

Candidate Name	Centre Number				Candidate Number			
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**GCSE
BIOLOGY
UNIT 3: PRACTICAL ASSESSMENT
SAMPLE ASSESSMENT MATERIALS**

INVESTIGATING THE SUGAR CONTENT OF BISCUITS

SECTION A

(1 hour)

For Examiner's use only		
	Maximum Mark	Mark Awarded
Section A	6	

ADDITIONAL MATERIALS

In addition to this paper you will require a calculator.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Write your answers in the spaces provided in this booklet.

INFORMATION FOR CANDIDATES

The total number of marks available for this section of the task is 6.

The number of marks is given in brackets at the end of each question or part question.

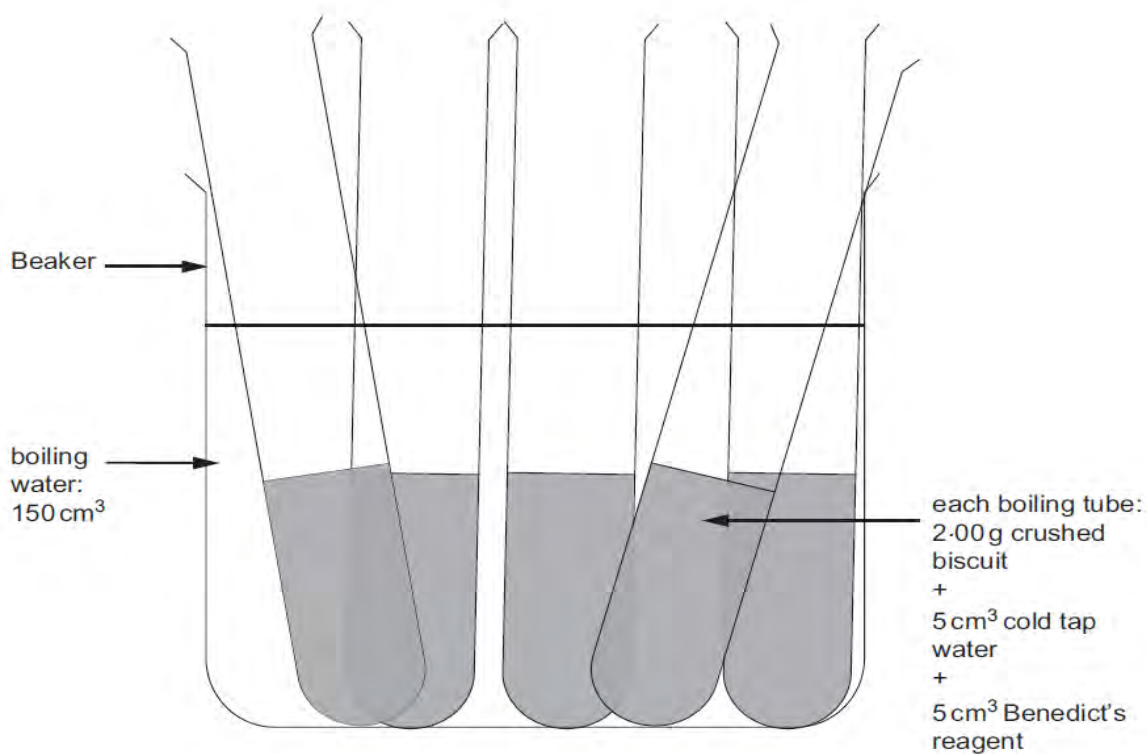
This task is in 2 sections, **A** and **B**. You will complete section **A** in one session and section **B** in the next session.

SECTION A

Your task is to investigate the sugar content of different biscuits.

The following apparatus available for each group:

- A range of five different crushed biscuit types (2×2.0 g of each)
- 1 \times stopwatch (± 0.01 s)
- 1 \times 250 cm³ beaker
- 2 \times 10 cm³ measuring cylinders
- 5 \times boiling tubes
- Filter paper
- Benedict's reagent
- Kettle
- Spatula
- Balance (± 0.1 g)
- CLEAPSS student safety sheet 4 – Food testing (1)



Read the method and answer question 1(a) before carrying out the experiment and recording your results.

Method:

1. Label the five boiling tubes for each type of biscuit.
2. Transfer 2.0 g of each biscuit type into the correct boiling tube.
3. Using a measuring cylinder/syringe, transfer 5 cm³ of cold tap water into each boiling tube.
4. Using another measuring cylinder/syringe, transfer 5 cm³ of Benedict's reagent into each boiling tube.
5. Shake each tube gently to ensure that the contents are thoroughly mixed.
6. Pour 150 cm³ of boiling water into the 250 cm³ beaker.
7. Place the boiling test tubes into the boiling water and immediately start the stopwatch.
8. Record, to the nearest second, the time it takes for the Benedict's reagent to change from blue to orange/brick red in colour.
9. Repeat steps 1 to 8 to gain two sets of results in total for each biscuit.

Answer **all** questions

1. (a) Carry out a risk assessment **for this experiment**.

Describe how each hazard may result in a risk of injury. Describe the control measures needed to minimise each risk. [2]

HAZARD	RISK	CONTROL MEASURE
Benedict's reagent: is an irritant		
Boiling water: can cause burns		

You may record raw results in the space below.

- (b) Present your results in a table; include all of your results and the mean time taken for the Benedict's solution to change from blue to orange/ brick red for each biscuit type. [4]

END OF PAPER

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GCSE BIOLOGY

UNIT 3: PRACTICAL ASSESSMENT

SAMPLE ASSESSMENT MATERIALS

INVESTIGATING THE SUGAR CONTENT OF BISCUITS

SECTION B

(1 hour)

For Examiner's use only		
	Maximum Mark	Mark Awarded
Section B	24	

ADDITIONAL MATERIALS

In addition to this paper you will require a calculator and your section **A** exam paper.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Write your answers in the spaces provided in this booklet.

INFORMATION FOR CANDIDATES

The total number of marks available for this section of the task is 24.

The number of marks is given in brackets at the end of each question or part question.

This task is in 2 sections, **A** and **B**. You will have completed section **A** in a previous session.

SECTION B*Answer all questions*

2. (a) (i) State the independent variable in this experiment. [1]

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- (ii) State the dependent variable in this experiment. [1]

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- (iii) State **two** variables that needed to be controlled **for this experiment**.
Explain why you controlled each of these. [4]

Control variable 1:

Explanation:

Control variable 1:

Explanation:

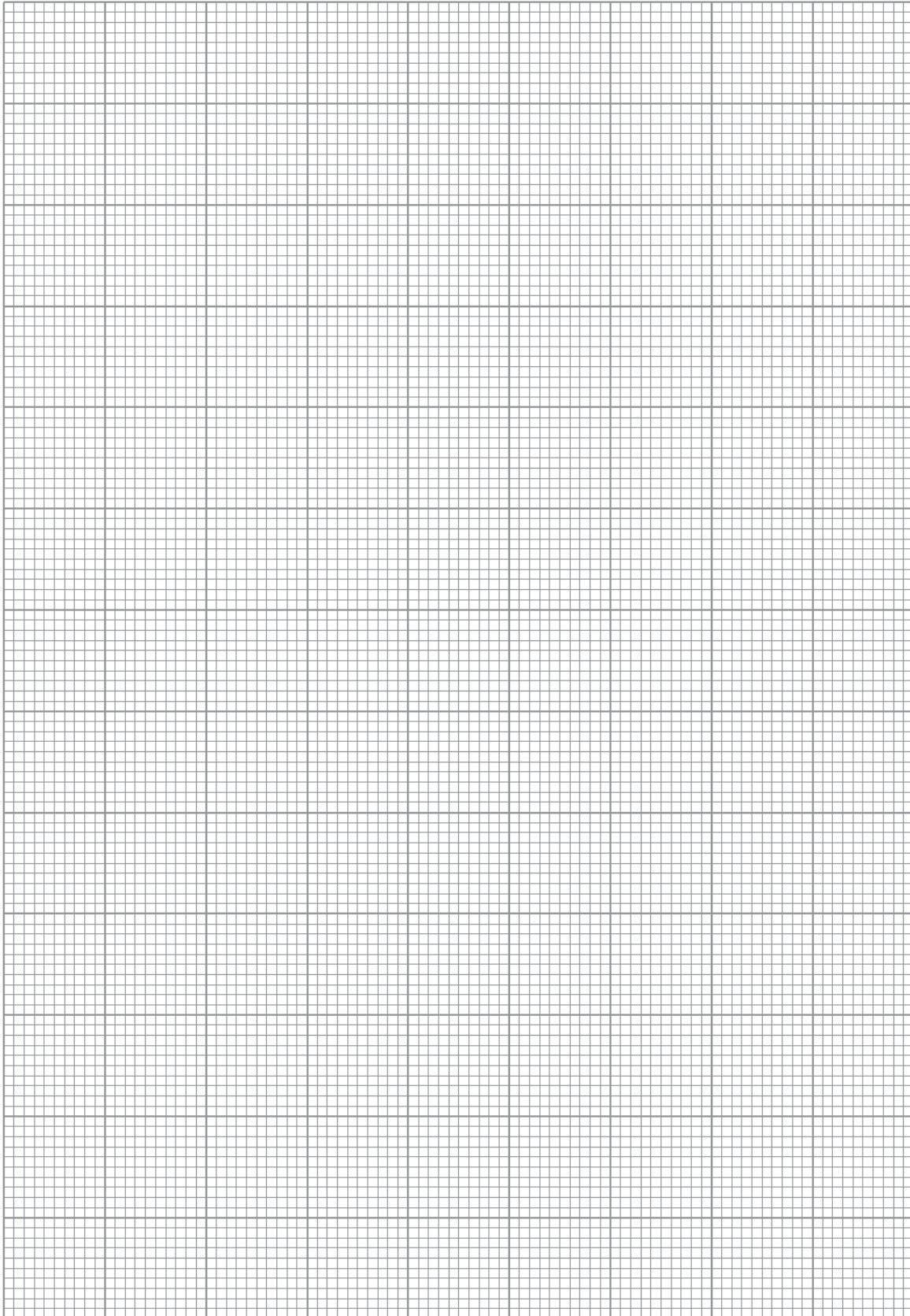
- (b) Describe how you could set up a control tube for this experiment. [3]

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- (c) Use your results from section A to draw a graph of your results on the grid below. [4]



- (d) What can you conclude about the sugar content of the biscuits tested? Explain your answer. [3]

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- (e) State the **main** source of uncertainty during this experiment. Describe how this uncertainty could be reduced. [2]

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- (f) Why does it make sense to record the time to the nearest second rather than tenths or hundredths of a second? [1]

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- (g) Angharad tests the sugar content of three types of biscuit (A, B and C). She times how long it takes for the Benedict's reagent to change colour. She repeats each biscuit three times.

Biscuit	Trial 1	Trial 2	Trial 3	Mean
A	361.8	355.3	347.2	354.8
B	315.4	329.3	333.5	326.1
C	303.9	312.0	398.6	338.2

- (i) Circle the anomalous result in the table. State why this result is anomalous. [2]

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- (ii) Angharad concluded that Biscuit **B** contained the most sugar. Another student disagreed with her. Suggest why the other student disagreed with her.

[1]

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- (iii) State what **further** data would be needed to produce a more valid conclusion.

[2]

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24

END OF PAPER

