

4 Food tests and DNA – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
starch	淀粉	_____	_____	_____
iodine solution	碘液	_____	_____	_____
reducing sugar	还原糖	_____	_____	_____
Benedict's solution	本尼迪特试剂	_____	_____	_____
protein	蛋白质	_____	_____	_____
biuret	双缩脲	_____	_____	_____
fat	脂肪	_____	_____	_____
ethanol	乙醇	_____	_____	_____
genetic material	遗传物质	_____	_____	_____
double helix	双螺旋	_____	_____	_____
strands	链	_____	_____	_____
bases	碱基	_____	_____	_____

Recall

You can find out which substances a food contains by adding a test chemical and watching for a colour change.

New ideas

Read these first, then do the Practice.

■ 1 Food tests

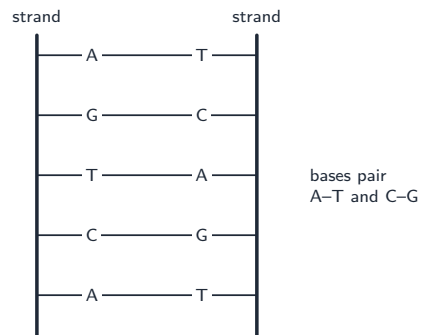
test for	start	positive
starch	orange-brown	→ blue-black
reducing sugar	blue	→ brick-red
protein	blue	→ purple
fat	clear	→ cloudy white

Food	Test	Positive result
starch 淀粉	iodine solution 碘液	orange-brown → blue-black
reducing sugar 还原糖	Benedict's solution 本尼迪特试剂 + heat	blue → brick-red
protein 蛋白质	biuret 双缩脲 solution	blue → purple
fat 脂肪	ethanol 乙醇 emulsion	a cloudy white layer

Only the Benedict's test needs **heating**.

■ 2 The structure of DNA

DNA carries the **genetic material** 遗传物质 — the instructions for the organism. It is a **double helix** 双螺旋 (a twisted ladder) of two **strands** 链, joined by pairs of **bases** 碱基:



The bases always pair **A with T** and **C with G**, so one strand tells you the other.

Watch out: only the **Benedict's** test (for reducing sugar) needs *heating*; the others are done cold. In DNA the bases pair **A-T** and **C-G** *always*, so one strand gives you the other.

Practice

Try these in order.

4.6 Which test, and which colour change, shows that a food contains starch? [2]

4.7 Which food test needs heating? [1]

4.8 A food turns biuret solution purple. What does the food contain? [1]

4.9 DNA is called a “double helix”. What shape is that? [1]

4.10 In DNA, base A pairs with which base, and C pairs with which? [2]

4.11 Challenge. One strand of DNA reads **A C G T**. Write the bases on the matching strand. [2]