通俗科学(上)

科技英语丛书

科学普及出版社

科技英[illegible]丛书

通俗科学

上

（学生读本）

[英] 马丁·贝茨
托尼·达德利～伊文斯 著
肖云 栾明 译

科学普及出版社

内 容 提 要

英国朗文出版公司最新出版的《核心》科技英语丛书是一套供学习科技英语的教材，包括通俗科学、数学、物理学、化学、生物学、地质学、工程学、农学、医学和护理学等。

《通俗科学》是这套丛书的基础，介绍一般科学常识和科技英语常用词汇及句型。原书分三册：学生读本、教师手册和听力材料。现分上、下两册出版。上册是学生读本(附参考译文和练习解答)，图文并茂，新颖有趣；下册是听读练习(附参考译文，另配有录音带)，遣词造句，生动活泼。全书由浅入深，循序渐进，使读者能逐步提高阅读和听说英语的能力，可供具有初、中级英语水平的广大读者学习参考。

本书译文经柯普、王洸审校。

General Science

Martin Bates Tony Dudley-Evans

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封面设计：窦桂芳

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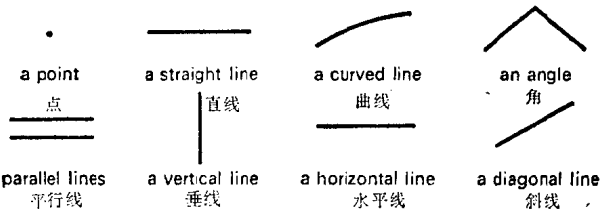
参 考 译 文

Unit 1 Properties and Shapes

Section 1 One-dimensional and two-dimensional properties

1. Look at these:



Now read this and answer the questions:

The letter 'E' has one vertical line and three horizontal lines. It also has four angles.
Which of these letters are described below?
D, M, C, H, F, L, Z, B.

a) A letter with 2 horizontal lines and 1 vertical line.
b) A letter with 1 curved line and no straight lines.
c) A letter with 2 curved lines and 1 vertical line.
d) A letter with 2 parallel vertical lines, 1 horizontal line and 4 angles.
e) A letter with 2 vertical lines and 2 diagonal lines.

Now write sentences describing these signs:

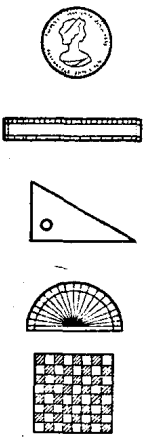
2. Look at these figures and answer the questions:

a) Which figure is curved?
b) Which figures have parallel sides?
c) Which figure always has equal sides?

d) Which figure may have equal sides?
e) Which figure has 3 angles?
f) Which figure has a curved side and a straight side?

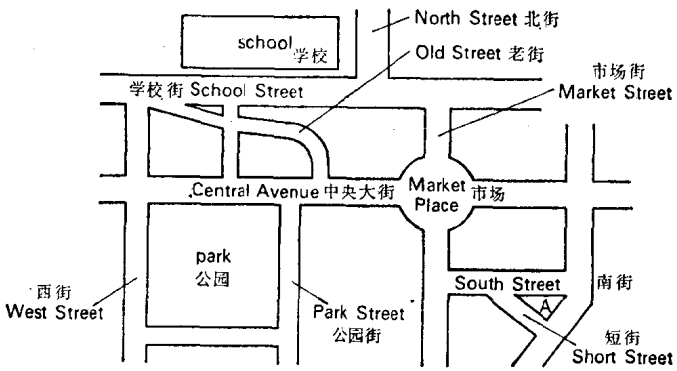
Now make sentences from the table:

Example: A coin is shaped like a circle. It is circular in shape.



A coin		square.		rectangular	
A ruler		rectangle.		circular	
A set square	is shaped like a	semi-circle.	It is	square	in shape.
A protractor		triangle.		semi-circular	
A chess-board		circle.		triangular	

3. Look at this plan of a town:



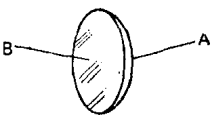
Answer these questions:

a) What shape is the plan of the school?
b) Which street is curved?
c) What shape is area A?
d) Which area is square?
e) Name two streets which are parallel.

f) Are Old Street and School Street parallel?
g) Which part is roughly circular in shape?
h) Which streets meet at an angle of 90 degrees (at right angles)?
i) Which streets meet at a different angle?

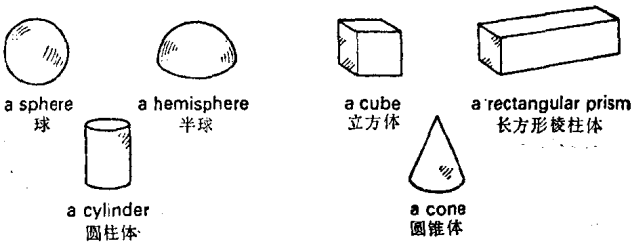
Section 2 Three-dimensional shapes

4. Look and answer



This is a lens. One *surface* is *curved* and the other is *flat*. Which is which?

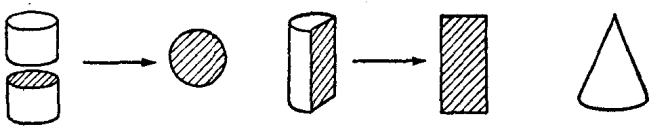
Look at these solids:



Now describe them:

Example: A cube has 6 surfaces. They are all flat and square.

5. Look and read:



The *cross-section* of a cylinder is circular. The *longitudinal* section is rectangular. The sides of a cylinder are parallel. The sides of a cone are *tapering*.

Answer these questions:

a) What shape is the cross-section of a sphere?
b) What shape is the longitudinal section of a hemisphere?
c) What shape is the cross-section of a cube?
d) Which solid is rectangular in cross-section?
e) In longitudinal section, are the sides of a cylinder parallel or tapering?

f) In longitudinal section, are the sides of a cone parallel or tapering?
g) What shape is the cross-section of a cone?

6. Complete these:

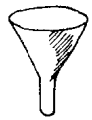
Cylindrical = shaped like a _____
Cubic = shaped like a _____
Conical = shaped like a _____
Spherical = shaped like a _____

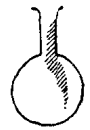
Now describe the shapes of these objects:

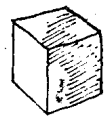
Example: A ball is spherical in shape.


a ball
球

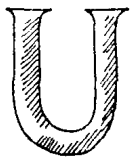

a test-tube
试管


a funnel
漏斗


a flask
烧瓶

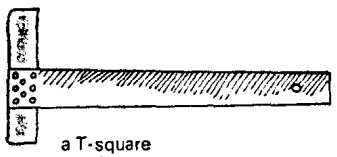

a salt crystal
食盐晶体

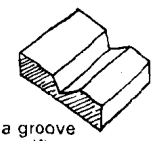
7. *Look at this:*

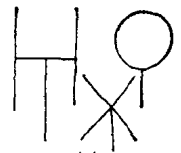


This tube is shaped like the letter 'U'.
It is *U-shaped.*

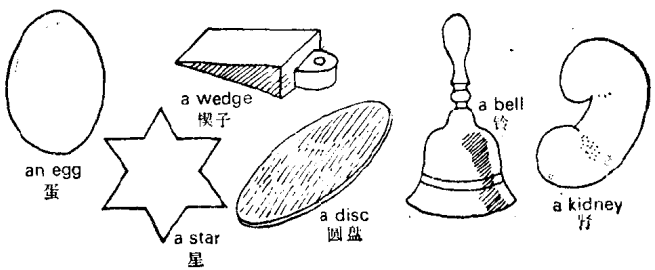
Describe the shapes of the following:


a T-square
丁字尺


a groove
槽

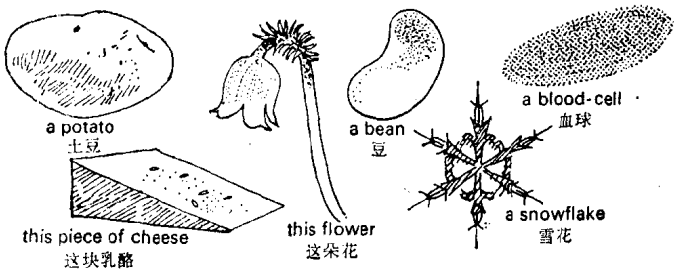

aerials
天线

These objects are used to describe shapes:

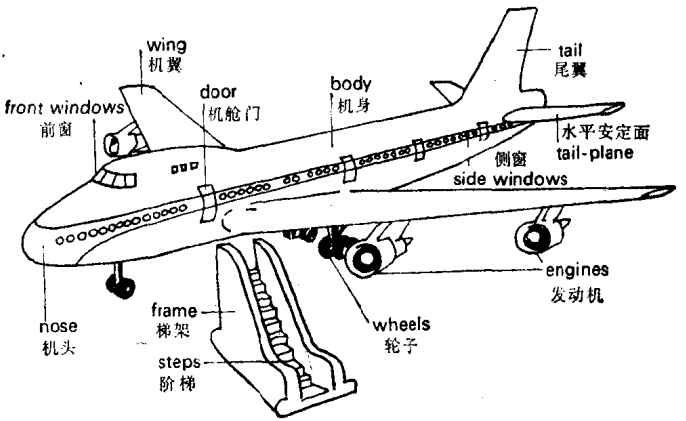


Now describe the following objects:

Example: A potato is egg-shaped.



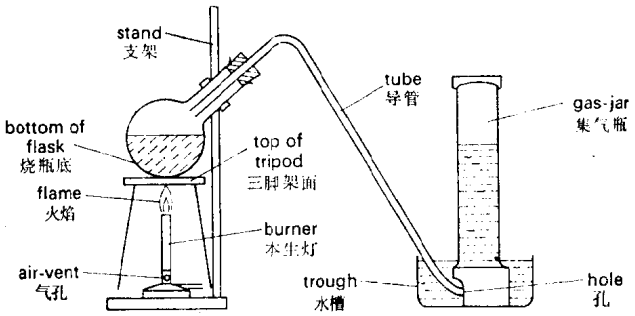
8. Look at this picture:

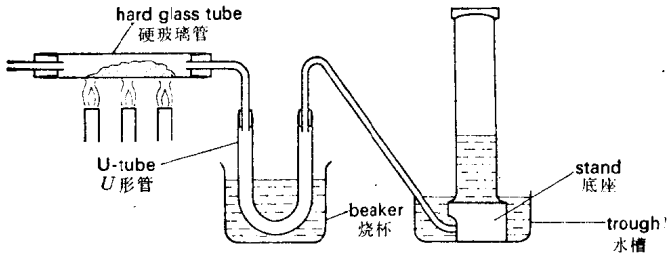


Now say whether these statements are true or false. Correct the false statements.

a) The tail is nearly triangular in shape.
b) The door is flat.
c) The steps are parallel to each other.
d) The sides of the frame are curved.
e) The tail-plane is wing-shaped.
f) All the windows are circular.
g) The engines are nearly cylindrical.
h) The wheels are cubic in shape.
i) The front of the plane is cylindrical.
j) The nose is tapering.
k) The wings are at right angles to the body.

9. Look at these diagrams and complete the descriptions:





In the first apparatus, the bottom of the flask is _____ in shape. The flask is in a _____ position. The stand is _____. The gas-jar is _____ in shape. The burner is also _____. The air-vent is _____. The flame is _____. The bottom of the trough is _____. The hole at the bottom of the gas-jar is _____ in shape. The top of the tripod is _____. In cross-section, the tube is _____.

Now make as many sentences as you can describing the second apparatus.

Section 3 Properties of materials

10. Look and read:

Ice is *solid*. Water is *liquid*. Steam is *gaseous*. Steam and water are *fluids*.

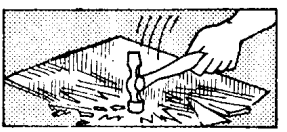
−183 °C	Oxygen 氧	Boiling Point 沸点
−218·4 °C	Oxygen	Melting Point 熔点
	Oxygen	

−245·9 °C	Neon 氖	Boiling Point 沸点
−248·7 °C	Neon	Melting Point 熔点
	Neon	

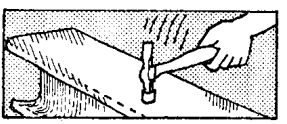
Complete these statements:

a) At −183°C oxygen changes from the gaseous state to the _____ state.
b) At −218·4°C oxygen changes from the liquid state to . . . .
c) At 183°C oxygen is in the _____ state.
d) At −246°C neon is in the _____ state.
e) At −220°C oxygen is in the _____ state.
f) Steam, water, ice, oxygen, neon: all these are fluids except _____.

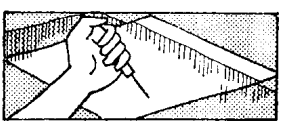
11. Read the following properties of materials and complete the examples:



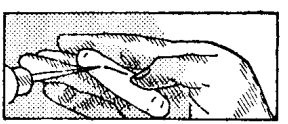
A *brittle* material *breaks* easily; eg glass, . . .



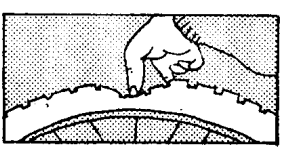
A *tough* material does not break easily; eg steel, . . .



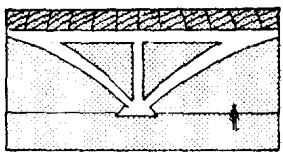
A *hard* material is difficult to *scratch*; eg glass, . . .



A *soft* material is easy to scratch; eg chalk, . . .



A *flexible* material *bends* easily; eg rubber, . . .



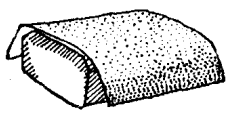
A *rigid* material does not bend easily; eg concrete, . . .

Answer these questions:

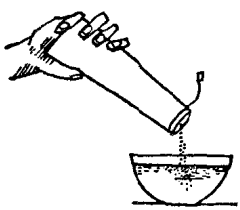
a) Why does a glass beaker break if you drop it?
b) Why doesn't a polythene beaker break?
c) Why is butter easy to cut?
d) Why can a diamond cut glass?
e) Why do the branches of a tree bend in the wind?
f) Why don't the walls of a house bend in the wind?
g) Which is more flexible: a wooden ruler or a plastic ruler?
h) What are the different properties of green wood (on a tree) and dry wood?

12. Read and complete these:

Some materials have a *smooth* surface; they produce little *friction* when they are rubbed; eg ice, . . .

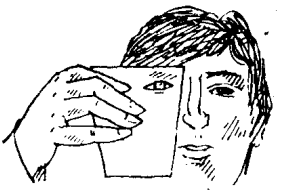


Some materials have a *rough* surface and produce a lot of friction; eg sandpaper, . . .

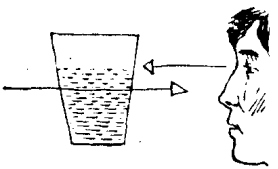


Materials which are *soluble* in water *dissolve* easily; eg salt, . . .

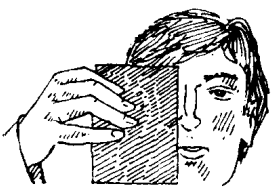
Materials which are *insoluble* do not dissolve; eg glass, . . .



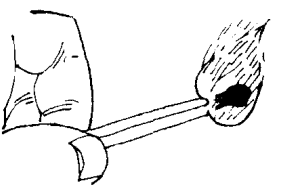
You can see through *transparent* materials; eg water, . . .



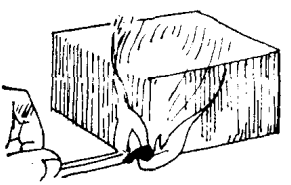
You cannot see through *translucent* materials but the light passes through them; eg dirty water, . . .



You cannot see through *opaque* materials and the light cannot pass through them; eg metal, . . .



Combustible materials *burn* easily; eg wood, . . .



Non-combustible materials do not burn, eg stone, . . .

Read this and choose the right properties:

A material which is used for making clothes must be solid/fluid, brittle/tough, soft/hard, rigid/flexible, smooth/rough, opaque/transparent and soluble/insoluble.

Complete these sentences:

One material with these properties is wool. Others are _____ and _____.

Steel is not generally used for clothes because it is . . . .
Glass is unsuitable because it is _____, _____ and _____.

Now suggest different properties which are suitable for the following purposes and give examples of materials with the right properties:

a) For the body of a car we need a material which is _____, _____, _____ and _____, eg _____.
b) For a window . . . , eg _____.
c) For a cooking pot . . , eg _____.

13. Complete the following table, giving the properties of the materials:

	steel	glass	rubber	sugar	wood
tough/brittle	tough				
soft/hard	hard				
soluble/insoluble	insoluble				
combustible/non-combustible	non combustible				
flexible/rigid	rigid				
transparent/opaque	opaque				

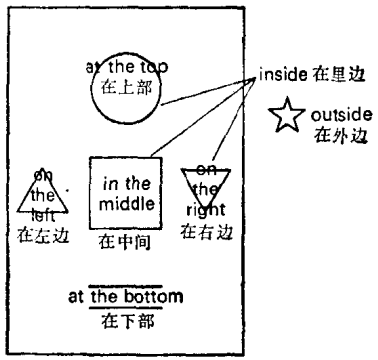
Look at these examples and make other questions and answers like them:

Example: What properties have glass and steel in common?
Glass and steel are hard, insoluble and rigid.

Unit 2 Location

Section 1 Positions on two dimensions

1. Look and read:

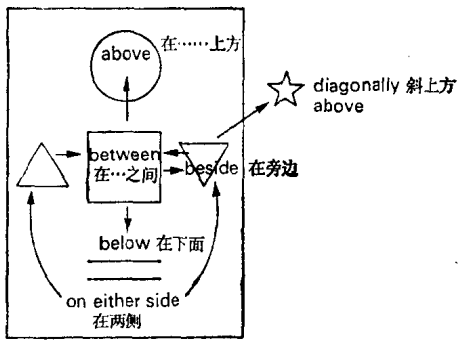


The words give the positions of the shapes *in relation to the rectangle.*

Make questions and answers like the following:

Example: What is there *at the top of* the rectangle?
There is a circle at the top of the rectangle.

2. Now look at this:



The words give the positions of the shapes *in relation to one another.*

Make questions and answers like the following:

Example: Where is the circle?
The circle is above the square.

3. Look and read:

Sc Scandium	Ti Titanium	V Vanadium	Cr Chromium	Mn Manganese	Fe Iron	Co Cobalt	Ni Nickel	Cu Copper	Zn Zinc
Y Yttrium	Zr Zirconium	Nb Niobium	Mo Molybdenum	Tc Technetium	Ru Ruthenium	Rh Rhodium	Pd Palladium	Ag Silver	Cd Cadmium
La Lanthanum	Hf Hafnium	Ta Tantalum	W Tungsten	Re Rhenium	Os Osmium	Ir Iridium	Pt Platinum	Au Gold	Hg Mercury

Above there is a table of some elements. The elements are arranged in horizontal *rows* and vertical *columns.*

Give the positions of the following elements in relation to the whole table:

Examples: Lanthanum is at the bottom, on the left.
Vanadium is *in the third column from the left*, at the top.
Cobalt is *in the top row, near* the middle.

Tungsten, cadmium, zinc, gold, scandium, iron.

Now give the position of these elements in relation to others:

Example: Osmium is beside and *to* the right of rhenium.

Cobalt in relation to nickel and iron
Niobium in relation to molybdenum
Platinum and mercury in relation to gold
Gold in relation to silver
Iron in relation to rhodium
Silver in relation to zinc
Silver in relation to gold

4. Read these sentences which give other positions:

Cobalt is *next to*, or *adjacent to*, nickel.
Iron is not adjacent to nickel because cobalt is between them.
Manganese is *in line with* copper and gold is in line with hafnium.
Yttrium is *near* tantalum but *far from* zinc.

Now say whether these statements are true or false. Correct the false statements.

a) Silver is diagonally above nickel.
b) Zinc is in line with scandium.
c) Molybdenum and ruthenium are on either side of technetium.
d) Gold is adjacent to mercury.
e) Iron is beside and to the right of cobalt.
f) Gold is vertically below silver.