



For Assessment Submission in June 201X

**GCSE TWENTY FIRST CENTURY SCIENCE
FURTHER ADDITIONAL SCIENCE A A194/INST**

Practical Investigation
Resolution

**CONTROLLED ASSESSMENT
INFORMATION FOR TEACHERS**

This assessment will be changed every year. Please check on OCR Interchange that you have the Controlled Assessment material valid for the appropriate assessment session.

- This document is confidential to teachers and must not be released to candidates.
- For details of the level of control required for this assessment refer to Section 5 of the specification.
- There are two documents provided for candidates for this Controlled Assessment task:
 - Information for candidates (1)** defines the topic of the investigation and places it into a relevant context. This should be issued to candidates at the start of the task.
 - Information for candidates (2)** provides some secondary data to supplement that which candidates collect for themselves. It should be issued to candidates only on completion of the data collection part of their investigation.
- The total number of marks for this Controlled Assessment task is **64**.
- Internally assessed marks **must** be submitted by 15 May.
- This Controlled Assessment task is valid for submission in the June 201X examination series only.
- This document consists of **8** pages. Any blank pages are indicated.

Teachers are responsible for ensuring that assessment is carried out against the Controlled Assessment set for the relevant examination series (detailed above).

Assessment evidence produced that does not reflect the relevant examination series will not be accepted.

Introduction

This 'Information for teachers' is confidential and must not be released to candidates.

Two Practical Investigation tasks are available as Controlled Assessment for submission in the June 201X examination series for each of:

- Biology A Unit A164
- Chemistry A Unit A174
- Physics A Unit A184.

All six are also available as Controlled Assessment for Additional Science A Unit A154 or Further Additional Science A Unit A194 in the June 201X examination series.

These tasks are not valid for submission in any other examination series.

The Practical Investigation tasks which are available for submission in the June 201X examination series are:

- Additional Science A Unit A154 / Biology A Unit A164 / Further Additional Science A Unit A194
 - First Biology task title
 - Second Biology task title
- Additional Science A Unit A154 / Chemistry A Unit A174 / Further Additional Science A Unit A194
 - First Chemistry task title
 - Second Chemistry task title
- Additional Science A Unit A154 / Physics A Unit A184 / Further Additional Science A Unit A194
 - Resolution
 - Second Physics Task.

This document gives information about the Practical Investigation task for Additional Science A Unit A154 / Physics A Unit A184 / Further Additional Science A Unit A194:

Task title: Resolution

Each candidate for Controlled Assessment in the June 201X examination series must present marks for one of the Practical Investigation tasks that is appropriate to the applicable specification. All internally assessed marks must be submitted by 15 May.

The marked work of all candidates must be retained by the centre. Some of the work will be required for moderation.

General guidance for teachers

These notes provide background information for the preparation of candidates for these tasks and advice on the assessment of the Practical Investigation report.

Reference should also be made to Section 5 of the specifications for Additional Science A or Physics A or Further Additional Science A and to the *Guide for Controlled Assessment for GCSE Twenty First Century Science*.

Task setting is under high control. Tasks are therefore set by OCR. Where appropriate, tasks may be contextualised by individual centres to take account of local circumstances, including availability of resources and the needs of candidates. However, assessments must be based on the published marking criteria (within Section 5 of the specification). If there is any doubt about whether a contextualised task still sufficiently matches the task and criteria, centres should seek confirmation from OCR that the task is still valid.

Preparation of candidates

It is expected that before candidates attempt a Controlled Assessment task they will have received general preparation in their lessons. Learning activities to develop the relevant skills should have been provided and the broad requirements of the assessment made clear to candidates.

More specific details of practical techniques, the development of skills associated with these techniques, and possible methods and choice of equipment for the task should be covered when teaching the relevant part(s) of the specification, and must be completed prior to setting the task.

From their work for Module P7.2: Light, Telescopes and Images they should be familiar with ideas of properties of lenses. The information for Candidates (1) presents a simple description of resolution. From Module P7.3: Mapping the Universe candidates should be familiar with small angles expressed in arcseconds.

Assessment of the quality of written communication (QWC)

The quality of written communication is assessed in Strands S and R of this Controlled Assessment task. Candidates should be advised that the quality of their written communication will be assessed. Further information about the assessment of QWC may be found in the specifications.

Risk assessment

It is the centre's responsibility to ensure the safety of all candidates. Teachers are responsible for making their own risk assessment for the task prior to candidates attempting the practical work, and for ensuring that appropriate health and safety procedures are carried out. However, teachers must not provide candidates with a risk assessment since this is included in the marking criteria for Aspect S(b). If candidates require additional guidance on managing safety once the task has started then this will need to be reflected in the marks awarded.

Guidance on assessment

All assessment of the Practical Investigation Controlled Assessment is based on the final report submitted by the candidates.

The marking procedure and marking criteria are described in detail within Section 5 of the specification. Marking decisions should be recorded on the respective cover sheets (available to download from www.ocr.org.uk and included in the *Guide for Controlled Assessment for GCSE Twenty First Century Science*). Candidates' reports should be annotated to show how marks have been awarded in relation to the marking criteria.

Additional guidance on marking criteria

Detailed guidance on applying the marking criteria will be found in the *Guide for Controlled Assessment for GCSE Twenty First Century Science*.

The following additional brief notes provide some clarification of what may be expected from candidates in some strands. However, all marking decisions must be consistent with the marking criteria.

Note: A candidate who finds a variable has no significant effect (e.g. temperature on pressure in a liquid) can still obtain the highest marks.

Strand S

Reference should be made to the appropriate science in Module P7.2: Light, Telescopes and Images.

Quality of written communication is assessed in this strand.

Strand R

Reference should be made to the appropriate science in Module P7.2: Light, Telescopes and Images.

Quality of written communication is assessed in this strand.

Guidance for technicians and teachers

Task title: Resolution

Candidates plan their own investigations and may therefore require access to other apparatus at the discretion of the centre.

Teachers are advised to check that the range of apparatus provided will enable candidates to plan and carry out appropriate experiments to collect valid data.

Candidates are likely to investigate the effects of distance, object separation or aperture. Atmospheric effects may be modelled with suspensions in water. Wavelength is a significant factor, but centres are not expected to have apparatus available to allow this to be investigated.

Candidates may want to use lens power as a variable (perhaps using a range of lenses rather than the human eye). Although this is unlikely to give them any relationship, full marks can still be obtained for showing that there is no relationship.

Apparatus suggested:

light sources (including ones with dimmer controls)

rulers, protractors, tape measures

card, scissors, pens and Post-it notes (or equivalent)

water baths + milk/Dettol

(various lenses and holders)

Notes

1. Opaque card with different size openings can be used to reduce the aperture of the eye. This provides a faster method than adjusting light levels in the room and estimating the aperture of the pupil.
2. Alternatively lenses of different diameter and the same power allow aperture to be investigated.

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