新核心大学英语

B版

快速阅读 2

叶立霜　黄鸣　黄毅　主编

上海交通大学出版社

Nucleus

新核心大学英语

B版

主　编　叶立霜　黄　鸣　黄　毅
副主编　冉毅嵩　吴昊兰　王翠莲
编　者　魏尼亚　李永红　陈　果
李　婧　尹山鹰　付　堤
李　东　杜　军　滕德明

快速阅读2

上海交通大學出版社
SHANGHAI JIAO TONG UNIVERSITY PRESS

图书在版编目(CIP)数据

新核心大学英语B版快速阅读.2/叶立霜,黄鸣,
黄毅主编.—上海:上海交通大学出版社,2013
(新核心大学英语)
ISBN 978-7-313-09646-3

Ⅰ.①新… Ⅱ.①叶… ②黄… ③黄… Ⅲ.①英语-
阅读教学-高等学校-教材 Ⅳ.①H319.4

中国版本图书馆CIP数据核字(2013)第106318号

新核心大学英语B版快速阅读2
叶立霜 黄 鸣 黄 毅 主编
上海交通大学出版社出版发行
(上海市番禺路951号 邮政编码200030)
电话:64071208 出版人:韩建民
浙江云广印业有限公司印刷 全国新华书店经销
开本:889 mm×1194 mm 1/16 印张:9.25 字数:175千字
2013年7月第1版 2013年7月第1次印刷
印数:1~30000
ISBN 978-7-313-09646-3/H 定价:29.50元

Nucleus《新核心大学英语》系列教材

B版

编委会

前　言

21世纪以来，我国相继出版了一批优秀的大学英语教材。如果说这些教材都是以趣味性、可思性、文学性和人文性为课文选材原则，提倡人文素质教育的话，那么《新核心大学英语》系列教材将在这些方面有一个新的突破。

一、教材编写依据

《新核心大学英语B版快速阅读》是以《新核心大学英语B版读写教程》为依托，从内容上对《新核心大学英语B版读写教程》做进一步推进，提倡科学素质教育，以content-based为编写原则，文章选材上偏向提高学术能力的科普性文章。

目前，我国大学英语教学不再是单单打基础的阶段，不再是单纯地为学语言而学语言，而是趋向于与某一方面的专业知识或某一个学科结合的发展方向结合起来，换句话说，大学英语应当与学生的专业内容结合起来，这样才能体现新时期语言教学中的“需求分析”原则。《新核心大学英语B版快速阅读》正是为了适应我国大学英语教学转型要求而编写的，是为了帮助大学生达到《大学英语课程教学要求》中阅读部分的一般要求、较高要求和更高要求而编写的一套具有鲜明时代特色的大学英语教材；是培养学生查阅学术文献能力的需要，培养学生在较短时间里通过快速阅读，查到自己所需要的信息。

二、教材结构框架

《新核心大学英语B版快速阅读》是《新核心大学英语》主干教材的配套教材，包括《新核心大学英语B版快速阅读　基础级》、《新核心大学英语B版快速阅读　1》、《新核心大学英语B版快速阅读　2》、《新核心大学英语

B版快速阅读 3》四册。《新核心大学英语B版快速阅读》系列教材旨在培养学生语篇信息查找能力，训练学生快速阅读能力以及水平考试中阅读理解文章的能力。

每册分八个单元，每个单元分为四篇阅读材料，其中短篇文章两篇，长篇文章两篇。教材中每个单元所选阅读材料基本与《新核心大学英语B版读写教程》相应单元的主题内容一致，难度略低于《新核心大学英语B版读写教程》，短篇文章长度为300～500词，长篇文章长度为700～1 000词。阅读材料的内容突出知识性，涉及自然学科和人文学科，体裁以说明文和议论文为主。

三、教材使用说明

作为《新核心大学英语B版读写教程》的配套使用教材，我们建议《新核心大学英语B版快速阅读》每个单元的总学时数不少于2个课时，课内学时数不少于1个学时，学生课外自主阅读时间不少于1个学时。在每周大学英语课堂教学中教师根据具体授课进度、单元主题内容指定《新核心大学英语B版快速阅读》中相应的文章让学生进行阅读训练，教师也可以将本系列教材作为学生课后自主阅读的材料，学生课后自主阅读训练时间不少于1个学时，教师对学生自主学习过程进行监督与评价。

编　者

2013年3月

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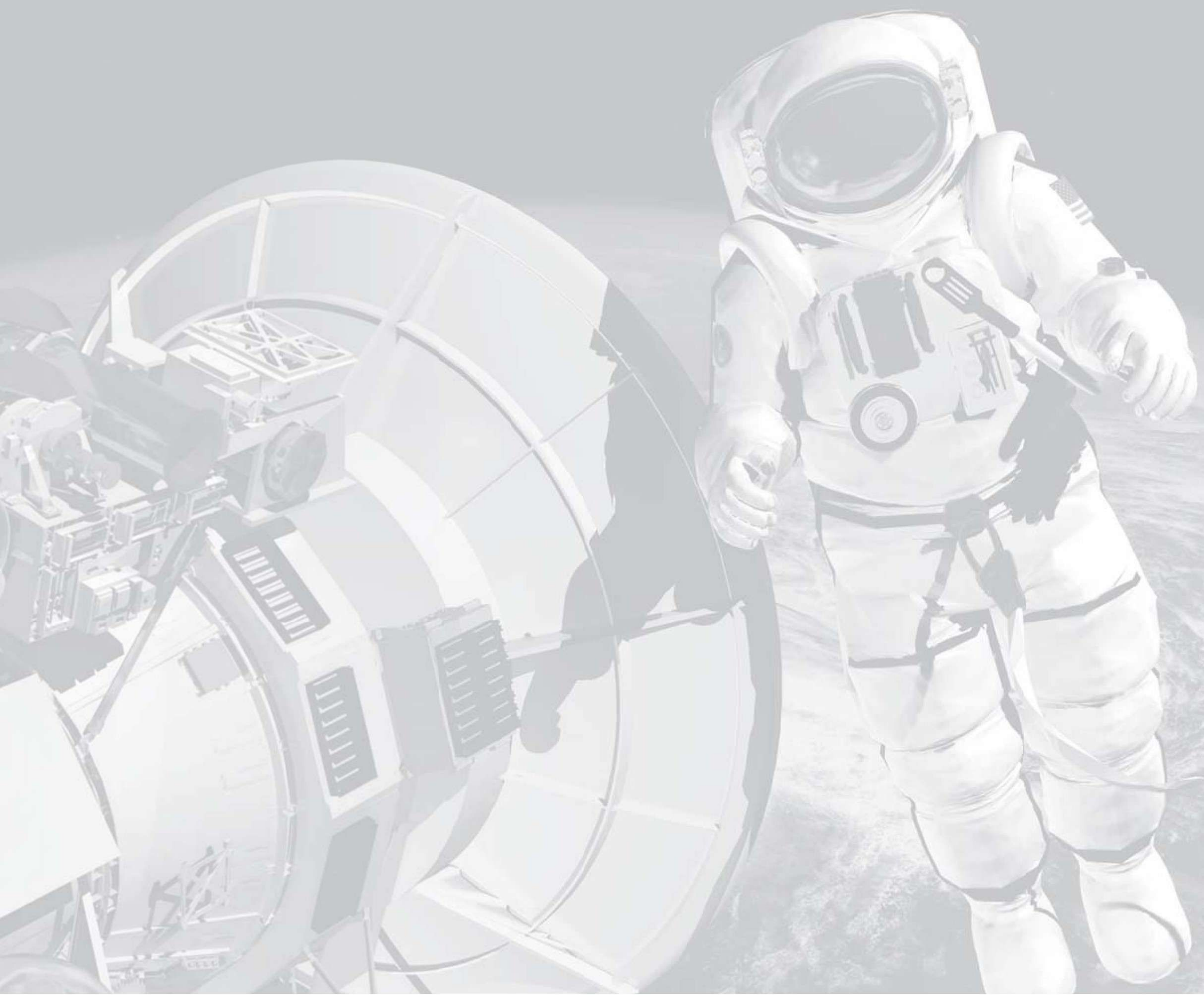
Space Exploration



Passage 1

(Reading Time: 4 minutes)

The Mars Exploration Program

By Steve Squyres

Since our first close-up picture of Mars was taken in 1965, spacecraft voyages to the Red Planet have revealed a world strangely familiar, yet different enough to challenge our perceptions of what makes a planet work. Every time we feel close to understanding Mars, new discoveries send us straight back to the drawing board to **revise**[1] existing theories.

Like Earth, Mars has polar ice caps and clouds in its atmosphere, volcanoes, canyons (峡谷) and other recognizable features. However, conditions on Mars vary wildly from what we know of our own planet.

Over the past decades, spacecraft have shown that Mars is rocky, cold, and **sterile**[2] beneath its hazy, pink sky. We've discovered that today's Martian wasteland hints at a volatile world where volcanoes once raged and floods rushed over the land. However, Mars continues to throw out new enticements (吸引力) with each landing or orbital pass made by our spacecraft.

Defining Question for Mars Exploration: Life on Mars?

Among our discoveries about Mars, one stands out above all others: the possible presence of liquid water on Mars, either in its ancient past or preserved in the subsurface today. Water is key because almost everywhere we find water on Earth, we find life. If Mars once had liquid water, or still does today, it is **compelling**[3] to ask whether any microscopic life forms could have developed on its surface. Is there any

Guess the meanings of the following words in the context.

1. revise	A. 删除	B. 修改	C. 复习
2. sterile	A. 贫瘠的	B. 富饶的	C. 宽广的
3. compelling	A. 强制的	B. 迷人的	C. 激发兴趣的

evidence of life in the planet's past? If so, could any of these tiny living creatures still exist today? Imagine how exciting it would be to answer, "Yes!"

Our Exploration Strategy: Follow the Water!

To discover the possibilities for life on Mars, the Mars Program has developed an exploration strategy known as "Follow the Water".

Following the water begins with an understanding of the current environment on Mars. We want to explore observed features like dry riverbeds, ice in the polar caps and rock types that form only when water is present. We want to look for hot springs, hydrothermal vents (热液喷口) or subsurface water reserves. We want to understand if ancient Mars once held a vast ocean as some scientists believe and how Mars may have made the transition from a watery environment to the dry and dusty climate it has today. Searching for these answers means delving into the planet's geologic (地质的) and climatice history to find out how, when and why Mars underwent dramatic changes to become the **forbidding**[4], yet promising planet we observe today.

Future Missions

To pursue these goals, our future missions will be driven by **rigorous**[5] scientific questions that will continuously evolve as we make new discoveries.

Brand new technologies will enable us to explore Mars in ways we never have before, resulting in higher resolution (分辨率) images, and even the return of Martian soil and rock samples for studies in laboratories on Earth. *(461 words)*

Abridged and revised from
http://mars.jpl.nasa.gov/programmissions/overview

4. forbidding	A. 险峻的	B. 禁止的	C. 有希望的
5. rigorous	A. 严肃的	B. 严密的	C. 严酷的

Select the most appropriate answer for each of the following questions.

1. New discoveries on Mars make the scientists ________.
   A. reflect the previous theories
   B. aware of the importance of the exploration
   C. improve the scientific instrument
   D. follow the water

2. What does Mars look like?
   A. It is quite different from the Earth.
   B. There are many rivers on Mars.
   C. It is like the Earth with polar ice caps, clouds, volcanoes, and the like.
   D. It is covered with ice.
3. Which of the following words can replace the word "**volatile**" in Paragraph 3?
   A. Wide. B. Unsteady. C. Interesting. D. Stimulating.
4. ________ is probably the hottest topic among the discoveries on Mars.
   A. The exploration strategy B. Life on Mars
   C. The dry and dusty climate D. A rigorous scientific question
5. Why do the scientists delve into the geologic and climatice history of Mars?
   A. To arouse the ordinary people's interest in Mars.
   B. To make the floods rush on Mars.
   C. To follow the water.
   D. To find out why Mars varies wildly from our own planet.

Passage 2

(Reading Time: 3 minutes)

Plans for Spacecraft Set to Launch in 2020

By Sarah Dewitt

Building on the success of Curiosity's landing, NASA① has announced plans for a new robotic science rover set to launch in 2020. The announcement comes a day after NASA **released**[1] the results of the first soil tested by the Curiosity rover, which found traces of some of the compounds like water and oxygen that are necessary for life, the U.S. space agency said. It affirms the agency's commitment to a bold exploration

Guess the meanings of the following words in the context.

1. release A. 发布 B. 释放 C. 让与

program that meets our nation's scientific and human exploration objectives.

The proposed 2020 rover mission is part of NASA's Mars Exploration Program, a long-term effort of robotic exploration of the red planet. Designed to advance high-priority science goals for Mars exploration, the mission would address key questions about the **potential**[2] for life on Mars. The mission would also provide opportunities to gather knowledge and demonstrate technologies that address the challenges of future human **expeditions**[3] to Mars.

The mission design would advance science priorities in the National Research Council's② 2011 Planetary Science Decadal Survey③, as well as respond to findings of the Mars Program Planning Group, established to assist NASA in planning the future of Mars exploration.

NASA will openly compete for the opportunity to implement the mission's specific science payload, following established processes of NASA's Science Mission Directorate④. NASA has begun this process with the establishment of a science definition team tasked to outline the mission's scientific objectives.

The budget for this mission is contingent on future **appropriations**[4]. To keep mission costs and risks as low as possible, the highly capable rover would be based on NASA's successful Mars Science Laboratory mission architecture, including the proven guided entry and sky-crane landing system that successfully carried the Curiosity rover to the Martian surface in August, 2012. Designed to launch in 2020, this mission would take advantage of a favorable launch opportunity when Earth and Mars are in advantageous positions in their orbits for a Mars landing.

NASA will also assess options for **infusing**[5] new capabilities through investments by NASA's Space Technology Program, Human Exploration and Operations Mission Directorate, and contributions from international partners. *(342 words)*

Abridged and revised from
http: //mars.jpl.nasa.gov/m2020/mission/overview

2. potential	A. 电势	B. 潜在的	C. 可能性
3. expedition	A. 除了	B. 探险	C. 征战
4. appropriation	A. 拨款	B. 适当	C. 比例
5. infuse	A. 泡制	B. 输入	C. 鼓舞

Select the most appropriate answer for each of the following questions.

1. What does "It" refer to in Paragraph 1?
   A. A robotic science rover. B. The announcement.
   C. The U.S. space agency. D. A bold exploration program.
2. Which of the following can replace the expression "contingent on" in Paragraph 5?
   A. Supposed to. B. Heading for.
   C. Determined by. D. Likely to.
3. ________ contributes to lowering the risks to the new robotic science rover set to launch in 2020.
   A. NASA's successful Mars Science Laboratory mission architecture
   B. The compounds like water and oxygen
   C. The findings of the Mars Program Planning Group
   D. The budget
4. Which of the following statements is true?
   A. The plans for a new robotic science rover set to launch in 2020 is announced before the soil test made by the Curiosity rover.
   B. The Curiosity rover found the life on Mars.
   C. Water and oxygen are essential for life.
   D. The spacecraft will be launched when Earth and Mars are drawing near.
5. The passage is mainly about ________.
   A. the establishment of a science definition team
   B. the announcement of the results of the first soil tested by the Curiosity rover
   C. the allotment of the future appropriations
   D. the introduction of the plans for spacecraft set to launch in 2020

Notes

① NASA: 美国国家航空和宇宙航行局 (National Aeronautics and Space Administration)。
② the National Research Council: 国家科学研究委员会。
③ Planetary Science Decadal Survey: 行星科学十年勘测计划。
④ Science Mission Directorate: 科学任务委员会。

Passage 3

(Reading Time: 9 minutes)

Interplanetary Travel

By Roger D. Launius

As of writing, humans have paid visits to only one other world in the Universe besides the Earth: our own Moon. We have sent robotic probes to the surfaces of Venus and Mars. We have flown remotely controlled vessels past the outer planets. At last, we know what interplanetary travel is. By definition, it refers to travel between the planets in a given star system. This passage tells us about two parts of interplanetary travel. One is about the achievements and the other is the orbital mechanics (轨道力学) of it.

Achievements Made in Interplanetary Travel

NASA's Apollo program① landed twelve people on the Moon and returned them to Earth: Apollo 11–17, expecting 13, i.e., six missions, each with three astronauts of which two landed on the Moon. Robot probes have been sent to fly past most of the major planets of the Solar system. The most distant probe spacecraft Pioneer 10, Pioneer 11, Voyager 1 and Voyager 2 are on course to leave the Solar system, but will **cease**[1] to function long before reaching the Oort cloud②.

Robot landers such as Viking and Pathfinder have already landed on the surface of Mars and several Venera and Vega spacecraft have landed on the surface of Venus. The NEAR Shoemaker orbiter successfully landed on the asteroid 433 Eros, even though it was not designed with this maneuver in mind.

Orbital Mechanics of Interplanetary Travel

To date, the only form of spacecraft propulsion used for interplanetary missions is

Guess the meanings of the following words in the context.

1. cease　　A. 暂停　　B. 停止　　C. 故障

the chemical rocket engine. The limitations of this engine dictate the trajectories（轨道线）and travel times required for interplanetary travel.

All objects in a star system are in orbit around the star; if they were not, they would have "left" the system or fallen into the star long ago. This implies that one cannot simply point oneself at another planet and fly in that direction, because upon arrival the planet will be moving at an **inappropriate**[2] relative velocity（相对速度）or may have moved altogether. For instance, if a spacecraft were to start from the Earth and fly to Mars, its final velocity would be close to Earth's orbital velocity, which is much higher than that of Mars. This is because any spacecraft starting on a planet is also in orbit around the Sun, and a brief glance at the planetary speeds and distances demonstrates that the power of a chemical rocket pales in comparison to the relative speeds of the planets. In order to make interplanetary travel possible, a reduction in the total amount of energy needed to do so is required.

For many years, this meant using the Hohmann **transfer**[3] orbit③. Hohmann demonstrated that the lowest energy transfer between any two orbits is to elongate（拉长）the orbit so that its apogee（最高点，极点）lies over the orbit in question. Once the spacecraft arrives, a second application of **thrust**[4] will re-circularize the orbit at the new location. In the case of planetary transfers, this means adjusting the spacecraft, originally in an orbit almost identical to Earth's. In this way, the apogee is on the far side of the Sun near the orbit of the other planet. A spacecraft traveling from Earth to Mars via this method will arrive near Mars orbit in approximately 18 months, but because the orbital velocity is greater when closer to the center of mass (i.e., the Sun) and slower when farther from the center, the spacecraft will be travelling quite slowly and a small application of thrust is all that is needed. If the maneuver is timed properly, Mars will be "arriving" under the spacecraft when this happens.

The Hohmann transfer applies to any two orbits, not just those with planets involved. For instance, it is the most common way to transfer satellites into

2. inappropriate	A. 欣赏	B. 适合	C. 不相称的
3. transfer	A. 转学	B. 调任	C. 转移
4. thrust	A. 推力	B. 刺入	C. 插入

geostationary (与地球旋转同步的) orbit, after first being "parked" in low Earth orbit. However the Hohmann transfer takes an amount of time similar to 1/2 of the orbital period of the outer orbit, so in the case of the outer planets it means many years. It is too long to wait. It is also based on the assumption that the points at both ends are massless, as in the case when transferring between two orbits around Earth for instance. With a planet at the destination end of the transfer, calculations become considerably more difficult.

One technique, known as the gravitational slingshot, uses the gravity of the planets to **modify**[5] the path of the spacecraft without using fuel. In a typical example, a spacecraft is sent to a distant planet on a path that is much faster than what the Hohmann transfer would call for. This would typically mean that it would arrive at the planet's orbit and continue to pass it. However if there is a planet between the departure point and the target, it can be used to bend the path toward the target, and in many cases the overall travel time is greatly reduced. A prime example of this is the two craft of the Voyager program, which used slingshot effects to change trajectories several times in the outer solar system. This method is not easily applicable to Earth-Mars travel however, although it is possible to use other nearby planets such as Venus or even the Moon as slingshots.

Another technique uses the atmosphere of the target planet to slow down. In this case the spacecraft is sent on a high-speed transfer, which would mean it would go right past its target upon arrival. By passing into the atmosphere, this extra speed is lost, and the amount of energy lost to transport the weight of the required heat shield (防热罩) is considerably less than the weight of the rocket fuel that would be needed to provide the same amount of energy. The concept, known as aerobraking④, was first used on the Apollo program wherein the returning spacecraft did not bother to re-enter Earth orbit in a transfer, and instead re-entered immediately at the end of the journey. Similar systems are included on most basic plans for a manned mission to Mars.

Recent advances in computing have allowed old mathematical solutions to be re-investigated, and have led to a new system for calculating even lower-cost transfers. Paths have been calculated which link the Lagrange points⑤ of the various planets into the so-called Interplanetary Superhighway. The transfers on this

5. modify A. 修饰 B. 更改 C. 装修

system are slower than Hohmann transfers, but use even less energy, and are particularly useful for sending spacecraft between the inner planets. *(1,066 words)*

Abridged and revised from
http: //www.for68.com/new/2005/12/li12279761822150024617-0.htm

A. Select the most appropriate answer for each of the following questions.

1. Which of the following achievements has been made in interplanetary travel according to the passage?
   A. Robotic probes have been sent to the surfaces of Venus and Mars.
   B. There are twelve people who landed on the Moon.
   C. The NEAR Shoemaker orbiter landed on the asteroid 433 Eros.
   D. All of the above.
2. ________ is used to thrust the spacecrafts for interplanetary missions.
   A. The robot probe　　B. The chemical rocket engine
   C. The Hohmann transfer orbit　　D. The orbital velocity
3. To make travel between Earth and Mars possible, ________ is required.
   A. increasing the total amount of energy needed to do so
   B. increasing the fuel in the spacecraft
   C. reducing the total amount of energy needed to do so
   D. reducing the fuel in the spacecraft
4. It will take a spacecraft ________ to travel from Earth to Mars using the Hohmann transfer orbit.
   A. about 18 months　　B. about 12 months
   C. over 17 months　　D. similar to 1/2 of the orbital period of the outer orbit
5. The advantage of the gravitational slingshot is ________.
   A. to change the path by using the gravity of the planets instead of fuel
   B. to modify the path by using the atmosphere of the target planet
   C. to slow down the speed of the spacecraft by losing the weight of the heat shield
   D. to elongate the orbit and adjust the spacecraft originally in an orbit almost identical to Earth's