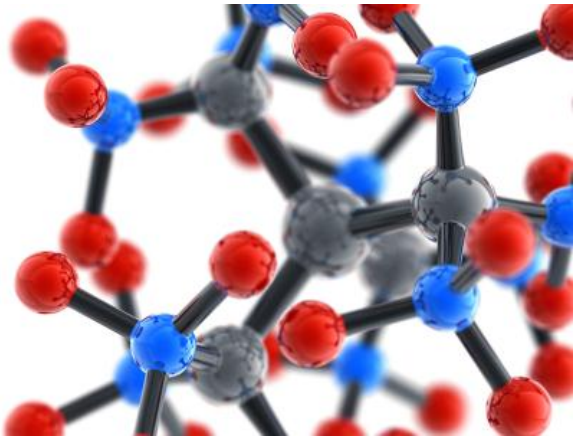
Size matters 宇宙里最小的东西是什么？

Vocabulary: shape and size 型状与大小



Do you appreciate the small things in life?

In physics, **infinitely** small things are problematic. If a structure can be infinitely divided into smaller parts, can there be such a thing as a smallest possible space or does this division go on eternally? Does nature have a limit for the **tiniest** possible unit?

The Greek philosopher Democritus suggested that matter was made of **minute**, round particles that he called '**atoms**'. JJ Thomson discovered that atoms could be split further into smaller parts and extracted **electrons** from these. Experiments since have revealed that the **nucleus** of an atom is made up of **protons** and **neutrons**, which, in turn, are composed of **quarks**. It's hard to imagine just how small these **particles** are, but to give you an idea: there are more atoms in each of us than there are stars in the universe.

Each time we discover a smaller **unit**, this, in turn, is composed of even more **minuscule** parts. But scientists haven't been able to split quarks or electrons - not even with the help of the Large Hadron Collider, the particle accelerator that is used to study the smallest known particles. Forces in nature get stronger at shorter distances; the smaller they are, the harder it is to separate them.

It's not just size that matters, but also shape. If the Large Hadron Collider ever allows us to study the smallest possible objects, would they be round? Or would they look like **microscopic** bits of string, as the String theory suggests?

The search for the smallest **building blocks** challenges our understanding of the very nature of space and time. And that's why the smallest thing in the universe is a pretty **big deal**.

词汇表请参看答案与词汇部分

Quiz 测验

阅读短文并回答问题。

1. Find words in the article that mean 'small'.
2. Who coined the term 'atom'?
3. Is the following statement true, false or not given? "We'll never know what the smallest thing in the universe is."
4. What is an atom composed of?
5. Which phrase in the article means 'the basic units used to build something'?

Exercise 练习

请你在不参考课文的情况下完成下列练习。从每个表格中选择一个意思合适的单词填入句子的空格处。

1. 'There's a massive spider on my arm!' 'It's not massive, it's _____.'

infinite	huge	tiny	big

2. The film I saw last night was _____ more interesting than the one you lent me last week.

further	infinitely	problematic	pretty

3. My brother is studying Marine Biology and likes to look at _____ objects under a microscope.

miniscule	minus	minuscule	minusculous

4. It's fascinating to study the _____ of nature and to think we're made entirely of atoms.

accelerator	block builders	building blocks	philosopher

5. Oh come on, I'm only three minutes late – it's no _____.

big deal	quark	building block	big neutron

Answers and Glossary 答案与词汇

Quiz 小测验

1. Find words in the article that mean 'small'. Tiny, minute, minuscule, microscopic.
2. Who coined the term 'atom'? The Greek philosopher Democritus invented the concept of small, round particles and called these 'atoms'.
3. Is the following statement true, false or not given? "We'll never know what the smallest thing in the universe is." Not given. The quest for the smallest thing is ongoing.
4. What is an atom composed of? An atom is composed of a nucleus, which is made of protons and neutrons, which in turn are made of quarks.
5. Which phrase in the article means 'the basic units used to build something'? Building blocks.

Exercise 练习

1. 'There's a massive spider on my arm!' 'It's not massive, it's tiny.'
2. The film I saw last night was infinitely more interesting than the one you lent me last week.
3. My brother is studying Marine Biology and likes to look at minuscule objects under a microscope.
4. It's fascinating to study the building blocks of nature and to think we're made entirely of atoms.
5. Oh come on, I'm only three minutes late – it's no big deal.

Glossary 词汇表

infinitely	无限的
tiniest	最微小的
minute	极微小的
atom	原子
electron	电子
nucleus	（原子）核
proton	质子
neutron	中子
quark	夸克
particle	粒子
unit	单位
minuscule	极小的
microscopic	微观的
building blocks	基础材料
big deal	至关重要的大事, 非同小可