

**ADVANCED SUBSIDIARY GCE
APPLIED SCIENCE**

G623/PLAN

Unit 4: Cells and Molecules

PLAN FOR AN INVESTIGATION

For issue on or after: **15 MARCH 2007**

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Candidate
Name

Centre
Number

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Candidate
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TIME The Plan must be handed in by the deadline given by your teacher.

INSTRUCTIONS TO CANDIDATES

- Write your name in the space above.
- Write your Centre number and Candidate number in the boxes above.
- Attach this page to the front of your Plan.

INFORMATION FOR CANDIDATES

- You will be awarded marks for the quality of your written communication.
- Detailed notes for guidance are given overleaf.

| FOR EXAMINER'S USE | | |
|--------------------|-----------|------|
| | Max. | Mark |
| Planning | 25 | |

Authentication by teacher

I declare that, to the best of my knowledge, the work submitted is that of the candidate concerned. I have provided details on my report form for the Plan for an Investigation of any assistance given.

Signature Date

This document consists of **4** printed pages and an insert.

Notes for guidance

- 1 Your Plan should have a clear and helpful structure and should be illustrated by diagrams, tables, charts, graphs etc. as appropriate. Remember that these can often be used to replace words in the text. Diagrams should be relevant to the content of your Plan and positioned appropriately. Labels on diagrams, flow charts or tables should be clear and concise. Large blocks of text should be included in the word count.
- 2 You should take care to use technical and scientific terms correctly and to write in clear and correct English.
- 3 Your Plan should be hand-written or word-processed on A4 paper, which should have a hole punched at the top left-hand corner. Pages should be numbered and should have a clear margin on the right hand side. You should write (or print) on **one** side of the paper only and each sheet should be marked with your centre number and candidate number.
- 4 You should show that you have consulted an appropriate range and variety of sources. At the end of your Plan you should list clearly the sources you have used. You should refer to these references in your Plan where appropriate. Where you have incorporated material which has been copied directly from a source such as a book or the Internet, this must be acknowledged in your Plan and details included in the references at the end. However, it should be noted that the inclusion of copied material will not in itself gain credit. The list of references should not be included in the word count.
- 5 Your Plan should be based on the use of standard equipment, apparatus, chemicals and other materials available in a school or college science laboratory.
- 6 Your Plan should be about **800 to 1000** words. A Plan that is in excess of **1000** words is likely to have poor structure and unselective choice of material, so that full credit may not be available. You should indicate the number of words in the margin of the Plan at approximately **100** word intervals.
- 7 When you have finished, tie the pages loosely together (or use a treasury tag), with this sheet on the top, so that the pages turn over freely. Your centre will give you the date by which your Plan must be handed in.

NOTICE TO CANDIDATE

The work you submit for assessment must be your own.

If you copy from someone else or allow another candidate to copy from you, or if you cheat in any other way, you may be disqualified from at least the subject concerned.

- 1 Any help or information you have received from people other than your subject teacher(s) must be clearly identified in the work itself.
- 2 Any books, information leaflets or other material (e.g. videos, software packages or information from the Internet) which you have used to help you complete this work must be clearly acknowledged in the work itself. To present material copied from books or other sources without acknowledgement will be regarded as deliberate deception.

Declaration by candidate

I have read and understood the **Notice to Candidate** (above). I have produced the work without any help from other people apart from that which I have declared in the work itself. I have acknowledged all source materials in the work itself.

Candidate's signature Date

EXAMINATION PRE-TASK

Read the article entitled 'Algal blooms and effects on water quality'. The article is to give you some background that you might find helpful in planning for the task that follows. Not all the information will be directly relevant and you are expected to select information which is relevant to the task.

Climate change brought about by global warming may lead to an increase in the frequency of algal blooms and the need for continued research.

Your task is to plan an investigation to study the effect of temperature on the population growth of a culture of a Cyanobacterium e.g. *Anabaena* or a member of the Chlorophyta e.g. *Chlamydomonas* or *Chlorella*.

Your plan should clearly indicate how you would carry out the procedure and you should indicate how you would present and analyse your data to draw your conclusions.

There is no requirement to carry out your plan.

Your plan will be marked according to the following assessment criteria.

| Candidates: | Marking criteria | Mark |
|---|--|--|
| <ul style="list-style-type: none"> include a risk assessment to show how the investigation will be carried out safely; | easily recognised safety procedures highlighted; | 1 |
| <ul style="list-style-type: none"> make a prediction and produce justification; | prediction made; with justification; | 1 1 |
| <ul style="list-style-type: none"> describe and explain the reasoning behind any preliminary work carried out; | description; clear and in detail; reasons explained; clear and in detail; | 1 1 1 1 |
| <ul style="list-style-type: none"> identify relevant secondary sources of information used; | identified; relevance explained; | 1 1 |
| <ul style="list-style-type: none"> plan how to use appropriate techniques to carry out a detailed practical investigation; | basic skills and reasonable accuracy; sound skills and accuracy; | 1 1 |
| <ul style="list-style-type: none"> list the equipment required; | range of appropriate; full range of appropriate; | 1 1 |
| <ul style="list-style-type: none"> state the number of measurements to be undertaken; | appropriate number; | 1 |
| <ul style="list-style-type: none"> state the range of measurements to be undertaken; | need recognised; appropriate range; | 1 1 |
| <ul style="list-style-type: none"> identify any variables that could affect the validity of any conclusions made and explain how variables will be controlled; | relevant variables are identified; controlled; | 1 1 |
| <ul style="list-style-type: none"> show how they would present and display the data they could collect using suitable methods; | suitable methods identified; ; | 1 1 |
| <ul style="list-style-type: none"> indicate how the data will be analysed; | simple data-handling; conclusions possible; | 1 1 |
| <ul style="list-style-type: none"> evaluate the investigation. | recognises sources of error; suggests methods for improving accuracy and/or validity; | 1 1 |
| Total marks available: | | 24 |
| Additional mark awarded on plan for use of scientific terminology: | | 1 |
| Total: | | 25 |

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