

Sun's Roar

——中学生科普英语阅读文选

王士先 郑元和 编

上海科学技术出版社



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前 言

随着 21 世纪的临近,由于经济科学的发展,由于通信传播手段的发达,特别由于互联网络的出现和普及,“地球村”内的交往愈益密切频繁方便,英语作为一门国际通用语言变得愈来愈重要了。正因为意识到这一点,广大青少年近年来学习英语的热潮一浪高过一浪。为适应这一需要,我们选编了这本中学生科普英语阅读文选。

本书中的科普短文主要选自最近几年的美国中学生科普杂志《Current English》,并得到了 Weekly Reader 公司的慷慨允许。对此,我们深表感谢。这些文章内容涉及物理、化学、生物、医学、天文、地理、环保等学科,题材广泛,语言活泼,富有知识性、科学性和趣味性。每篇配有必要的注释,并设计有多种题材的阅读理解练习。可用作中学选修课教材或补充阅读材料,也可供科普英语爱好者学习和提高英语水平之用。

本书难免有不足之处,欢迎广大师生批评指正。

编者

1997 年 5 月

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1. NEW FORM OF MATTER FOUND

Well, what do you know? Einstein was right after all.

Seventy years ago, famed physicist Albert Einstein predicted the existence of another state of matter besides the three states known at that time — solid, liquid, and gas. (A fourth state, plasma, exists only in stars.) Most physicists thought for decades that Einstein was wrong.

Recent research at the University of Colorado indicates, though, that Einstein was right. Researchers here found an entirely new state of matter — a kind of superatom they call Bose-Einstein condensation.

Physicist Eric Cornell and his team cooled atoms of the metal rubidium to less than 170 billionths of a degree Celsius above absolute Zero, the lowest temperature ever achieved. That extremely cold temperature caused individual atoms of rubidium to condense into a superatom. The superatom behaved as a unit — a basic characteristic of matter.

“This state could never have existed naturally anywhere in the universe.” says Cornell.

Notes

- | | |
|-------------------------------|---------------|
| 1. predict /prɪdɪkt/ | v. 预言, 预告 |
| 2. plasma /ˈplæzmə/ | n. 等离子体, 等离子区 |
| 3. Bose-Einstein condensation | 玻色-爱因斯坦凝聚 |
| 4. rubidium /ru(:)'bɪdɪəm/ | n. 铷 (Rb) |
| 5. individual /ɪndɪvɪdʒuəl/ | a. 个别的, 个人的 |

True or False?

- () 1. According to Einstein, the fourth form of matter — plasma — exists only in stars.
- () 2. But recent researches have proved that this state could never have existed naturally anywhere in the universe.
- () 3. Therefore, what was predicted by Einstein must not be the same as has been found by Eric Cornell and his colleagues.
- () 4. In fact, anything cooled to a very low temperature — 170 billionths of a degree Celsius above absolute Zero — would result in a superatom.

2. KIDSAT BRINGS SPACE TO KIDS

When one of the next space shuttles reaches orbit in March, students in Gompers Middle School here will go along for the ride, Almost.

Seventh graders at Gompers and several other specially chosen schools around the country will be linked to the space shuttle by KidSat, a new program developed by the National Aeronautics and Space Administration (NASA). The program consists of a digital camera mounted in the window of the shuttle's crew compartment and two video recorders mounted in the cargo bay.

KidSat will allow science students and teachers to send requests for photos and videos of oceans, rivers, forests, or other land features via the Internet to Houston Space Center. The requests will then be relayed to the shuttle.

Still photos from the shuttle's cameras will be sent back to Houston, then sent via the Internet to schools that request them. Students in KidSat classes will be able to download images onto computers.

Images from the KidSat program will help students study

environmental events, such as the flooding of the Mississippi River, volcanic eruptions, and deforestation in the Amazon basin. History and geography can also be taught using KidSat images of famous battlefields or of other geographic regions.

Notes

- | | |
|-------------------------------|---------------|
| 1. orbit /'ɔ:bit/ | n. 轨道 |
| 2. digital /'dɪdʒɪtl/ | a. 数字(式)的 |
| 3. crew /kru:/ | n. 机组人员, 全体船员 |
| 4. compartment /kəm'pɑ:tment/ | n. 舱, 分隔间 |
| 5. cargo bay | 货舱 |
| 6. relay /'ri:lei/ | vt. 中继转发, 转播 |
| 7. volcanic /vɒl'kænik/ | a. 火山的 |
| 8. Amazon /'æməzən/ | n. 亚马孙河 |

Multiple Choice

- KidSat is the name of ____ that will link high school students to outer space.
A) a space shuttle B) a space program
C) a space mission D) a space flight
- The main task of KidSat is ____.
A) to study the earth's environmental events from the space
B) to have an overall look at the geological features of the earth
C) to collect information for teaching history and geography
D) to take photos and videos of anything required by students and teachers

3. The requests for photos and videos will be ____.
- A) collected before the launching of the spacecraft
 - B) allowed to be sent directly to the shuttle via the Internet
 - C) sent first to the space center and then relayed to the shuttle
 - D) recorded in a disc which will be mounted in the camera on board
4. Which of the following statements is NOT TRUE according to the passage?
- A) Several specially chosen high school students from around the U.S. will be on board the shuttle.
 - B) A digital camera as well as two video recorders will be mounted on board the shuttle.
 - C) The photos from the shuttle's cameras will be sent back to the ground as soon as they are made.
 - D) The images can be transferred easily from the Internet onto personal computers.

3. DEVICE MAY PREVENT DOLPHINS FROM BEING TRAPPED IN NETS

Scientists have developed a simple method of reducing the number of dolphins killed each year in fishnets.

Sound reflectors are attached to the nets to warn dolphins to stay away from drift nets that hang like curtains in the ocean. The reflectors return high-frequency sonar (sound) signals that dolphins send out when they search for fish or obstacles that may be in their ways. By recording the sonar reflections, a dolphin can tell if a delicious fish, shallow sea bottom, or fishnet is nearby.

Biologists hope that the sound reflectors will enable dolphins to detect a net 70 to 90 meters away. Normally, a dolphin detects a net when it is only about 10 meters away. This distance is too short for many fast-moving dolphins to avoid becoming trapped in the net. Because a dolphin is an air-breathing mammal, a trapped dolphin quickly drowns. About 1.5 million dolphins a year die this way, according to some environmental groups.

In an experiment at the Moray Firth in Scotland, biolo-

gists placed a series of ropes containing sound reflectors in the water. The dolphins avoided the ropes when their sonar signals apparently bounced off the reflectors.

Notes

- | | |
|------------------------------------|---------------|
| 1. dolphin /ˈdɒlfɪn/ | n. 海豚 |
| 2. trap /træp/ | v. 捕捉 |
| 3. sound reflector | 声反射器 |
| 4. drift /drɪft/ | n. & v. 飘, 漂流 |
| 5. high-frequency /ˈhaɪfri:kwənsi/ | a. 高频的 |
| 6. sonar /ˈsəʊnɑː/ | n. 声纳 |
| 7. mammal /ˈmæməl/ | n. 哺乳动物 |

Multiple Choice

- The passage is mainly about _____.
A) how to hunt for dolphins
B) how to protect dolphins
C) a new design of fishnet
D) the construction of sound reflectors
- From the passage we learn that dolphins _____.
A) always drift on the surface of the ocean
B) eat everything they meet on their way
C) can send out high-frequency sound waves
D) are a kind of most fast-moving fish
- Sound reflectors help dolphins to detect _____.
A) a net at a distance far enough for them to escape
B) a net at too short a distance for them to escape

- C) a delicious fish as far as 33 meters away
 - D) their prey 70 to 90 meters away
4. In an experiment in Scotland, biologists placed a series of ropes containing sound reflectors in the water in order to _____.
- A) search for dolphins
 - B) familiarize dolphins with sound reflectors
 - C) test the function of sound reflectors
 - D) attach sound reflectors to dolphins

4. GEYSER ERUPTIONS FORECAST QUAKE?

A retired schoolteacher has been claiming for years that a geyser in her area can be used to predict earthquakes. Although most geologists have been ignoring her claim for years, at least two scientists think that the former teacher, Olga Kolbek, may be right.

After analyzing records kept by Ms. Kolbek of the eruptions of Old Faithful geyser near Calistoga, Calif., the two scientists found that the length of time between geyser eruptions increased significantly a day or two before three large quakes struck northern California. One of the earthshakers was the Loma Prieta quake that caused great damage in the San Francisco Bay area on October 17, 1989.

A geyser forms when water in an underground chamber is superheated under great pressure by hot rock. Some of the superheated water changes to steam, which shoots out of an opening in the ground. A fountain, or geyser, forms. The geyser erupts again when the underground chamber fills up with water and is heated.

Dr. Paul Silver of the Carnegie Institute of Washington thinks that the eruption cycle is affected just before an earthquake when stresses within Earth slightly deform rocks around the underground reservoir. This deformity causes more spaces to form in the rock, allowing some of the water in the reservoir to escape. With less water, the pressure in the chamber drops. Since more time is needed to build up pressure before an eruption, the time between eruptions increases.

Notes

- | | |
|--------------------------|------------|
| 1. geyser /ˈgaɪzə/ | n. 间歇(喷)泉 |
| 2. chamber /ˈtʃeɪmbə/ | n. (矿)囊, 井 |
| 3. stress /stres/ | n. 应力, 压力 |
| 4. deform /dɪfɔ:m/ | v. 使变形 |
| 5. reservoir /ˈrezəvwa:/ | n. 水库 |

Multiple Choice

- The passage mainly discusses _____.
 - the causes of geyser formation
 - the ways of predicting earthquakes
 - the relationship between geyser eruptions and earthquakes
 - the relationship between three major earthquakes in 1989
- It has been found that the intervals(间隔) between geyser eruptions become _____ on the eve of an earthquake.

A) shorter	B) longer
C) regular	D) irregular
- The change of geyser eruption intervals is due to _____.