



# BBC WORLD SERVICE LEARNING ENGLISH

The Big Experiment  
大型强子对撞机试验

## The Big Experiment 大型强子对撞机试验

### Are You Ready? 你准备好了吗?

Read the text below and do the activity that follows.

阅读下面的短文，然后完成练习：

You might have never heard of the CERN laboratory, but this is all about to change.

On 10th September 2008 the most powerful scientific experiment ever attempted will take place at this quiet research centre near Geneva on the border of France and Switzerland.

Buried underground, the Large Hadron Collider (LHC) is about to be switched on. In laymen's terms, it is a kind of time machine that could open a window on how the universe appeared in the first few microseconds of its existence.

Particle accelerators and detectors are the key parts to the whole experiment. The accelerators are housed in a near circular tunnel under the Jura Mountains, buried between 50 – 175m underground at various points.

Beams of protons will be accelerated in opposing directions and smashed into each other at near light speed, and in conditions colder than the space between the stars.

In order to photograph the moment of these explosive collisions, detectors, which are as large as a five-storey building, have been built at CERN, yet they're capable of pinpointing a particle with an accuracy of 15 microns, that's 20 times thinner than a human hair.

The journey to build this giant experiment has taken 14 years, more than 10,000 scientists from 40 countries and a whopping £5 billion (60 billion yuan) to complete.

If the experiment succeeds in recreating the conditions soon after the Big Bang, scientists are hoping to discover new physics which may answer questions about what the universe is made of, and how it came to be the way it is.

However, not everyone is eagerly anticipating the big day. There are fears that the experiment could open black holes and the whole planet might disappear. But Professor Sir Chris Llewellyn Smith says there's no threat at all.

"The chance we produce a black hole is minuscule, it's one of the wildest speculations. But even if we do, it can't swallow up the earth," he said.

## Glossary 词汇表

<b>CERN - Conseil Européen pour la Recherche Nucléaire</b> (法文名称) 欧洲粒子物理实验室	<b>Large Hadron Collider</b> - 大型强子对撞机
<b>in laymen's terms</b> - 简单来说	<b>particle accelerator</b> - 粒子加速器
<b>detector</b> - 探测器	<b>circular tunnel</b> - 圆形隧道
<b>a beam of protons</b> - 一束质子	<b>accelerated</b> - 被加速
<b>smashed</b> - 被碰撞	<b>light speed</b> - 光速
<b>explosive collision</b> - 爆炸性的冲撞	<b>pinpointing a particle</b> - 精确的锁定一颗粒子
<b>micron</b> - 微米	<b>whopping</b> - 巨大的, 天大的
<b>Big Bang</b> - 宇宙大爆炸	<b>black hole</b> - 黑洞
<b>miniscule</b> - 极小的	<b>wildest speculation</b> - 不切实际的推测

### 1. Reading Quiz 阅读测验

Are these sentences true or false? Circle the correct answer.

以下句子哪句是真? 哪句是假? 请圈出正确答案。

1. CERN is a town in Switzerland. True / False
2. The LHC experiment is the largest physics experiment in the world.  
True / False
3. In the experiment beams of protons will be travelling in the same direction.  
True / False
4. The project cost £5 million. True / False
5. The chance of black holes being created and swallowing the Earth is very small. True / False

## 2. A Science Quiz 科学知识小测验

Answer the questions below with words or phrases from the box.

请用以下单词或短语回答问题。

Big Bang	water	gold	Neil Armstrong
the World Wide Web	Sir Isaac Newton	relativity	mercury

1. Who was the first person to walk on the moon? \_\_\_\_\_
2. What is the common name for H<sub>2</sub>O? \_\_\_\_\_
3. E=mc<sup>2</sup> is a formula associated with the theory of \_\_\_\_\_.
4. Which British scientist is said to have formulated a theory of gravity when an apple fell on his head? \_\_\_\_\_
5. What did Sir Tim Berners-Lee invent while working at CERN? \_\_\_\_\_
6. The metal \_\_\_\_\_ is liquid at room temperature.
7. From the periodic table, the letters Au represent \_\_\_\_\_.
8. Many scientists believe the universe was created by the \_\_\_\_\_.

### 3. Idioms 习惯用语

Look at the idioms below. Each one is connected to science.

Match the idiom to its definition.

请看下列习惯用语，它们都与科学有关。

请将习语与各自的定义对应起来。

- |                               |  |
|-------------------------------|--|
| 1. in one's element           | a. it's obvious                                |
| 2. guinea pig                 | b. something used for new tests or experiments |
| 3. it's not rocket science    | c. confuse people with technical language      |
| 4. blind someone with science | d. in a familiar or appropriate situation      |

Now complete the sentences below by using one of the idioms above.

现在请用以上的某个习语完成下列句子。

1. He didn't want us to ask any questions, so he tried to \_\_\_\_\_.
2. Paris Hilton looked completely \_\_\_\_\_ as she appeared before the paparazzi.
3. We should be using common sense here - \_\_\_\_\_.
4. The pharmaceutical companies were looking for \_\_\_\_\_ for their new drug trials.

#### 4. Wordsearch 单词搜索

Try to find the words associated with the expeditions in the puzzle below.

There are ten words to find. Words can be written horizontally (g), vertically (i) or diagonally (m)

请在下面的字谜游戏中，找出与有关探险的英语单词。

共有10个单词，其组成方式可能以水平的 (g) 垂直的 (i) 或对角的 (m) 形式出现。

l	e	x	i	s	t	e	n	c	e	a	n
s	m	a	s	h	p	d	i	a	k	m	i
c	p	a	c	i	f	e	c	l	m	i	k
w	g	e	m	t	r	i	c	p	n	n	q
i	n	a	c	t	s	t	a	r	a	i	g
n	o	g	r	u	i	v	t	o	z	s	i
d	q	e	z	n	l	i	n	t	e	c	a
o	n	r	i	n	b	a	l	o	k	u	n
w	c	q	i	e	n	b	t	n	o	l	l
a	u	c	w	l	a	d	e	i	n	e	r
d	u	n	e	a	d	a	r	y	o	d	y
c	e	a	r	w	h	o	p	p	i	n	g

tunnel	proton	smash	whopping	eager
miniscule	window	star	speculation	existence

# Answers 答案

## 1. Reading Quiz 阅读测验

1. CERN is a town in Switzerland. **False**
2. The LHC experiment is the largest physics experiment in the world. **True**
3. In the experiment beams of protons will be travelling in the same direction. **False**
4. The project cost £5 million. **False**
5. The chance of black holes being created and swallowing the Earth is very small. **True**

## 2. A Science Quiz 科学知识小测验

1. Who was the first person to walk on the moon? **Neil Armstrong**
2. What is the common name for H<sub>2</sub>O? **Water**
3. E=mc<sup>2</sup> is a formula associated with the theory of **relativity**.
4. Which British scientist is said to have formulated a theory of gravity when an apple fell on his head? **Isaac Newton**
5. What did Sir Tim Berners-Lee invent while working at CERN? **The World Wide Web**
6. The metal **mercury** is liquid at room temperature.
7. From the periodic table, the letters Au represent **gold**.
8. Many scientists believe the universe was created by the **Big Bang**.

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Now complete the sentences below by using one of the idioms above.

现在请用以上的某个习语完成下列句子。

1. He didn't want us to ask any questions, so he tried to **blind us with science**.
2. Paris Hilton looked completely **in her element** as she appeared before the paparazzi.
3. We should be using common sense here - **it's not rocket science**.
4. The pharmaceutical companies were looking for **guinea pigs** for their new drug trials.

## 4. Wordsearch 单词搜索

	e	x	i	s	t	e	n	c	e			
s	m	a	s	h						m		
	p									i		
w		e						p		n		
i		a	c	t	s	t	a	r		i		
n		g		u				o		s		
d		e		n	l			t		c		
o		r		n		a		o		u		
w				e			t	n		l		
				l				i		e		
									o			
					w	h	o	p	p	i	n	g