



General Certificate of Secondary Education
2023

Centre Number

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Candidate Number

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Double Award Science Biology

Unit 7: Practical Skills

Booklet A
Foundation Tier



GDW71

[GDW71]

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in this question paper.
Answer **all** parts of Question 1.

INFORMATION FOR CANDIDATES

The total mark for this paper is **15**.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Follow all health and safety instructions.
The apparatus and materials required to complete the task are provided.
You will require a calculator.

For Examiner's use only	Mark	Remark
Biology (15 marks)		
Chemistry (15 marks)		
Physics (15 marks)		
Total (45 marks)		

For Examiner's use only	
Question Number	Marks
1	

Total Marks	
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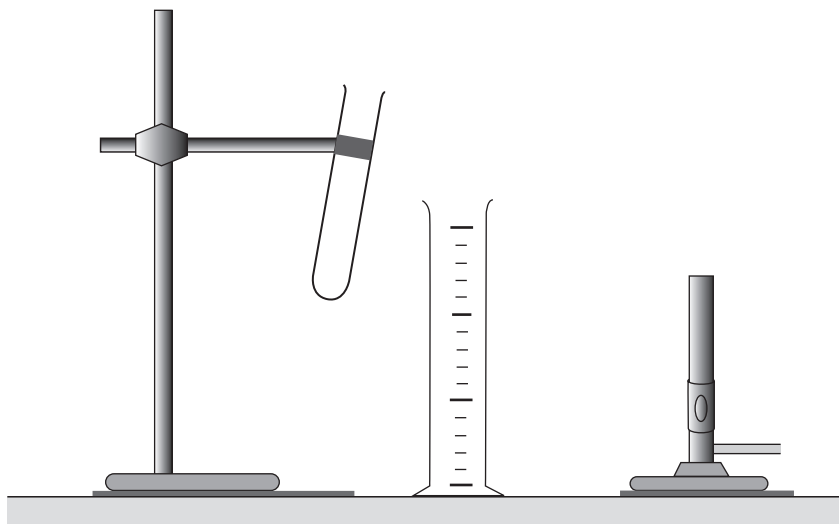
Investigating the energy content of food

The energy content of food can be investigated by measuring the rise in temperature of water heated by burning food.

In this investigation you will be burning a cracker.

Instructions

The diagram shows some of the apparatus you will use in this investigation.



- 1 (a)** Measure the mass of your cracker in grams to **one decimal place** using the balance.

Record this mass in **Table 1** opposite, in the column labelled **Mass of cracker /g**.

[1]

- (b)** Measure **20 cm³** of water using the measuring cylinder and pour it into the boiling tube.

Measure the temperature of the water in the boiling tube using the thermometer.

Record this temperature in **Table 1** opposite, in the column labelled **Initial temperature of water /°C**.

[1]

Hold the cracker with tongs or place it on a mounted needle.

Light the cracker using the Bunsen burner.

Hold the burning cracker under the boiling tube until it has **completely** burnt.

If the cracker goes out before it is completely burnt, relight it and place it back under the boiling tube.

- (c) Use a stirring rod to stir the water in the boiling tube.

Immediately measure the final temperature of the water using the thermometer.

Record this temperature in **Table 1** below, in the column labelled **Final temperature of water /°C**.

[1]

You must complete the remainder of this paper on your own.

- (d) Calculate the rise in temperature of the water and record this temperature in **Table 1** below, in the column labelled **Rise in temperature of water /°C**.

[1]

Table 1

Mass of cracker /g	Initial temperature of water /°C	Final temperature of water /°C	Rise in temperature of water /°C

- (e) Use the equation below, and your data from **Table 1**, to calculate the energy in one gram of your cracker.

Energy in cracker /J per gram	=	$\frac{\text{Rise in temperature of water /°C} \times \text{Volume of water /cm}^3 \times 4.2}{\text{Mass of cracker /g}}$
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Show your working.

_____ J per gram [3]

Examiner Only

Marks Remark

Examiner Only	
Marks	Remark

- Circle the correct answer.

no effect

[1]

(i) Complete the table by writing in the empty boxes.

Risk	What could happen	Actions to take
Glassware	The measuring cylinder, containing water, breaks	1 _____ _____ _____ 2 _____ _____ _____
Hot apparatus		Run your hand under cold water for a few minutes

[3]

THIS IS THE END OF THE QUESTION PAPER

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Rewarding Learning

**General Certificate of Secondary Education
2023**

Double Award Science Biology

Unit 7: Practical Skills

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APPARATUS AND MATERIALS LIST AND CONFIDENTIAL INSTRUCTIONS

It is the responsibility of the centre to ensure that appropriate risk assessments are carried out for all practical skills assessments.

Investigating the energy content of food

Apparatus and Materials list

Each group of candidates will require:

- Retort stand
- Boss head and clamp
- Bunsen burner
- Boiling tube
- Mounted needle / tongs
- Heatproof mat × 2
- Thermometer
- Stirring rod
- 25 cm³ measuring cylinder
- Bunsen burner lighter / wooden splint
- Cracker (e.g. mini cheddars / mini ritz)
- Safety glasses
- Balance (to measure mass in grams to one decimal place)

Teacher Instructions

Each group should have a boiling tube clamped to a retort stand prior to candidates entering the room.

Balances should be available in the room.

Each candidate will require a calculator.

Safety Advice

Candidates must take care with Bunsen burners, glassware, burning food and hot water.

Candidates must wear safety glasses at all times during the practical section of this assessment.

Teachers must ensure that rooms are adequately ventilated.

Trials

Teachers must trial the practical assessment and keep a full set of results.

In trials, mini cheddars worked well.

