



Rewarding Learning

General Certificate of Secondary Education

Centre Number

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Candidate Number

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Double Award Science Biology

Unit 7 Practical Skills

Booklet A Higher Tier

[GDW75] Assessment



GDW75

TIME

1 hour.

Assessment Level of Control:

Tick the relevant box (✓)

Controlled Conditions	
Other	

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** questions.

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.

You may use a ruler and a calculator if required.

The apparatus and materials required to complete the task(s) are provided.

For Examiner's use only	
Question Number	Marks
1	
2	

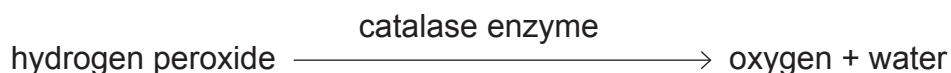
Total Marks	
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Investigating the effect of temperature on the action of an enzyme

Hydrogen peroxide is produced in cells.
It must be broken down quickly as it is harmful.
Catalase is an enzyme which is found in cells.
It speeds up the breakdown of hydrogen peroxide.

The equation below shows the reaction.



**You must wear eye protection when carrying out this practical assessment.
Care must be taken when working with hydrogen peroxide and hot water.**

On your bench you will have:

- 1 × boiling tube rack containing four boiling tubes labelled 1, 2, 3 and 4
- Timer
- 5 cm³ syringe
- 10 cm³ syringe
- Waterproof marker pen
- Ruler
- 1 × water bath at 20°C
- 1 × water bath at 50°C
- 1 small beaker of hydrogen peroxide
- 1 small beaker of catalase enzyme solution.

Instructions

Examiner Only

Marks Remark

- 1 Label each of boiling tubes **1** to **4** with your group's initials using the marker pen.
- 2 Use the 5 cm³ syringe to add 5 cm³ of catalase enzyme solution into each of boiling tubes **1** and **3**.
- 3 Use the 10 cm³ syringe to add 10 cm³ of hydrogen peroxide into each of boiling tubes **2** and **4**.
- 4 Place boiling tubes:
 - **1** and **2** into the **20°C** water bath;
 - **3** and **4** into the **50°C** water bath.
- 5 Leave the boiling tubes in the water baths for at least **five** minutes.

- 6 Remove boiling tubes **1** and **2** from the **20°C** water bath and place them in the boiling tube rack on your bench.
- 7 Carefully pour the contents of boiling tube **2** (hydrogen peroxide) into boiling tube **1** (catalase enzyme solution). Return boiling tube **1** to the water bath and start the timer immediately. Leave for **three** minutes.
- 8 After **three** minutes, remove boiling tube **1** from the water bath. Hold the ruler against the outside of boiling tube **1** and measure the height of froth **in mm** above the level of the liquid.

- 1 (a) Record this height in the column with the heading '**My group**' in **Table 1** opposite for **20°C**. [1]

- 9 Remove boiling tubes **3** and **4** from the **50°C** water bath and place them in the boiling tube rack on your bench.
- 10 Carefully pour the contents of boiling tube **4** (hydrogen peroxide) into boiling tube **3** (catalase enzyme solution). Return boiling tube **3** to the water bath and start the timer immediately. Leave for **three** minutes.
- 11 After **three** minutes, remove boiling tube **3** from the water bath. Hold the ruler against the outside of boiling tube **3** and measure the height of froth **in mm** above the level of the liquid.

- (b) Record this height in the column with the heading '**My group**' in **Table 1** opposite for **50°C**. [1]

THIS IS THE END OF THE QUESTION PAPER

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