



Please write clearly in block capitals.

Centre number

--	--	--	--	--

Candidate number

--	--	--	--

Surname

Forename(s)

Candidate signature

Level 3 Certificate and Extended Certificate in Applied Science KEY CONCEPTS IN SCIENCE

Unit Number: ASC1

Section A – ASC1/B (Biology)

Tuesday 23 January 2018

Morning

Time allowed: 1 hour 30 minutes

You are advised to spend
approximately 30 minutes on
this section.

Materials

For this paper you must have:

- a calculator
- formulae sheet.

Instructions

- Use black ink or black ball-point pen.
- Answer **all** questions in each section.
- You must answer the questions in the spaces provided.
- Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- You will be provided with a copy of the formulae sheet.
- There are three sections in this paper:
Section A – Biology **Section B** – Chemistry **Section C** – Physics.
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60 and the maximum mark for this section is 20.

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
TOTAL	

Advice

Read each question carefully.



J A N 1 8 A S C 1 B O 1

Section A – Biology

Answer **all** questions in this section.

0 1

Photosynthesis is a process of carbon capture.

0 1 . 1

Name the **two** raw materials needed for photosynthesis in grass, and give the source for each raw material.**[2 marks]**

Material 1 _____

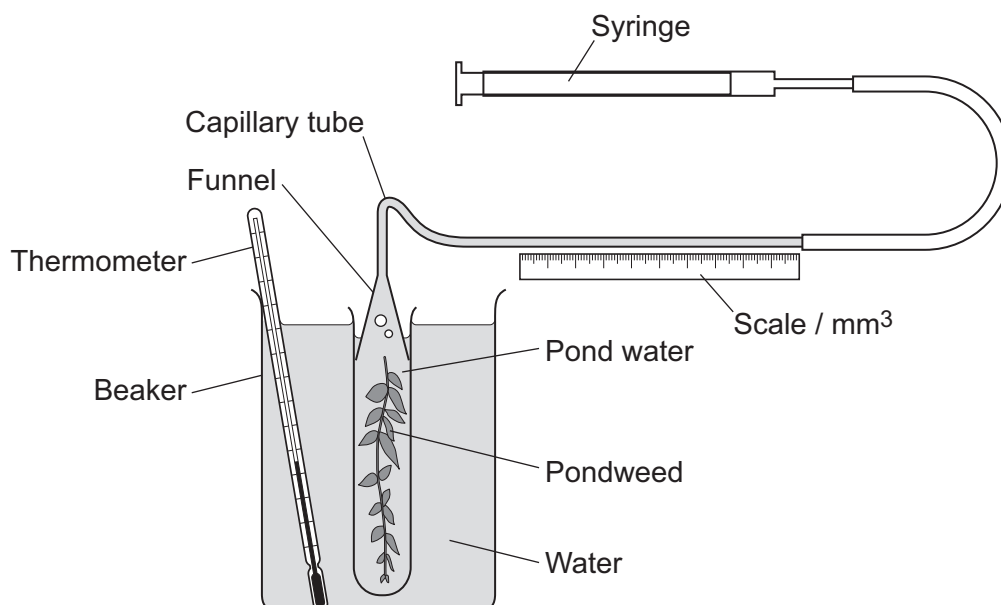
Source _____

Material 2 _____

Source _____

Figure 1 shows the equipment used by a student to investigate the rate of photosynthesis.

The equipment was set up in sunlight.

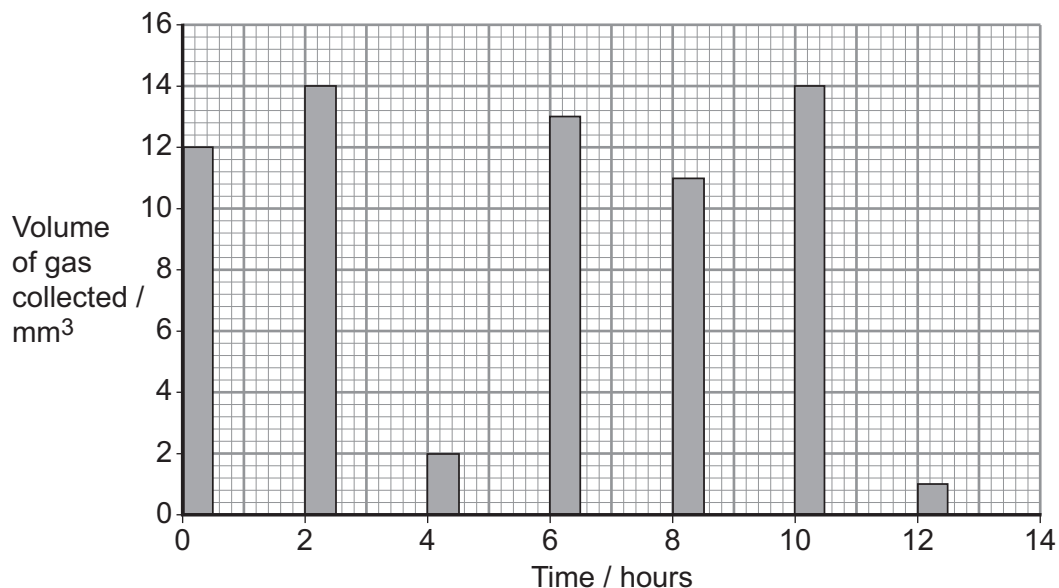
Figure 1

The student used the following standard procedure.

- 1 Collect the gas given off by the plant in the funnel for 30 minutes.
- 2 Use the syringe to pull the gas into the capillary tubing.
- 3 Record the volume of gas using the scale.
- 4 Repeat steps 1–3 after 2, 4, 6, 8, 10 and 12 hours.

The student's results are shown in **Figure 2**.

Figure 2



Use information from **Figure 1** and **Figure 2** to answer the following questions.

0 1 . 2 Which stage of photosynthesis produced the results shown in **Figure 2**?

Give an explanation for your answer.

[3 marks]

Stage _____

Explanation _____

0 1 . 3 Suggest a possible reason for the results at 4.0–4.5 hours and 12.0–12.5 hours in **Figure 2**.

[1 mark]

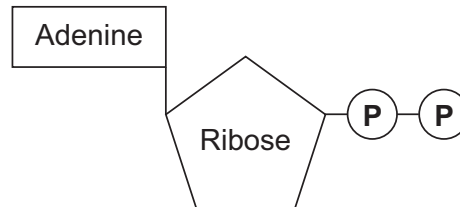


0 2

ATP is used to release energy for cell activity.

Figure 3 shows a molecule of adenosine diphosphate (ADP).

Figure 3



0 2 . 1

Complete **Figure 3** to show a molecule of ATP.

[1 mark]

0 2 . 2

ATP is produced during the different stages of respiration.

Complete **Table 1** to show which site each stage of respiration occurs in.

Tick (✓) **three** boxes.

[3 marks]

Table 1

Stage of respiration	Site of each stage				
	cell membrane	cell cytoplasm	golgi apparatus	mitochondrion	ribosome
Glycolysis					
Krebs cycle					
Electron Transfer Chain					



Do not write
outside the
box

0 2 . 3

Describe how ATP is used and produced during glycolysis.

[3 marks]

0 2 . 4

There are two types of respiration: aerobic and anaerobic.

Give **one** advantage of aerobic respiration compared with anaerobic respiration.

[1 mark]

8

Turn over for the next question

Turn over ►



0 3

A woman visits a very hot country. Her body helps to control her core body temperature by sweating.

0 3 . 1

What is the normal body temperature range?

[1 mark]

From _____ °C to _____ °C

0 3 . 2

The woman starts to feel ill because her blood pressure is too low. The low blood pressure was caused by sodium chloride deficiency.

Give **two** symptoms the woman would experience due to low blood pressure.

[2 marks]

1 _____

2 _____

0 3 . 3

Describe how the adrenal cortex responds to the low blood pressure.

[3 marks]

6

END OF QUESTIONS

There are no questions printed on this page

*Do not write
outside the
box*

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**



There are no questions printed on this page

*Do not write
outside the
box*

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

Copyright information

For confidentiality purposes, from the November 2015 examination series, acknowledgements of third party copyright material will be published in a separate booklet rather than including them on the examination paper or support materials. This booklet is published after each examination series and is available for free download from www.aqa.org.uk after the live examination series.

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders may have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements. If you have any queries please contact the Copyright Team, AQA, Stag Hill House, Guildford, GU2 7XJ.

Copyright © 2018 AQA and its licensors. All rights reserved.

