

**Advanced GCE**

**PHYSICS A**

Unit G486: Practical Skills in Physics 2:  
Qualitative Task

**Specimen Task**

**For use from September 2008 to June 2009.**

## G486

**All items required by teachers and candidates for this task are included in this pack.**

### **INFORMATION FOR CANDIDATES**

- Qualitative Task: Investigating the bifilar suspension.

### **INFORMATION FOR TEACHERS**

- Mark scheme.
- Instructions for Teachers and Technicians.

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Advanced GCE

## G486

**PHYSICS A**

Unit G486: Practical Skills in Physics 2:  
Qualitative Task

**Specimen Task**

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Candidates answer on this task sheet.

### INSTRUCTIONS TO CANDIDATES

- Answer **all** parts of the task.

### INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [ ] at the end of each part.
- The total number of marks for this task is **10**.

### ADVICE TO CANDIDATES

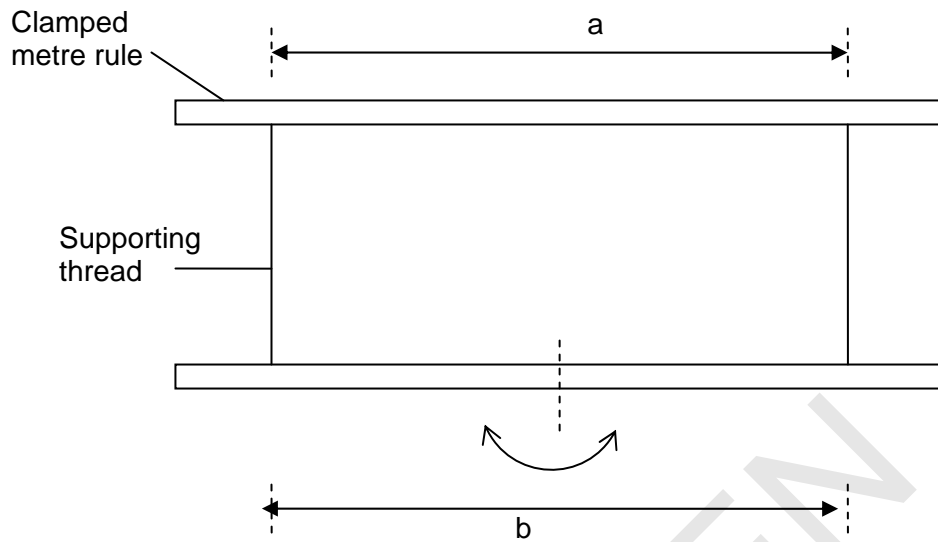
- Read each part carefully and make sure you know what you have to do before starting your answer.

FOR TEACHER'S USE		
Part	Max.	Mark
TOTAL	10	

This task consists of **7** printed pages and **1** blank page.

### Introduction

Fig 1.1 shows a typical bifilar suspension system. The period of oscillation about a vertical axis through the centre of gravity of the arrangement depends on a number of factors.



**Fig 1.1**

In this experiment, you will investigate how the period of oscillation about a vertical axis through the centre of gravity of the arrangement depends on the product  $ab$ .

### Equipment provided:

Stop watch  
2 metre rules  
Thread  
30 cm rule  
Scissors

You may need to ask your teacher for extra equipment.

### Procedure:

You have been given some equipment. You need to investigate how the period of oscillation about a vertical axis through the centre of gravity of the arrangement depends on the product  $ab$ .



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2 Make a clear record of your observations, giving details of the method used to obtain them.

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The maximum mark for this task is **10**.

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	Answer	Max Mark
	<b>Strand A: Quality 1</b>	
1	Describes clearly and carries out an appropriate experiment as judged by the teacher, including a risk assessment of relevant points. Uses a wide range of values of $a$ and/or $b$ . Uses a suitable method to keep the separation of the two metre rules constant. Uses small oscillations.	[3]
2	Repeats experiment for at least eight different values of $ab$ and describes in particular how the period of oscillation was measured.	[2]
	<b>Strand B: Quality 1</b>	
1	Records, in a structured way, $a$ , $b$ , $ab$ , raw times and the period of oscillation; Repeats each measurement and determines the average period of oscillation; Raw times measured for at least 10 s	[3]
2	Describes the qualitative observations clearly.	[1]
3	The observations are supported by good knowledge and understanding of physics e.g. explains observations with appropriate justification whether there is a proportional relationship.	[1]
	<b>Total</b>	<b>[10]</b>



**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**

**Advanced GCE**

**PHYSICS A**

**G486 MS**

Unit G486: Practical Skills in Physics 2: Qualitative Task

**Instructions for Teachers and Technicians**

**For use from September 2008 to June 2009.**

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**There is no time limit for this task, but it is expected that it can be completed within one timetabled lesson.**

It is assumed that you will have completed the teaching of the above module before setting your students this task. This module has links to other modules which contain related learning experiences – please refer to your specification.

Candidates may attempt more than one qualitative task with the best mark from this type of task being used to make up the overall mark for Unit G486.

### **Preparing for the assessment**

It is expected that before candidates attempt Practical Skills in Physics 2 (Unit G486) they will have had some general preparation in their lessons. They will be assessed on a number of qualities such as demonstration of skilful and safe practical techniques using suitable qualitative methods, the ability to make and record valid observations, and the ability to organise results suitably. It is therefore essential that they should have some advance practice in these areas so that they can maximise their attainment.

### **Preparing candidates**

At the start of the task the candidates should be given the task sheet.

Candidates must work on the task individually under controlled conditions with the completed task being submitted to the teacher at the end of the lesson. Completed tasks should be kept under secure conditions until results are issued by OCR.

Candidates should not be given the opportunity to redraft their work, as this is likely to require an input of specific advice. If a teacher feels that a candidate has under-performed, the candidate may be given an alternative task. In such cases it is essential that the candidate be given detailed feedback on the completed assessment before undertaking another Qualitative Task. Candidates are permitted to take each task **once** only.

### **Assessing the candidate's work**

The mark scheme supplied with this pack should be used to determine a candidate's mark out of a total of 10 marks. The cover sheet for the task contains a grid for ease of recording marks. To aid moderators it is preferable that teachers mark work using red ink, including any appropriate annotations to support the award of marks.

### **Notes to assist teachers with this task**

Teachers must trial the task before candidates are given it, to ensure that the apparatus, materials, chemicals etc provided by the centre are appropriate. The teacher carrying out the trial must complete a candidate's task sheet showing the results attained, and retain this, clearly labelled, so that it can be provided to the moderator when requested.

### **Health and Safety**

Attention is drawn to Appendix E of the specification.

## NOTES FOR TEACHERS

### Introduction

This practical should be attempted by pupils who have understood the circular and oscillations module.

### Apparatus requirements (per pupil):

Stop watch

2 metre rules

Thread

30 cm rule

Scissors

### Notes

The equipment should be laid out on the bench ready for the candidates to use and should **not** be assembled prior to use by the candidates.

Teachers should ensure that the correct mode of oscillation is used. Pupils should not be penalised at this stage.

Pupils should be able to choose their own values of  $a$  and  $b$ .

Any help provided should be recorded on the individual pupil's work.

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