

Advanced Subsidiary GCE

G483

PHYSICS A

Unit G483: Practical Skills in Physics 1:
Qualitative Task

Specimen Task

For use from September 2008 to June 2009.

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

INFORMATION FOR CANDIDATES

- Qualitative Task: Investigation into how the stability of a plastic bottle changes with the volume of water contained within it.

INFORMATION FOR TEACHERS

- Mark scheme.
- Instructions for Teachers and Technicians.

SPECIMEN

Advanced Subsidiary GCE

G483

PHYSICS A

Unit G483: Practical Skills in Physics 1:
Qualitative Task

Specimen Task

For use from September 2008 to June 2009.

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	

Part	Max.	Mark
TOTAL	10	

This task consists of **6** printed pages.

Introduction

In this experiment, you will investigate how the angle at which a bottle containing water tips over changes with the volume of water in the bottle.

When an object is tilted, it will tip over if a vertical line through the centre of gravity falls just outside the point at which the object tips. See Fig 1.1.

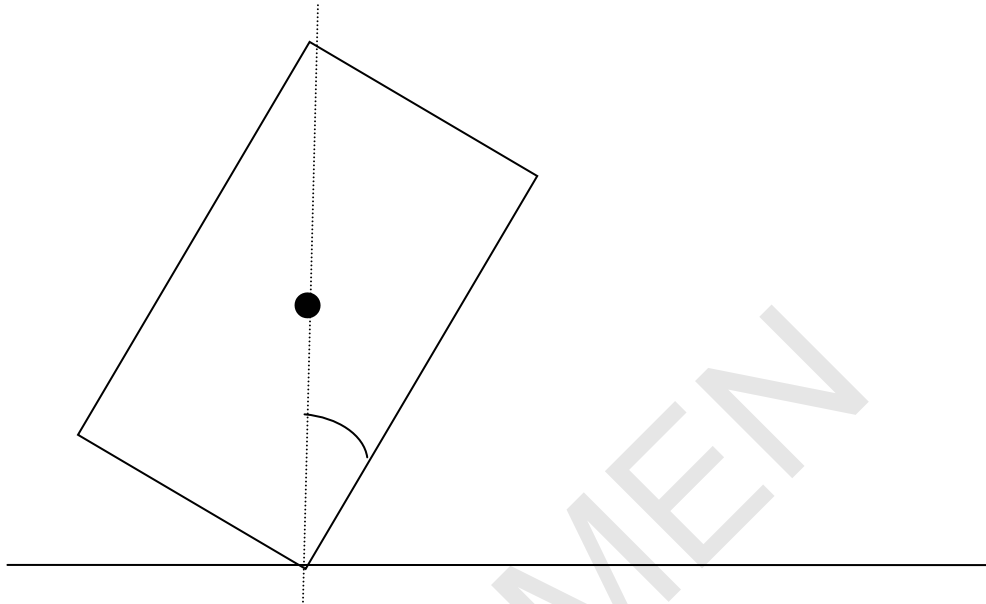


Fig 1.1

Equipment provided:

Plastic bottle of at least 500 ml

Beakers

Measuring cylinder (0-100 ml)

Tray

Tissue

Equipment to make a plumb line

Adhesive tape

Plain paper

Protractor, Set Square

You may need to ask your teacher for extra equipment.

Procedure:

You have been given a plastic bottle. You need to investigate how the angle to the vertical at which the bottle is just on the point of tipping over varies with the volume of water contained in the bottle.

2 Record your observations. Give details of the method you use to obtain them.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

[3]

SPECIMEN

Copyright Acknowledgements:

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (OCR) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest opportunity.

OCR is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.

© OCR 2007

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

For use from September 2008 to June 2009.

SPECIMEN

	Answer	Max Mark
	Strand A: Quality 1	
1	Describes clearly and carries out an appropriate experiment as judged by the teacher, including a risk assessment of relevant points.	[2]
2	Uses a suitable method to measure accurately the volume of water and carries out experiment for at least six different volumes of water using at least 80% of the volume of the container).	[2]
3	Determines the tipping angle correctly and communicates how this was done.	[1]
	Strand B: Quality 1	
1	Describes the qualitative observations clearly, showing evidence of repeating each measurement and determining the average position.	[2]
2	Discusses with appropriate justification whether there is a proportional relationship; Supports the observations by good knowledge and understanding of physics (e.g. explains observations in terms of the change in the position of the centre of gravity in a structured way.)	[3]
	Total	[10]



OXFORD CAMBRIDGE AND RSA EXAMINATIONS

Advanced Subsidiary GCE

PHYSICS A

G483 MS

Unit G483: Practical Skills in Physics 1: Qualitative Task

Instructions for Teachers and Technicians

For use from September 2008 to June 2009.

SPECIMEN

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 G483.

Preparing for the assessment

It is expected that before candidates attempt Practical Skills in Physics 1 (Unit G483) 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 definition of centre of gravity.

Apparatus requirements (per student):

Plastic bottle of at least 500 ml

Beakers

Measuring cylinder (0-100 ml)

Tray

Tissue

Equipment to make a plumb line

Adhesive tape

Plain paper

Protractor, Set square

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.

Pupils should be able to choose how they wish to measure the volume of water and determine the tipping angle.

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

BLANK PAGE

SPECIMEN