

GCSE Biology B (Twenty First Century Science)
J257/02 Depth in Biology (Foundation)

Question Set 7

1

A teacher shows a plant to three students, Ben, Ling and Kai.



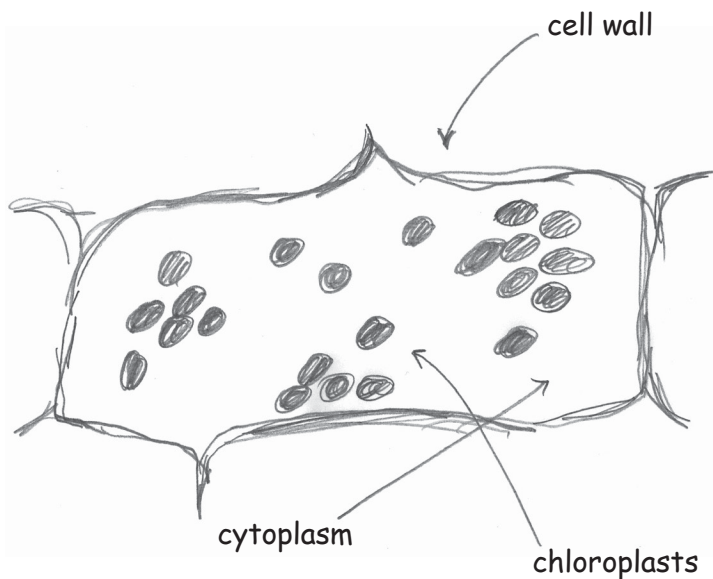
The teacher says it could be either a real living plant or a plastic plant.

She challenges the students to investigate whether the plant is real.

- (a) Ben takes a small piece of leaf from the plant. He places the piece of leaf on a microscope slide. He looks at the slide using a light microscope.

The piece of leaf appears to be made of cells.

Ben draws a scientific drawing of what he sees



Ben could draw a better scientific drawing **without** changing the slide or the microscope.

Describe **four** ways Ben could improve his scientific drawing.

[4]

- (b) Ling knows that living plants store glucose as starch. She tests a leaf from the plant for starch. Here is her method.

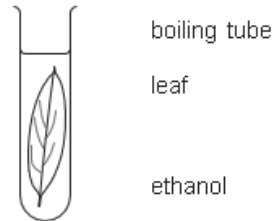
Step 1

Place the leaf in very hot water until it goes soft.



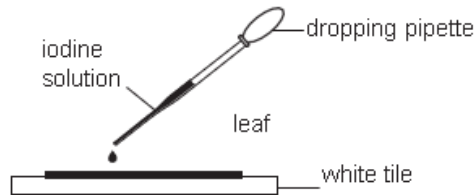
Step 2

Place the leaf in ethanol (HIGHLY FLAMMABLE) and heat until all the green colour has been removed from the leaf.



Step 3

Rinse the leaf with water, and then spread it out on a white tile and add a few drops of iodine solution.



- (i) Write down **two** hazards in Ling's method **and** suggest a way of reducing the risk from each hazard [4]
- (ii) The colour change when iodine solution is added shows that the leaf contains starch.

Describe this colour change. [1]

Kai decides to investigate how the plant responds to light.

He places the plant on a sunny windowsill and leaves it there until next week's lesson.

- (c) (i) Write a testable prediction that describes what will happen if the plant is real. [1]

- (ii) Kai finds that the plant has grown towards the window.

Use ideas about plant hormones to explain how this has happened. [4]

- (d) The students conclude that the plant is a real living plant.

Use evidence from the students' investigations to support this conclusion. [2]

Total Marks for Question Set 7: 16

OCR

Oxford Cambridge and RSA

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge