

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**  
**Advanced GCE**

**BIOLOGY** **2806/03/PLAN**

Practical Examination (Part A): Planning Exercise

For issue on or after: Friday **15 MARCH 2002**

**This plan must be handed in by the deadline given by your teacher.**

Candidate Name	Centre Number	Candidate Number														
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**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**

- In this Planning Exercise, you will be assessed on the Experimental and Investigative Skill:  
Skill P: Planning
- You will be awarded marks for the quality of your written communication.
- Detailed notes for guidance are given overleaf.

**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 Practical Test of any assistance given.

Signature ..... Date .....

FOR EXAMINER'S USE		
	<b>Max.</b>	<b>Mark</b>
<b>Planning</b>	<b>16</b>	

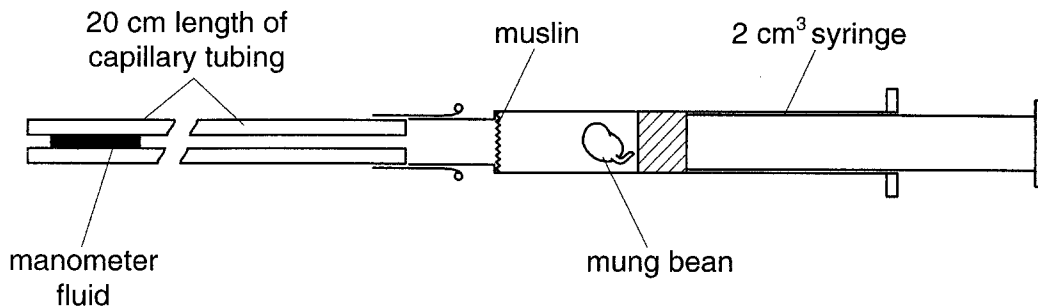
**This question paper consists of 3 printed pages and 1 blank page.**

**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 and 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 the report 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 of between 500 and 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 200 word intervals.
- 7 When you have finished, tie the pages *loosely* together, with this sheet on the top, so that the pages turn over freely, or use a treasury tag. Your Centre will give you the date by which it must be handed in.

### Planning Exercise

You are required to plan a procedure that would allow you to determine the respiratory quotient (RQ) of a germinated mung bean seedling using the respirometer shown in Fig. 1.1.



**Fig. 1.1**

When set up appropriately, volume changes in the apparatus cause movement of the manometer fluid. The manometer fluid can be returned to its original position by moving the syringe plunger.

The manometer movements can be recorded over short periods of time and used to provide a measure of the gaseous exchange that occurs between the living material and the air surrounding it. From these data the RQ can be calculated.

Your planning must be based on the assumption that you have access to a supply of germinated mung beans and to your school or college laboratory resources.

Give full details of your method to include the procedures that you would adopt to ensure that the results obtained were as reliable as possible given that small respirometers of this type are sensitive to minor variations in the temperature of the surroundings.

State the type of data that you would obtain and how you would use the data to calculate the RQ.

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