人类太空探索这一宏大主题。第二部分（第二段）讲述人类对宇宙的好奇心由来已久。第三部分（第三至第五段）按照时间顺序，介绍了人类在太空探索中取得的成就，从能够回答关于宇宙的基本问题，到通过太空探测器探索太阳系和其他行星的奥秘，再到发射载人航天器、进行太空行走和建设空间站。这些进展拓展了人类活动的范围，为长期太空旅行积累了宝贵经验。其中，中国的航天成就为人类太空探索作出了重要贡献。第四部分（第六至第七段）介绍了航天技术民用化方面取得的诸多成就。最后一部分（第八段）呼吁国际社会共同努力推动太空探索的发展。

从写作手法上看，本文最突出的特征是通过有趣的案例引入太空探索话题，充分利用了视觉效果、情感共鸣和具体化的手法，使抽象的主题更具体、更有趣、更能吸引读者的注意力。这种写作手法不仅提高了文章的可读性和吸引力，还让读者更深入地了解和感受太空探索的魅力。教师可结合写作技巧部分的讲解和练习引导学生分析这种写作手法的优点，并在产出任务中有效应用。

从知识层面，本文梳理了不同时代、不同国家在多个领域所取得的航天成就。从价值观层面，文章意图展现人类的好奇心、想象力、意志力、合作精神在科学发展中的作用，同时通过介绍中国航天所取得的成就，培养学习者的民族自信心和参与国际合作的积极性。

教师可以借助课文中的词汇、句子进行隐性的课程思政，例如：

例1（第一段）：解读宇航员王亚平对祖国年轻一代的寄语，激发学生投身科学探索和祖国建设的热情；

例2（第二、五、六段）：通过讲解、分析中国航天器命名中的中国文化渊源（天宫、嫦娥、玉兔、神舟、北斗等），培养学生的文化认同感与自豪感；

例3（第一、五段）：查阅中国航天员人物事迹，讨论德才兼备的高素质人才对建设科技强国的重要性；

例4（第八段）：分析中国空间站对外开放、合作共赢的态度所折射出的中国大国外交精神及对世界和平发展的影响。

Photo interpretation

本单元课首图片为中国文昌航天发射场。它是中国首个滨海航天发射基地，也是世界上为数不多的低纬度发射场之一。该发射中心可以发射长征五号系列火箭与长征七号运载火箭，主要承担地球同步轨道卫星、大质量极轨卫星、大吨位空间站和深空探测卫星等航天器的发射任务。

主课文配图一描绘了中国古代传说中“嫦娥奔月”的场景，代表远古时期人类对外太空展开的丰富想象，图二为当代中国航天员实现飞天梦想的情景。古今对比，喻示中国新时代高质量发展取得的成就。

教师可以在导入活动中充分利用课首图和这两张图片，让学生围绕图片讨论问题，引导学生关注我国航天事业伟大发展，隐性融入育人元素。比如，教师可以设计以下问题：

- What is the significance of the Wenchang Spacecraft Launch Site in China’s space exploration efforts?
- What are the main capabilities and advantages of the Wenchang Spacecraft Launch Site compared to other launch sites?

Culture notes

1 **Tiangong space station**

The Tiangong space station is constructed by China and operated by China Manned Space Agency (CMSA) in low Earth orbit between 340 and 450 km above the surface. It is China’s first long-term space station, part of the Tiangong program, and the core of the “third step” of the China-manned space program. The construction of the station is based on the experience gained from its precursors, Tiangong-1 and Tiangong-2. The first module, the Tianhe (“Harmony of the Heavens”) core module, was launched on April 29, 2021, followed by multiple crewed and uncrewed missions and two more laboratory cabin modules Wentian (“Quest for the Heavens”) launched on July 24, 2022, and Mengtian (“Dreaming of the Heavens”) launched on October 31, 2022. The research conducted on the station aims to improve researchers’ ability to conduct science experiments in space.

2 **Chang’e-5 mission**

The Chang’e-5 lunar mission was launched from the Wenchang Spacecraft Launch Site. It successfully landed on the Moon on December 1, 2020, and completed its mission by returning 1,731 grams of lunar rock and soil to Earth on December 17, 2020. This historic achievement marked for the first time in 44 years that lunar samples were collected and brought back to Earth. With this feat, China became the third country in the world to retrieve lunar samples, joining the ranks of the United States and the Soviet Union. The mission lasted for 23 days, showcasing China’s advancements in space exploration and its commitment to lunar exploration.

3 **The Milky Way**

The Milky Way is the galaxy that contains the Sun, the Earth, and other objects in our solar system. It also includes hundreds of billions of stars besides the sun. Huge clouds of gas and dust lie throughout the galaxy, and they constantly form new stars. The Milky Way is so massive that about 10 smaller galaxies orbit it like satellites revolving around a planet. The diameter of the Milky Way is about 100,000 light years. The galaxy is about 10,000 light-years thick at the central bulge. Toward the edges of the disk, it is much flatter, with a thickness of only about 1,000 light years. Our solar system is on the outskirts of the galaxy, about 25,000 light years from the center.

4 **Voyager 1 & Voyager 2**

The National Aeronautics and Space Administration (NASA) launched Voyager 1 on September 5, 1977. The probe made its closest approach to Jupiter on March 5, 1979, encountered Saturn on November 12, 1980, and then headed toward interstellar space (the space between the stars). Voyager 2, launched on

August 20, 1977, made its closest approach to Jupiter on July 9, 1979, Saturn on August 26, 1981, Uranus on January 24, 1986, and Neptune on August 25, 1989, then traveled toward interstellar space.

5 **Mars rover Zhurong**

Zhurong is China's first Mars rover. On May 22, 2021, the Zhurong rover arrived on the surface of Mars and began its exploration. Zhurong is tasked with surveying Mars' landforms, geological structures, soil characteristics, potential locations of water and ice, and atmospheric and environmental characteristics, as well as magnetic and other physical fields.

6 **Shenzhou spacecraft**

The Shenzhou spacecraft is a series of China's manned spacecraft, with research and development beginning in 1992, when they were first listed in the national development plan. The Shenzhou spacecraft consists of an orbital module, a reentry module, and a service module.

Language points

1 **You are all budding flowers of our country. (Para. 1)**

budding: *a.* (*only before noun*) beginning to develop 开始发展的；成长中的
As a budding artist, you will have to make a special effort for people to take you seriously.

Notes: In Chinese, the young generation are often compared to "budding flowers" (含苞待放的花朵), which represents the expectations the older generation hold for the youngsters. In English, the term "budding artist / actor / writer, etc." is commonly used to describe someone who is in the early stages of their creative journey, such as painting, acting, writing, etc., and shows potential for future success.

2 **Space exploration arose from our desire to know about the universe, … (Para. 2)**

arise from: if sth. arises from or out of a situation or an event, it is caused or started by that situation, etc. （由……）产生；（由……）引起
Such misunderstandings may have arisen from language barriers and cultural differences.

3 **This curiosity has inspired myths since time immemorial. (Para. 2)**

since time immemorial: for an extremely long time 自古以来

Since time immemorial, storytelling has served as a fundamental component of human culture and communication.

Notes: In this sentence, the word "immemorial" means "starting longer ago than people can remember, or than written history shows." The word is often used in the phrase "from / since time immemorial," when referring to a time beyond the reach of memory, record, or tradition.

4 **…, and the Earth is located on the outer fringe of the one known as the Milky Way. (Para. 3)**

on the fringe (of sth.): at the part of sth. that is farthest from the center 在（……的）边缘；在（……的）外围

To get a better view of the stage from afar, we remained on the fringe of the crowd.

Notes: When we describe something as being "on the fringe" of something else, it is marginal, additional, or secondary in comparison to the center. This can apply to spatial relationships or serve as metaphorical representation of social circles.

5 **Similarly, the lunar samples brought back by China's Chang'e-5 mission have shed new light on the evolution of the moon. (Para. 4)**

Notes: When lamp sheds light on your desk, it lights up the area around it. This expression is also used metaphorically to mean "to make something easier to understand by providing new or better information." The human sense of vision is such a rich source of metaphor that we could find many other examples related to "light," like the verb "enlighten," which means "to explain something to someone." Likewise, when you feel uninformed about something important because you have not been told about it, you can say "I'm kept in the dark."

6 **…, they expanded the scope of human activities … (Para. 5)**

scope: *n.* [U] the range of things that a subject, activity, book, etc. deals with （学科、活动、书籍等的）范围
The scope of the project includes both the design and implementation of the new software system.

Notes: There are several verbs that can be used with "scope," depending on the context, like "expand / widen / broaden / extend / narrow / limit the scope." For example:
The professor had to limit the scope of the lecture due to time constraints.
Before the work begins, we should outline the scope of the project.

7 **Chinese astronauts, also known as taikonauts, have devoted themselves to developing the space industry and made their mark in the history of space exploration. (Para. 5)**

make one's mark: attain recognition or distinction 得到公认；获得名声

As a young artist, she quickly made her mark in the world of abstract painting, standing out with her unique style.

Notes: In the phrase "make one's mark," the word "mark" refers to a noticeable effect or influence. It denotes a significant impression or contribution that a person has made in a particular field, area, or activity. When we describe someone becoming successful or famous, we could say "make / leave one's mark as …" or "make / leave one's mark on / in ..." The preposition "as" is used when we want to specify the role or profession in which someone has excelled, e.g. "He made his mark as a great writer." On the other hand, "on" or "in" is used when we want to highlight the area, field, or domain that has been significantly influenced or transformed, e.g., "She left her mark on the fashion industry."

8 **Technologies developed in the 1960s to monitor astronauts' vital signs have found their way into every hospital. (Para. 7)**

Meaning: These technologies initially developed for astronauts in the 1960s have eventually been implemented and become widely used for medical purposes.

way into sth.: a method of getting involved in a particular activity or type of work （做成某事的）方法；（进入……的）途径
Through diligent study and practice, she found her way into the prestigious orchestra as a first violinist.

9 **With its infinite possibilities, space exploration is a cause which will enrich and strengthen humanity's future. (Para. 8)**

Meaning: Space exploration, because of its unlimited potential and opportunities, is a pursuit that will greatly contribute to and fortify the future of human beings. This might be through technological advances, scientific knowledge, resource discovery, or other potential benefits that we can gain from exploring space.

infinite: *a.* very great, and seeming to have no limit 巨大的；极大的；无限的
Her love for her children was infinite, boundless beyond measure.

10 **Without doubt, the vast ocean of stars will remain a source of information and inspiration … (Para. 8)**

Notes: Alliteration (押头韵) is a rhetorical device that uses several words together that begin with the same sound or letter in order to make a special effect, as is found in "information and inspiration." Other classic examples include Peter Pan, Mickey Mouse, etc. Another common example is "She sells seashells by the seashore," where the "s" sound is repeated. It's a popular technique in poetry, advertising, and other forms of writing because it draws the reader's attention to a particular section of the text.

Getting the idea

1

Reference answers

1) know about the universe
2) the nature of the objects
3) outer fringe
4) photos and data about other planets
5) surface
6) the evolution of the moon
7) manned spacecraft
8) Chinese astronaut to walk in space
9) long-term space travel
10) infrastructure needs
11) monitor astronauts' vital signs
12) firefighter protection
13) the robotic arms used in space missions

2

Teaching suggestions

T may encourage Ss to research the latest advances in space technology so that they can find evidence for their discussion. One way is to do some follow-up research on issues mentioned in the text, such as new findings about Mars, human settlement on the moon, scientific experiments at the space station, etc. Another approach could be question-oriented, where Ss make a list of global issues and find out how space technology might help solve these problems, such as climate change, the energy crisis, world peace, etc.

Reference answers

1 Space exploration enriches and strengthens humanity's future through scientific discovery, technological advancements, and global collaboration. Exploring space uncovers new knowledge about the universe, leading to breakthroughs in various fields and improving our understanding of the Earth. It drives the development of innovative technologies that have practical applications in communications, navigation, and more. Additionally, international collaboration in space missions promotes cultural exchange, strengthens diplomatic relations, and fosters peaceful cooperation on a global scale. Overall, space exploration creates opportunities for progress, making a positive impact on our lives and the world.

2 The Wenchang Spacecraft Launch Site holds significant importance in China's space exploration endeavors due to its favorable geographical location near the equator, which facilitates efficient launches into various orbits. Its strategic coastal position enables the safe disposal of rocket stages over the ocean. The site boasts modern infrastructure and is situated remotely, ensuring minimal disturbances to surrounding communities. This prioritizes the smooth execution of missions while emphasizing environmental safety. In summary, Wenchang serves as a crucial asset for China's space exploration program.

Analyzing writing techniques

Reference answers

1

1 The lead-in connects to the theme of space exploration by providing a real-life example of space exploration and its impact on our understanding of the universe. It highlights the experiments conducted by Wang Yaping aboard the Tiangong space station. This example serves to spark curiosity and fascination about space exploration and sets the stage for the subsequent discussion on the origins of our ancient dreams, the development of technology, the discoveries made through space probes, the achievements of human spaceflight, and the practical applications of space technologies.

2 In the lead-in, the author uses the following details:

- Wang Yaping's demonstration during a live class aboard the Tiangong space station
- The buoyancy experiment with a table tennis ball in a glass of water, where the ball remained in the middle of the water instead of floating to the surface like on the Earth
- The creation of a thin film of water within a metal ring by adding water from a bag
- The placement of a folded paper flower on the water film, causing it to "magically blossom" and spread out across the water
- Wang Yaping's statement about the flower reminding her of her daughter and her hope for the dreams of the students to blossom in the vast universe

These details illustrate the behavior of water in the weightless environment of space and evoke a sense of wonder and inspiration about space exploration.

3 The lead-in serves as an intriguing introduction that sparks interest and primes the reader for the subsequent space exploration. It smoothly transitions from a specific example to the broader theme of space exploration, drawing the readers deeper into the main content.

2

In the old city of Jiuquan, China, a brave team of adventurers stand in front of a gigantic rocket, ready to begin a journey that will change the way we see the universe. With excitement and hopes of learning new things, they take off into the sky, capturing incredible pictures and conducting groundbreaking experiments. Through their courage and dedication to exploring space, we are reminded of the endless marvels that wait for us in the vast unknown. Get ready for an amazing ride as we uncover the mysteries of Chinese space exploration, where an extraordinary adventure beyond our wildest dreams awaits.

Building your language

Reference answers

1

1 lunar samples
2 shed light on
3 infinite possibilities
4 welcomes international collaboration
5 artificial satellite

2

1 arises from
2 in their pursuit of
3 making its mark
4 devote himself to
5 raise the alarm

3

For thousands of years, human beings have been attracted by the universe far out of reach. Thanks to the development of science and technology, we have sent machines and later humans to space, expanding the scope of human activities. In 2003, a Chinese astronaut went to space for the first time, which opened a new chapter in China's space dream. Cutting-edge technologies developed in space exploration have found wide practical applications in other fields. The spirit of China's space exploration keeps encouraging people from all walks of life to bravely explore the unknown, and inspiring Chinese people to contribute more and better Chinese wisdom, Chinese solutions, and Chinese strength.

Sharing your ideas

Reference answers

Satellite systems:

China has made remarkable advancements in satellite systems. It has developed a variety of satellites for Earth observation, communications, navigation, and scientific research purposes. The Beidou Navigation Satellite System is China's answer to GPS and has gained global recognition for its high precision and reliability.

Lunar exploration:

China's lunar exploration program, also known as the Chang'e program, has achieved significant milestones. It successfully landed unmanned spacecraft on the moon and conducted multiple missions to collect data on lunar topography, mineral resources, and geological structure. The Chang'e-4 mission made history by becoming the first mission to successfully land on the far side of the moon.

Exploration of other planets:

China's Mars mission, Tianwen-1, successfully entered Mars orbit and deployed a rover to explore the Red Planet's surface.

Space station:

Tiangong space station has been visited by three batches of Chinese astronauts, or taikonauts, already, and it will continue to serve as a major hub for microgravity research.

Manned space program:

China's achievements in manned space flight have been substantial as well. The Shenzhou program has launched multiple manned missions, advancing knowledge of long-duration space flight. For example, *Shenzhou-16* carried a crew of three taikonauts to the Tiangong station for a five-month mission.

Suggestions for evaluation

For this activity, Ss' answer can be evaluated according to the following criteria:

- whether Ss list achievements based on reliable sources of information
- whether Ss explain the achievements with specific details

Further exploration

In *Active reading*, Ss have learned about the achievements made by humankind. Those achievements did not come easily. For one thing, space presents a dangerous and inhospitable environment for human beings. For another, there are inherent risks involved in both space travel and work. In this part, Ss will read a short passage on the "successful failure" of the U.S. Apollo 13 mission. They will also listen to an audio material about "staying healthy in space," which describes the specific challenges human body faces in a space environment and how the astronauts deal with them with the aid of science and technology. These materials in are related to the second subtopic in *Project*. T can encourage Ss to pay special attention to the vocabulary concerning space facilities and physiological conditions.

Apollo 13 (Text)

Culture notes

The Apollo program

Apollo was the U.S. space program that carried people to the moon. The program took place between 1961 and 1975 and was carried out by NASA. Each Apollo mission carried three astronauts. In moon-landing missions, two of the astronauts landed on the lunar surface. The third astronaut stayed with the orbiting capsule. The program landed a total of 12 astronauts on the lunar surface. Three Apollo missions circled the moon without landing. The first landing occurred during Apollo 11 mission on July 20, 1969. Astronauts Neil Armstrong and Buzz Aldrin sat down on the flat feature known as the Sea of Tranquility. The third Apollo 11 astronaut, Michael Collins, stayed aboard the orbiting command module.

Language points

1 **Things started to go wrong several days before the scheduled launch, when one of the backup astronauts developed German measles. (Para. 3)**

backup: *n.* [C, U] people or equipment that can be used when extra help is needed 后备人员；支援人员；备用设备

When she saw the dangerous situation unfolding, she immediately called for backup from her team.

develop: *v.* if you develop a disease or illness, or if it develops, you start to have it 患（病）；得（病）

As his unhealthy habits continued, he began to develop a disease that significantly affected his quality of life.

German measles: *n.* [U] 风疹

Despite being vaccinated, my brother unfortunately contracted German measles during our trip to Europe.

2 **As if these obstacles were not enough, disaster struck two days after the rocket was launched. (Para. 4)**

Notes: The phrase "as if these obstacles were not enough" implies that the previously mentioned obstacles were already challenging, and the subsequent disaster made the situation even worse.

3 **As the astronauts neared the Earth's atmosphere, they climbed back into the command module,**

ditched the lunar module in space, and prepared for a splashdown in the Pacific Ocean. (Para. 5)

ditch: *vt.* (*infml.*) stop having sth. because you no longer want it 扔掉；抛弃；丢弃
Due to the unexpected circumstances that arose, they had to ditch their initial plan of backpacking across Europe.

splashdown: *n.* [C, U] a landing by a spacecraft in the sea （航天器在海上的）溅落
The spacecraft is expected to make an ocean splashdown this Sunday.

4 **They were weary and chilled, but all of them managed to survive. (Para. 6)**

weary: *a.* very tired, esp. after you have been working hard or doing sth. for a long time （尤指长时间努力工作后）疲劳的，疲倦的，疲惫的

After a long day of meetings and problem-solving, John arrived home feeling utterly weary and ready for a good night's sleep.

Notes: In everyday English, people usually say "tired" rather than "weary."

5 **This mission, a "successful failure," did not achieve its goal, but all of its crew members survived despite almost insurmountable odds. (Para. 7)**

insurmountable: *a.* (*fml.*) an insurmountable difficulty or problem is too large or difficult to deal with （困难）难以克服的，不可逾越的；（问题）难以处理的

The professional obstacles in her path seemed insurmountable, yet she remained determined to overcome them and reach her career goals.

odds: *n.* [pl.] difficulties which make a good result seem very unlikely 困难；不利条件
The soldiers' job was to hold on despite impossible odds.

Notes: In the word "insurmountable," the verb "mount" refers to the action of getting up onto something. The term "mount" originates from the same Latin root as "mountain," and we keep that imagery in mind when using "surmount." Climbing up or over a mountain symbolizes achievement. The word is used in relation to human effort and typically carries a positive connotation. Therefore, we often speak of surmounting difficulties, problems, or hurdles.

Reference answers

1

1) exposed to the virus
2) replaced
3) two oxygen tanks
4) moon landing
5) a lifeboat
6) extreme cold
7) the Earth's atmosphere
8) a splashdown
9) blackout period

10) Survive

2

1 To land men on the moon, collect samples of soil and rock for further study, and explore the moon's surface.

2 It was a failure because the moon landing did not happen, but on the other hand, it was a triumph when the astronauts managed to survive and come back home safe.

Staying healthy in space (Audio)

Script

1 More than 60 years ago, the first human flew into space. But what does a trip like that actually do to the human body? What do astronauts do to offset the hazards of trips to space? Let's find out!

2 On the Earth, our lower body and legs carry our weight. This helps keep our bones and muscles strong. In space, astronauts float. They don't use their legs much. Their lower backs begin to lose strength, and their leg muscles and bones become weak. Within only a single month, an astronaut's bone density can decrease by one to two percent, which can increase the risk of bones breaking when they return to the Earth. That's why people in space must exercise every day. For example, at the Tiangong space station, fitness equipment includes a spin bike and resistance bands, along with a treadmill.

3 Another important thing is food. In space, where astronauts confront drastic environmental and physical changes, the need for safe and nutritious food is vital to overall health. It was once to some extent challenging to produce and transport food for those traveling far from the Earth. Due to recent efforts, astronauts are now provided with food that does more than simply meet their nutritional requirements. The food is tasty, attractive, and convenient. For example, China's astronauts can choose from more than 120 dishes during their stay in orbit. The foods are usually solid, boneless, in small pieces, and selected to meet the astronauts' personal tastes. Meals include thin pieces of pork in garlic sauce, kung pao chicken, black pepper beef, pickled cabbage, and many more. There's also a kitchen and a microwave, so the astronauts can have hot food whenever they need to.

4 There are some other negative effects of trips to space. For example, some astronauts' eyes show flattening of the eyeballs after long-duration space flight. An astronaut's heart may also lose mass. And when astronauts come back to the Earth, they might experience a reduction in blood pressure, making them dizzy and even causing them to faint after standing up. Scientists are working to prevent these negative changes, which will make space travel a lot safer.

Language points

1 **What do astronauts do to offset the hazards of trips to space? (Para. 1)**

offset: *vt.* if the cost or amount of sth. offsets another cost or amount, the two things have an opposite effect so that the situation remains the same 抵消；补偿
During the competition, his speed offset his opponent's greater weight.

hazard: *n.* [C] sth. that may be dangerous, or cause accidents or problems 危险；隐患

Be aware of the economic hazards of running a small farm.

2 **Due to recent efforts, astronauts are now provided with food that does more than simply meet their nutritional requirements. (Para. 3)**

Meaning: Because of recent endeavors, astronauts now receive food that goes beyond merely fulfilling their nutritional needs.

Notes: T can remind S of the bare infinitive "meet" in the expression "does more than simply meet." Ss can learn this usage and make a new sentence. For example:

Thanks to advancements in technology, online education does more than simply provide students with course materials, it also fosters a highly interactive learning environment.

3 **An astronaut's heart may also lose mass. (Para. 4)**

mass: *n.* [U] (*technical*) the amount of material in something（术语）质量

The scientist carefully measured the mass of the chemical compound before proceeding with the experiment.

Reference answers

1

1 T
2 T
3 F (China's astronauts can choose from more than 120 dishes during their stay in orbit.)
4 T
5 F (An astronaut's heart may also lose mass.)
6 T

2

1) exercise
2) fitness equipment
3) more than 120 dishes
4) boneless
5) personal tastes
6) kitchen
7) hot food

Sharing your ideas

Reference answers

Interviewer: We are truly delighted to have you here. How do you feel about the trip?

Astronaut: It was an incredible feeling. There's nothing quite as surreal as viewing the Earth from space. It was both intimidating and awe-inspiring at the same time. Being in zero gravity is an incredibly unique experience that is hard to describe.

Interviewer: It indeed sounds otherworldly. Moving on, what challenges or difficulties did you come across during your journey?

Astronaut: There were several challenges. For starters, the physical strain on the body both during take-off and re-entry is immense. Adapting to the zero-gravity environment was a challenge, too. It changes everything, from the way we move to the way we eat and sleep.

Interviewer: Those challenges do seem daunting. Can you tell us how you tackled these challenges or difficulties?

Astronaut: All astronauts undergo intensive training that prepares us to handle many of the physical challenges we might face. We are trained to function under high g-force conditions. In terms of the zero-gravity environment, it's really a matter of adjustment and acclimation. Our bodies and minds have an amazing ability to adapt to new circumstances, and with time, we learn to navigate and perform our tasks effectively in such environments. Most importantly, the mission team on the ground provides constant support and guidance, which is invaluable.

Suggestions for evaluation

For this activity, Ss' role-play can be evaluated according to the following criteria:

- whether the interview covers the three questions listed in the book
- Whether students maintain a natural and consistent conversation flow

Project

Sample

(*Words and expressions in red are from the input materials.)

Speaker 1:

Hello, everyone! Welcome to the China Space Museum! My name is Chen Tao, and this is my colleague, Fang Yu. We are the guides for the tour this morning, and we are both glad to see you here today!

What has brought us together at this museum must be something we have in common. So let me ask you this – when was the first time ever you found yourself truly intrigued by the unknown in space? Was it back in the kindergarten when you first learned to sing "Twinkle, Twinkle, Little Star"? Or was it the illustrations in children's books about stars and the universe? Or in sci-fi movies such as *Apollo 13* or *The Wandering Earth*? To me, it was a camping trip in the mountains during the summer vacation when I was a second grader. That was my first time to see the Milky Way. That breathtaking view, with all the stars far out of reach, made me feel connected to the myth-makers since time immemorial and the artificial satellites, spaceships, and astronauts orbiting and working out there, as I had seen on TV. We all had our moments, didn't we?

Today, you will see an exhibition on China's Space Dream. Fang Yu and I will introduce to you the achievements made by China and the challenges that Chinese astronauts face while working in space. Are you ready? (Use slides to demonstrate images and key words if possible.)

China launched its first satellite, the Dong Fang Hong 1, in 1970. It took us another two decades to embark on the China Manned Space Program in 1992. In this program, there are three steps:

1) Crewed spacecraft launch and return
2) Space laboratory, spacecraft rendezvous and docking procedures
3) Long term modular space station

As you can see here, in November 2022, with the launch and docking of *Shenzhou-15* with the Tiangong space station, China successfully completed all three of the above steps, thus opening a whole new chapter in space exploration. Does anyone know the meaning of Shenzhou and Tiangong in Chinese? (Wait for response from audience). Yes, Shenzhou means "heavenly boat" since the spacecraft are like ships navigating the ocean of stars. And Tiangong? In Chinese mythology, it is a palace in the heaven, exactly like the space station itself, composed of the core module Tianhe ("Harmony of the Heavens") and two laboratory cabin modules Wentian ("Quest for the Heavens") and Mengtian ("Dreaming of the Heavens"). As you might have heard, Tiangong station welcomes international collaboration in space research.

During the completion of the "three steps," China landed rovers on both the moon and Mars. Here you can see images of Yutu (known as the Jade Rabbit in Chinese) collecting lunar samples on its mission, and *Zhurong*, named after the god of fire in Chinese mythology, exploring the surface of the red planet. They both shed light on our understanding of those remote celestial bodies. China is also operating the Beidou Navigation Satellite System, named after the Big Dipper constellation, which has found practical applications in various fields.

Now, my colleague Fang Yu is going to take over, and she will tell you about the taikonauts. Buddy, the floor is all yours! (The second speaker takes over.)

Speaker 2:
Thanks, Chen Tao! Hi everyone. Some of you might be wondering, what does the word "taikonaut" mean? Anyone having any idea? (Wait for the audience to respond.) This is a name combining "Taikongren" which means spaceman in Chinese and astronaut in English. As their counterparts in all the other nations, these brave men and women have devoted themselves to the cause of space exploration and made their mark in history.

So how does it feel like to live and work in the space? What do taikonauts do to offset the hazards of trips to space? Let's find out!

A common challenge to life in space is the decrease in bone density. At Tiangong space station, thanks to the fitness equipment, taikonauts exercise every day, by using the spin bike, resistance bands, or a treadmill. They also need safe and nutritious food to stay healthy. The taikonauts now can choose from a menu consisting of 120 dishes!

Now, here is a list of food. Can you guess which ones are available at Tiangong space station? What do you think? How about kung pao chicken, black pepper beef, shredded pork in garlic, and pickled cabbage? The truth is, these dishes can all be found on the Tiangong menu. And with a microwave, the taikonauts could always enjoy hot meals! Actually, I heard they are growing vegetables in the space lab, too!

I hope our talk has aroused plenty of interest in you. There is so much more to see and even try your hands on at the exhibition. Shall we now start our tour to find out more about the China space dream? Please join us! This way, everyone.

Suggestions for evaluation

Components	Criteria / Traits
Content	• Relevance: Addressing visitors to the museum as a guide, providing information about China's achievements in space exploration and challenges Chinese astronauts face in the space • Reasoning: Explaining key concepts clearly, using well-researched and specific examples • Appeal: Including up-to-date information, being informative, educational, and entertaining
Organization	• Structure: Including opening remarks, main points, and conclusion • Coherence: Using transitional devices to ensure coherence and unity • Clarity: Highlighting key words in the main points
Language	• Diversity: Using an adequate range of vocabulary and sentence structures • Acquisition: Using as many as possible of the new words and expressions learned in the unit
Delivery	• Fluency: Presenting in a natural, smooth, and clear way with a natural colloquial flow • Engagement: Using body language to engage the audience and arousing interaction • Visual aids: Using slides, pictures, etc. to help the audience better understand the ideas

Extended reading

In the previous parts, Ss have learned about the advances in space exploration in modern times. But the ambition to probe into the universe started way before Yuri Gagarin or Apollo missions. In the *Extended reading* text, Ss will read a revised excerpt from a classic work of science fiction, Jules Verne's novel *From the Earth to the Moon*. It is about the launch of the rocket to the moon. Ss will get a glimpse into the early visions and dreams of space travel that laid the foundation for the scientific and technological advancements we see today. It is hoped that this exploration of literature and imagination will further motivate students in their own pursuit of scientific knowledge and innovation.

Fire!

Culture notes

1 **Jules Verne (1828 –1905)**

Jules Verne was a French novelist, poet, and playwright. His collaboration with the publisher Pierre-Jules Hetzel led to the creation of the Voyages extraordinaires, a series of bestselling adventure novels including *Journey to the Center of the Earth* (1867), *Twenty Thousand Leagues Under the Seas* (1870), and *Around the World in Eighty Days* (1873). His novels, always well documented, are generally set in the second half of the 19th century, taking into account the technological advances of the time. In addition to his novels, he wrote numerous plays, short stories, autobiographical accounts, poetry, songs and scientific, artistic and literary studies. During the 20th century, Verne's works were translated into more than 140 languages, making him one of the world's most translated authors. His work has been adapted for film and television since the beginning of cinema, as well as for comic books, theater, opera, music, and video games. Verne's influence extends beyond literature and film into the world of science and technology, where he inspired generations of scientists, inventors, and explorers. In 1954 the United States Navy launched the world's first nuclear-powered submarine, named for Verne's *Nautilus*.

2 **Yankee Doodle**

The national hymn of the United States very likely refers to the national anthem of the country. "Yankee Doodle" is a traditional song and nursery rhyme, the early versions of which predate the Seven Years War and American Revolution. It is often sung patriotically in the United States today. It is the state anthem of Connecticut. The melody is thought to be much older than both the lyrics and the subject, going back to folk songs of Medieval Europe.

Language points

1 **For, if the projectile were not discharged that very night at 10h. 48m. 40s. p.m., more than eighteen years must roll by before the moon would again present herself under the same conditions. (Para. 1)**

Meaning: Because if the projectile had not been launched precisely at 10:48:40 p.m. that night, people would have to wait for another 18 years for the right lunar conditions so the rocket could shoot for it.

2 **Every quarter of an hour the railway brought fresh sightseers … not less than five million spectators had flocked to this part of Florida.**

Notes: The phrase "every quarter of an hour" highlights the repeated occurrence of the railway bringing fresh sightseers. This creates a sense of rapid and continuous movement. The verb "flocked" conjures a vivid and dynamic image of a large number of people gathering or converging in a specific location. It suggests a sense of excitement and energy as people are drawn to this part of Florida.

3 **Welcome shouts greeted her on all sides, as her pale beams shone gracefully in the clear sky. (Para. 6)**

Notes: Across cultures, the moon carries connotations of femininity and is often compared to a goddess. For instance, in Greek mythology, Artemis was the goddess of the moon. In Chinese mythology, Chang'e is the moon goddess. This has led to cultural connotations where the moon is often compared or linked to female attributes.

4 **Barbicane, the inventor, cool and collected, was giving his final directions. (Para. 7)**

collected: *a.* in control of yourself and your thoughts, feelings, etc. 镇定的；泰然自若的
The chairperson seemed completely cool, calm and collected during the speech.

5 **The moon climbed upward, outshining the stars. (Para. 10)**

outshine: *vt.* be better or more impressive than sb. or sth. else 优于；使黯然失色
The young violinist outshone the other musicians at the concert.

Notes: "Out-" is a prefix to go with nouns, adjectives, and verbs. In verbs, it means to become bigger, further, greater, etc. than someone or something else. For example:
At 5 feet and 8 inches, he had outgrown his clothes.
Dying at the age of 82, she outlived her brother.

6 **An immense spout of fire shot up from the bowels of the earth. (Para. 14)**

the bowels of sth.: the lowest or deepest part of sth. 某物的最深处
The engine room is deep in the bowels of the ship.

7 **The earth heaved up, and with great difficulty a few spectators caught a brief glimpse of the projectile victoriously cutting the air in the midst of the fiery vapors. (Para. 14)**

Meaning: The ground surged upwards, and with considerable effort, a small number of onlookers managed to briefly see the projectile triumphantly slicing through the air amidst the fiery fumes.

Notes:

1) In the sentence, "heave up" refers to the sudden upward movement or rise of the earth. It suggests a forceful and noticeable action, as if the ground was lifted or pushed upwards. This movement likely occurred as a result of a powerful event or action taking place.

2) “The fiery fumes” refers to the gases or smoke that are filled with fire or intense heat. It implies the presence of flames or a burning substance, creating a visual image of smoke or gases that are hot, glowing, or producing fire. The use of “fiery” emphasizes the intense or vibrant nature of the fumes, adding to the dramatic effect of the scene.

8 **Men, women, children, all lay prostrate like ears of corn under a storm. (Para. 16)**

ear: *n.* [C] the top part of a plant such as wheat that produces grain 谷穗
After the harvest, she picked up the ears of corn left in the field.

Notes: This sentence is a use of metaphor to express the extreme impact of the event on the people. The phrase “like ears of corn under a storm” creates a visualization of how cornfields are flattened by the powerful winds during a storm, suggesting the people too were knocked over forcefully by the earthquake.

9 **They looked in vain! (Para. 17)**

Meaning: However hard they tried, they could not see the rocket because it had gone too far.

in vain: without success in spite of your efforts 徒劳；无结果
In bad need of money, they searched in vain for the missing purse.

Reference answers

1 B
2 A
3 C
4 D
5 C

Self-reflection

In this part, T can ask Ss to refer back to the Try it out in the Student's Book and reflect on what they have learned by completing the task. Ss can categorize their gains according to content, language, structure, and communication. They can also reflect how the knowledge and skills they learned may influence their beliefs and attitudes regarding space exploration and their ability to communicate about this topic. Ss then can write their specific gains in the self-reflection table in the Student's Book.

Translation of the texts

Active reading

星海遨游

1 在失重的太空环境中，水的状态会发生什么样的变化？在中国天宫空间站，“神舟十三号”航天员乘组通过直播课堂为我们揭开了谜底。在“浮力消失”的实验中，王亚平将乒乓球放进装满水的杯子里。乒乓球没有像在地球上那样浮到水面，而是停留在了水杯的中央。她还通过从一个袋子小心翼翼地向金属环中添加水制作出一张水膜。这张水膜看上去就像一个放大镜。接着她将一朵在执行航天任务之前与女儿一同制作的纸折花朵放到了水膜上。折纸花在水上神奇地舒展绽放。“看到这朵花，我就想到了我的女儿，”王亚平对收看天宫课堂的学生们说，“你们都是祖国的花朵，含苞待放。希望你们的梦想都能在这广袤的宇宙中绽放。”

2 实际上，我们通往星际之海的旅程发源于我们远古的梦想。太空探索源于我们对了解宇宙的渴望，而对于人类历史的大部分时间来说，宇宙都是神秘而遥不可及的。千百年来，人们仰望天空，好奇夜空中闪烁的物体究竟是什么。这样的好奇激发了远古时代的神话传说。例如，在中国，关于天宫（天上的宫殿）、嫦娥（中国的月亮女神）和玉兔（陪伴嫦娥女神的兔子）的美妙故事，在我们的想象中构建了美丽的场景，将我们吸引向星辰大海。

3 到了现代，随着火箭技术、电子及其他科技的发展，探索未知宇宙成为可能，这有助于解答一些根本性的问题，比如：宇宙有多大？它是何时形成的？在我们视力无法到达的地方还存在着什么？现在，我们知道，宇宙的跨度大约有 900 亿光年，它有近 140 亿年的历史。它包含着数千亿个星系，而地球坐落在其中之一的银河系的外围边缘。

4 太空探测器也帮助我们更多地了解地球家园所在的太阳系。美国航空航天局于 1977 年发射的“旅行者一号”和“旅行者二号”探测器一直在传回关于其他行星的照片和数据。火星探测器，包括以中国神话中火神命名的“祝融号”，帮助人类了解了这颗红色行星的地表及天气等方面的信息。同样，中国“嫦娥五号”任务所带回的月壤样本为分析月球演变提供了新的依据。

5 除了通过发射太空探测器所取得的重要发现，载人航天也为太空探索翻开了新的篇章。当载人飞船克服地球引力，人类活动范围得到拓展，不再局限于陆地、海洋以及大气层。中国宇航员积极投身于航天工业的发展，并在人类太空探索的历史上留下了光辉的篇章。杨利伟乘坐中国的第一艘载人飞船“神舟五号”造访太空。翟志刚则搭载“神舟七号”升空，成为第一位完成太空漫步的中国宇航员。“神舟十三号”飞行乘组在“天宫空间站”生活和工作了六个月，为长期宇宙航行积累了宝贵的经验。

6 太空探索不仅涉及那些远离地球的事物；它也为我们的日常生活带来了影响深远的益处。太空探索所激发的新型技术极大地推动了其他领域的发展。以在地球轨道中运行的人造卫星为例，它们

所提供的通讯、导航和地球观测服务为我们提供了更为详尽的风暴预警和宇宙天气预报。中国独立建造并运行的北斗卫星导航系统，以汉语中的“北斗七星”命名。它被应用于多个领域，满足了重要的国家基础设施需求，并创造了令人瞩目的经济和社会效益。

7 同样，许多最初为航天项目开发的设备在地球上也得到了广泛应用，并深刻改变了我们的日常生活。20 世纪 60 年代用于检测宇航员关键体征的技术被运用于每一所医院。美国航空航天局也利用宇航服技术帮助改进了保护消防员的方法。基于太空任务所使用的机械臂，中国科学家设计出了安全检测机械狗。一旦发现例如像起火这样的危险情况时，它会发动警报并向指挥系统发送报告。

8 因为拥有无限的可能性，太空探索成为了一项丰富和拓展人类未来的伟大事业。在这项创举中，中国正扮演着越来越重要的角色。为了和平利用外太空，中国欢迎其他国家参与在天宫空间站进行的研究项目。毋庸置疑，广袤无垠的宇宙星海将始终是我们追求美好生活以及世界繁荣的信息及灵感之源。

Further exploration

阿波罗十三号

1 1969 年，“阿波罗十一号”的两名宇航员首次踏上月球，这大概是人类历史上最著名的登月任务之一。然而，对很多人来说，1970 年的“阿波罗十三号”任务更为惊心动魄。

2 “阿波罗十三号”任务也计划搭载宇航员登陆月球，为后续研究采集土壤和岩石，并探索月球表面。

3 但是这项任务在发射前就遇到了问题。由于最后一刻的人员变动，飞行乘组并非原定人选。在计划发射的前几天，问题就出现了。一名候选宇航员出现了风疹症状，这导致控制舱宇航员也接触了病毒。由于他对这种病毒没有免疫力，不得不临时被替换。

4 祸不单行，火箭发射后两天灾难降临。电路问题导致服务舱发生爆炸，并破坏了两个氧气存储罐。很显然，没有氧气和电是无法完成登月的，宇航员不得不放弃计划。但更令人担忧的是，宇航员们并不确定他们是否能够安全返回地球。

5 在宇航员决定使用登月舱作为求生船之后，他们增添了信心。按照原计划配备的饮水和食物量，登月舱可维持两名宇航员两天的需求。然而，现在他们需要利用这些物资维持三名宇航员四天的生存。除此之外，他们还必须应对极端的寒冷和氧气的匮乏。当宇航员们接近地球大气层时，他们爬回了控制舱，将登月舱丢弃在太空中，并为飞船在太平洋的溅落做好了准备。

6 当宇航员进入地球大气层时，有一段通信中断期，无法与地面指挥中心取得联络。指挥中心的人们陷入了极度的紧张，无法预知宇航员们是否能安全返航。幸运的是，转机出现，这些人成功地将宇宙飞船降落在距离回收舰仅 6.5 公里的海面上。他们疲惫不堪，感到寒冷，但他们都成功地活了下来。

7 “阿波罗十三号”任务吸引了全球数百万人的注意，这段故事也被广为传颂，其中最著名的是 1995 年改编的同名电影。此次登月任务被视作一个“成功的失败”——虽然未能完成原定计划，但飞船乘组克服了几乎难以战胜的困难，最终全体安全返回。

Extended reading

点火！

1 12 月 1 日终于到了！这是决定性的时刻！因为如果登月发射器没有在当天晚上 10 点 48 分 40 秒发射，那么要等月球再次出现在同样位置，还需要十八年的时间。

2 天气非常好。尽管冬季来临，阳光仍然很明媚。许多人在前一天晚上根本无法入睡！黎明时分，大量人群聚集在位于乱石岗附近的火箭发射地。每隔一刻钟，铁路就会带来新的观光者。据《坦帕观察家报》报道，至少有 500 万观众涌入了佛罗里达州的这一地区。

3 在此前的整整一个月里，人们在这里安营扎寨，用小木屋、草房和帐篷打下了一座城镇的基础。世界上的每一个国家都有代表在那里；可以同时听到用各种语言进行的交谈。美国社会各阶层的人们都聚集在一起，成为了一个整体。

4 用餐时间这里通常非常喧闹。但在 12 月 1 日这一天，四下却很安静。没有人想到吃喝。到了下午四点，许多围观者甚至还没有吃午饭。

5 直到夜幕降临，一种无声的焦虑贯穿人群。每个人都盼着它赶快结束。

6 然而，在大约七点钟时，令人压抑的沉默消失了。月亮从地平线上升起。当她从晴朗的夜空优雅地洒下淡淡的光芒时，四面八方都有欢呼的声音。就在这时，三个旅行者出现了。这是一个信号，让人们再次发出更加激动的呼喊。人们很快唱起了美国国歌，还有“扬基歌”。五百万人的歌唱汇集在一起，直冲云霄。然后，人群再次陷入深深的寂静。

7 法国人阿尔当和两位美国人巴比康和尼科尔这时已经进入了人群中央的场地。陪同他们的是大炮俱乐部的成员，以及欧洲各天文台派来的代表。发明家巴比康，冷静而镇定，正在做最后的指示。同为发明家的尼科尔是巴比康的长期竞争对手。他双手背在身后，步履坚定。法国冒险家阿尔当，则总是很轻松。他穿着宽松的天鹅绒西装，嘴里叼着雪茄，正在一边和朋友开玩笑，一边哈哈大笑。

8 十点钟声响起！他们在发射舱中各就各位。是时候说 “再见了！” 这一幕很感人。

9 片刻之后，三位太空同行者已在发射舱中安顿停当，并用盖板封住了出口。哥伦比亚德这个巨大的发射器，其发射口完全指向天空。

10 月亮向上攀升，光芒盖过了星星。整个场面陷入了可怕的寂静之中！大地上没有一丝风！无数观众都屏住了呼吸！他们的心脏似乎不敢跳动！所有的眼睛都盯着哥伦比亚德的发射口。

11 离发射的时刻还有四十秒，但每一秒钟都似乎很漫长！

12 “三十五！- 三十六！- 三十七！- 三十八！- 三十九！- 四十！点火！！！”

13 瞬间，工程师按下了电池按钮，点燃了哥伦比亚德发射器。

14 一声惊天动地的巨响瞬间响起，雷声的轰鸣和火山爆炸都无法与之相提并论，任何语言都无法描述这惊天巨响的分毫！一股巨大的火舌从地底射出。大地猛然一震，一些观众好不容易才在短瞬间看见那枚“炮弹”在炽热的蒸汽中成功地划破天空！

15 火焰的强光照亮了整个佛罗里达，在一百英里外的海面上也能被看到，多位船长在航海日志中记录了这颗大型流星的出现。

16 发射的同时还发生了地震。从佛罗里达州的地底都能感受到震动。观看者们都跌倒在地！ 男人、女人、孩子，所有人都像暴风雨中的麦穗一样躺在地上。很多人受了重伤。多达三十万人在一段时间里失去了听力。

17 最初的冲击一过，受伤的、失聪的，然后是整个人群，都在醒来后疯狂地叫喊，响彻云霄：“为阿尔当欢呼！为巴比康欢呼！为尼科尔欢呼！”成千上万的人，仰着头，拿着望远镜，向太空望去。他们什么也看不到！搭载着探险家们的发射舱已经飞出了天际。