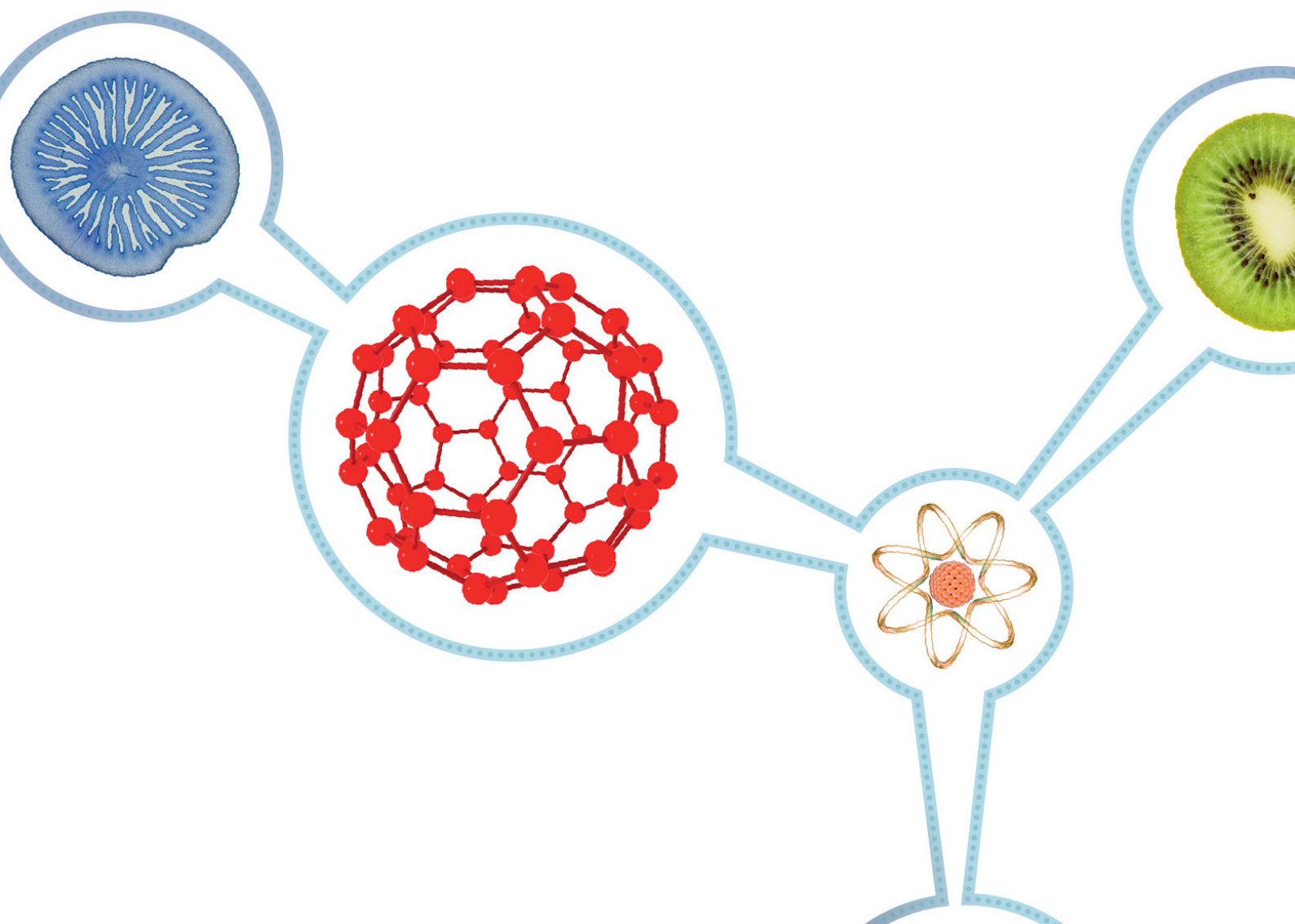


ADDITIONAL APPLIED  
SCIENCE  
**GUIDE TO  
CONTROLLED  
ASSESSMENT**

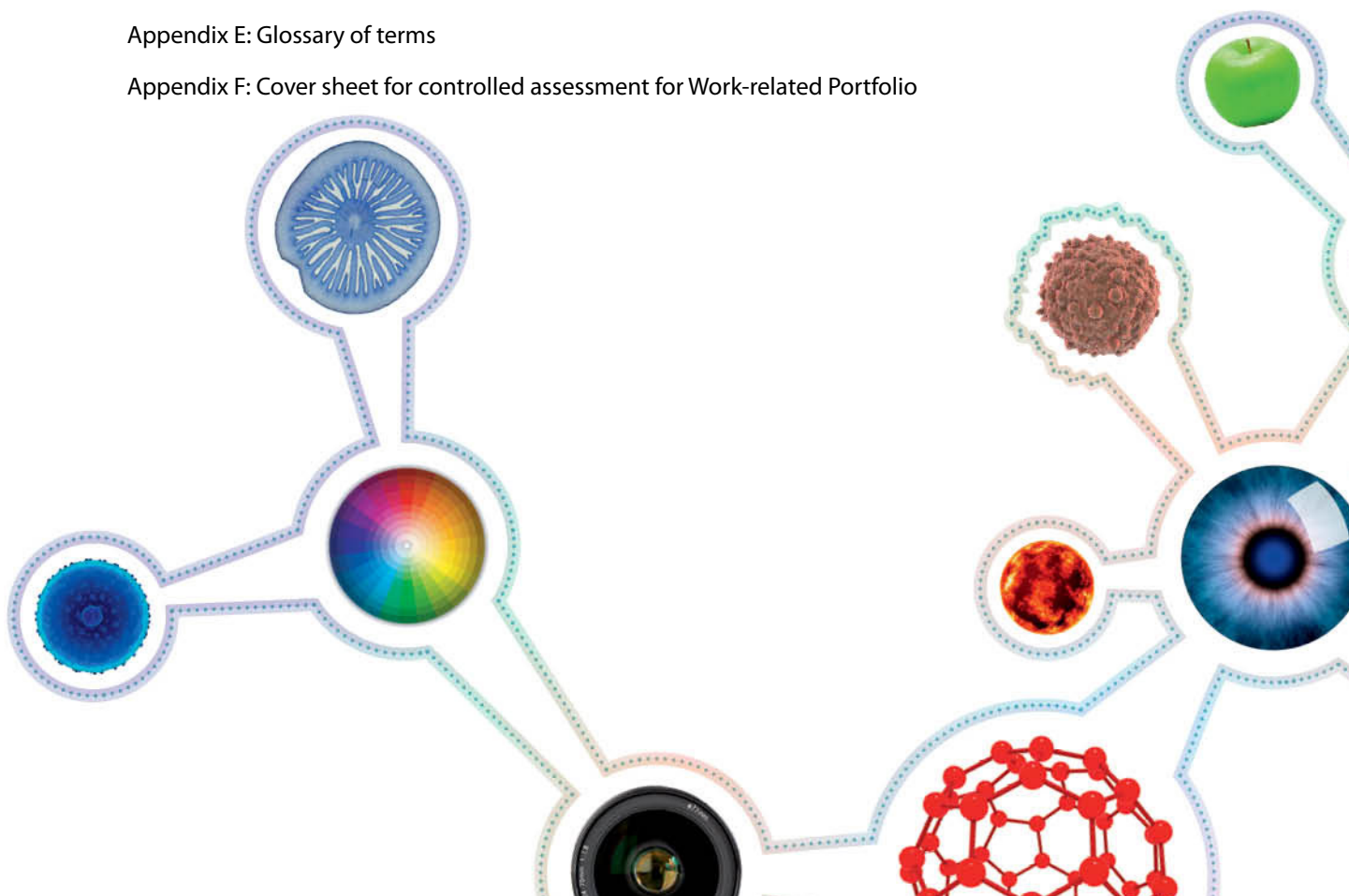
VERSION 1 SEPTEMBER 2012

This Guide provides detailed information for teachers about how to manage controlled assessment. Some of the information applies to all GCSE subjects and some information provides subject specific guidance. It is important to make the point that this Guide plays a secondary role to the Specification itself. The Specification is the document on which assessment is based and specifies what content and skills need to be covered in delivering the course. At all times, therefore, this teacher support should be read in conjunction with the Specification. If clarification on a particular point is sought then that clarification should be found in the Specification itself.



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## SECTION A

## INTRODUCTION

**WHAT IS CONTROLLED ASSESSMENT?**

Controlled assessment is a new form of internal assessment. Following a coursework review by QCA, controlled assessment has been introduced as part of nearly all new GCSEs, to replace coursework.

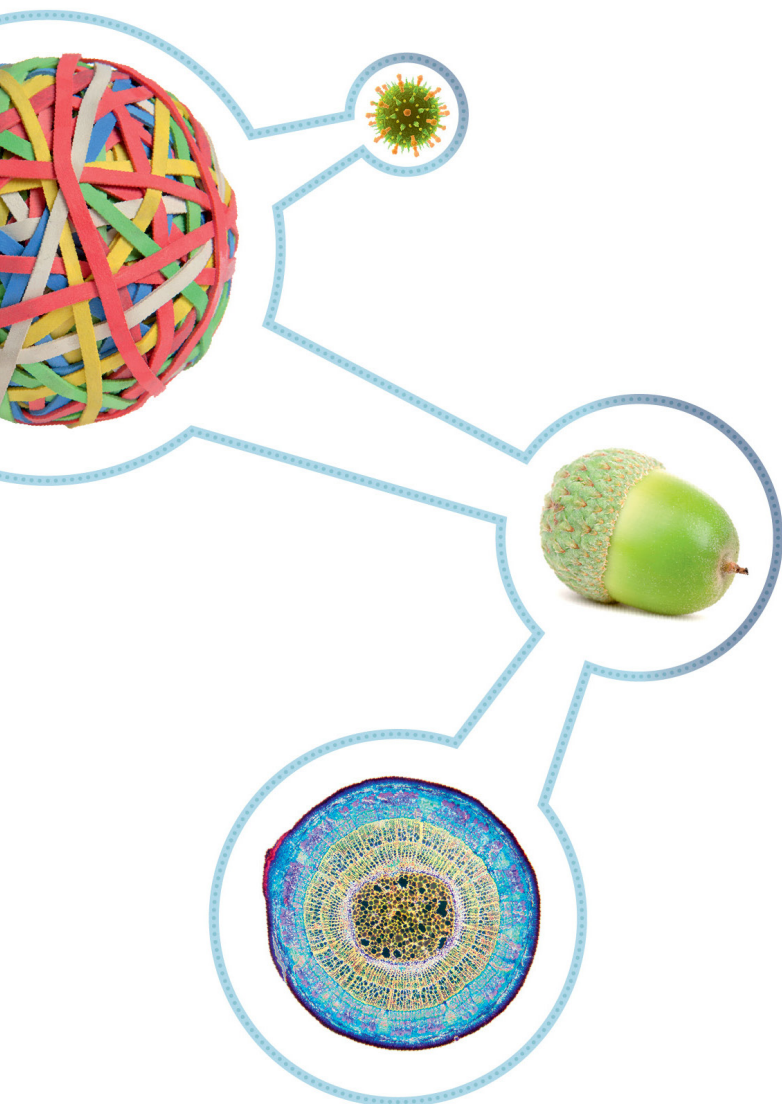
High, medium or limited control levels are set for each of the controlled assessment processes: task setting, task taking and task marking. For each stage, the level of control will ensure reliability and authenticity, and make assessments more manageable for teachers and candidates.

Weighting of controlled assessments is defined by QCA subject criteria and for Additional Applied Science will be 60% of the total assessment.

**WHAT DOES 'CONTROL' MEAN?**

QCA has produced guidance for the levels of controls as follows:

- High level of control – Candidates work independently under formal supervision. The teacher support that is allowed is clearly indicated together with how this should be recorded. Resources available to candidates are specified and the use of materials from other sources is tightly prescribed. Approximate duration of the tasks is defined.
- Medium level of control – Candidates work under informal teacher supervision at all times. The work of individual candidates may be informed by working with others but candidates must provide an individual response. Guidance on appropriate time limits is given.
- Limited level of control – Candidates complete work under limited supervision; this can include working away from the centre without direct supervision. Clear guidance on the requirements of the assessment, including the use of methods and materials from other sources, are clearly specified. Candidates may work with others but must provide an individual response. The teacher support that is allowed is clearly indicated together with how this should be recorded. Guidance on appropriate time limits is given.



## SECTION B

# SUMMARY OF THE CONTROLLED ASSESSMENT UNIT (A193)

The controlled assessment in Unit A193 comprises three elements:

- Standard Procedures
- Suitability Test
- Work-related Report.

For each candidate, the three elements together form a Science Work-related Portfolio which will be submitted in May following the completion of the Additional Applied Science course.

This assessment will contribute 60% of the GCSE Additional Applied Science qualification and will be marked out of a total 120 marks, using marking criteria supplied by OCR.

For each element, centres will choose from a number of tasks offered by OCR and drawn from the content of the specification. The task titles are valid for **two years** and are available on the OCR Interchange from June 2011.

Candidates can resubmit parts of their coursework unimproved and link it with another new task, e.g. a candidate could decide to do another of the Suitability Tests and submit it along with the previous unimproved Work-related Report and Standard Procedures. But the centre would have to make sure the tasks are still valid for the session they are to be submitted.

## STANDARD PROCEDURES

This element involves the completion of **four** standard procedures selected from **eight** provided by OCR. Each procedure is linked to the content of either Unit A191, Science in Society, or Unit A192, Science of Materials and Production. The specific link to the topic of the specification is written in the teachers' guidance, under the task title.

OCR will also provide information for the candidates on the Standard Procedures. This will comprise the task; information to contextualise the procedure; and information on the evidence the candidates will need to provide for their portfolio.

The centres will be expected to supply candidates with the actual practical instructions they will need to follow.

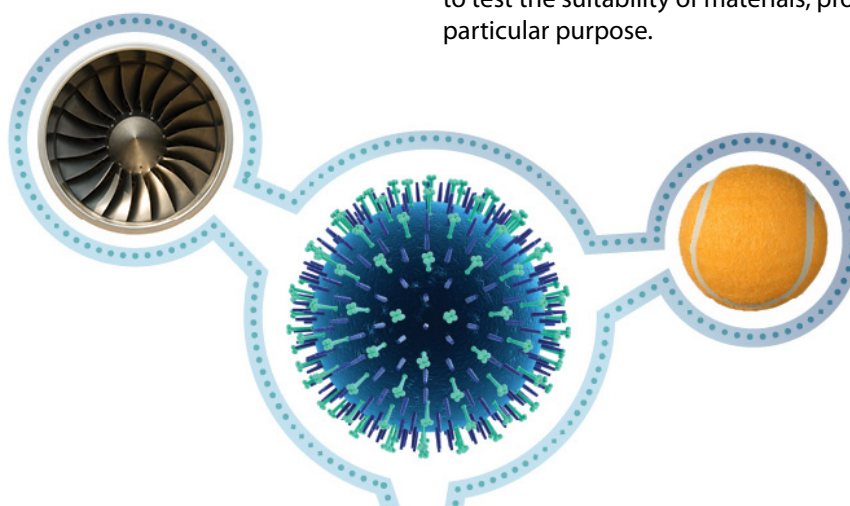
The centre can choose **any four** Standard Procedures. However, the controlled assessment task must not be used as practice material and then as the actual live assessment material. Centres can devise their own practice material using the OCR specimen controlled assessment tasks as guidance, if they wish to do so.

There is no limit to the number of Standard Procedures a candidate can complete. It will be possible to complete more than the required number of Standard Procedures and choose the best **four** for the final submission.

Each Standard Procedure is marked out of 6 marks, giving a total for this element of 24 marks. This will be marked by the centre using the Standard Procedure Marking Criteria supplied by OCR and externally moderated.

## SUITABILITY TEST

This element involves the completion of **one** Suitability Test selected from **three** provided by OCR. Each Suitability Test is linked to the content of either Unit A191, Science in Society, or Unit A192, Science of Materials and Production. The specific link to the content of the specification is supplied with each Suitability Test in the teacher's guidance, with supporting information on the practical work which they should have covered in their lessons prior to completion of the chosen Suitability Test. The candidates will be required to test the suitability of materials, procedures or devices for a particular purpose.



OCR will also provide information for the candidates on the Suitability Test. This will comprise the task; information to contextualise and support the test, and information on the evidence the candidates will need to provide for their portfolio.

The centre can choose any Suitability Test. However, the controlled assessment task must not be used as practice material and then as the actual live assessment material. Centres can devise their own practice material using the OCR specimen controlled assessment task as guidance, if they wish to do so.

There is no limit to the number of Suitability Tests a candidate can complete. It will be possible to complete more than the required number of Suitability Tests and choose the best **one** for the final submission.

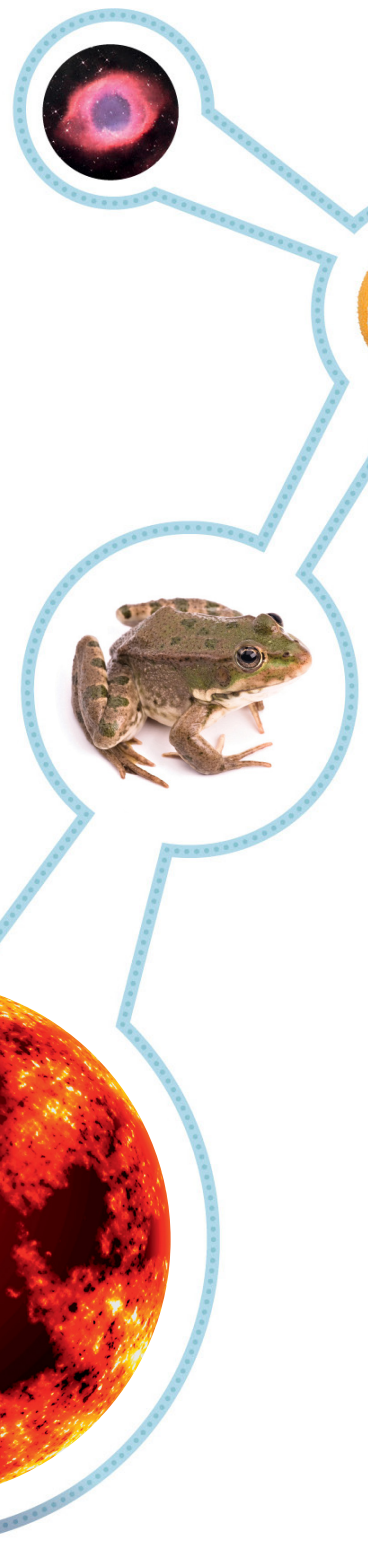
Each Suitability Test is marked out of 48 marks. This will be marked by the centre using the Suitability Test Marking Criteria, Strand A to Strand F, supplied by OCR and externally moderated.

### WORK-RELATED REPORT

This element involves the completion of **one** Work-related Report from the tasks provided by OCR. Organisations and job roles for study should be selected from the list provided by OCR but may be contextualised by candidates in discussion with the teacher, and should be seen as an extension or consolidation of studies undertaken as a normal part of the course.

OCR will also provide information for the candidates on the Work-related Report. This will comprise the task; general work-related information to contextualise the task, and information on the evidence the candidates will need to provide for their portfolio.

Each Work-related Report is marked out of 48 marks. This will be marked by the centre using the Work-related Report Marking Criteria, Strand A to Strand F, supplied by OCR and externally moderated.

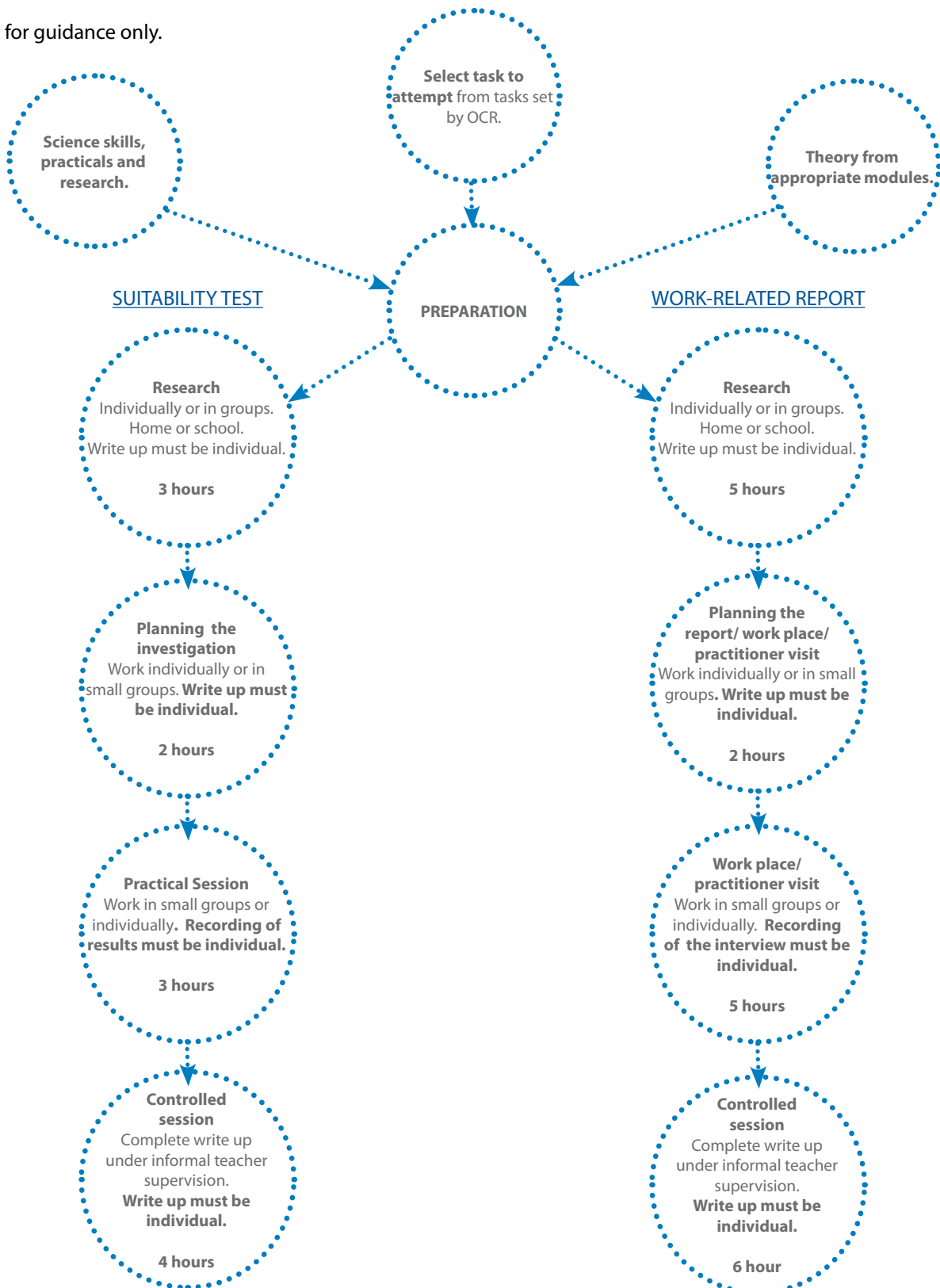


## SECTION C

# PLANNING AND MANAGING CONTROLLED ASSESSMENT

## FLOW CHART SHOWING HOW TO RUN A CONTROLLED ASSESSMENT FOR A WORK-RELATED PORTFOLIO (STANDARD PROCEDURES NOT INCLUDED)

Times are for guidance only.



**SECTION D****GUIDANCE ON THE RELEASE OF CONTROLLED ASSESSMENT TASKS TO CANDIDATES****CHOICE OF CONTROLLED ASSESSMENT TASK**

OCR will assume a high level of control in relation to the setting of tasks.

These tasks have been designed to meet the full assessment requirements of the unit. Candidates will need to take part in a planned learning programme that covers the underpinning knowledge and skills of the unit.

For each task, centres must choose from the task titles offered by OCR. Centres must ensure they submit the correct task in the correct series.

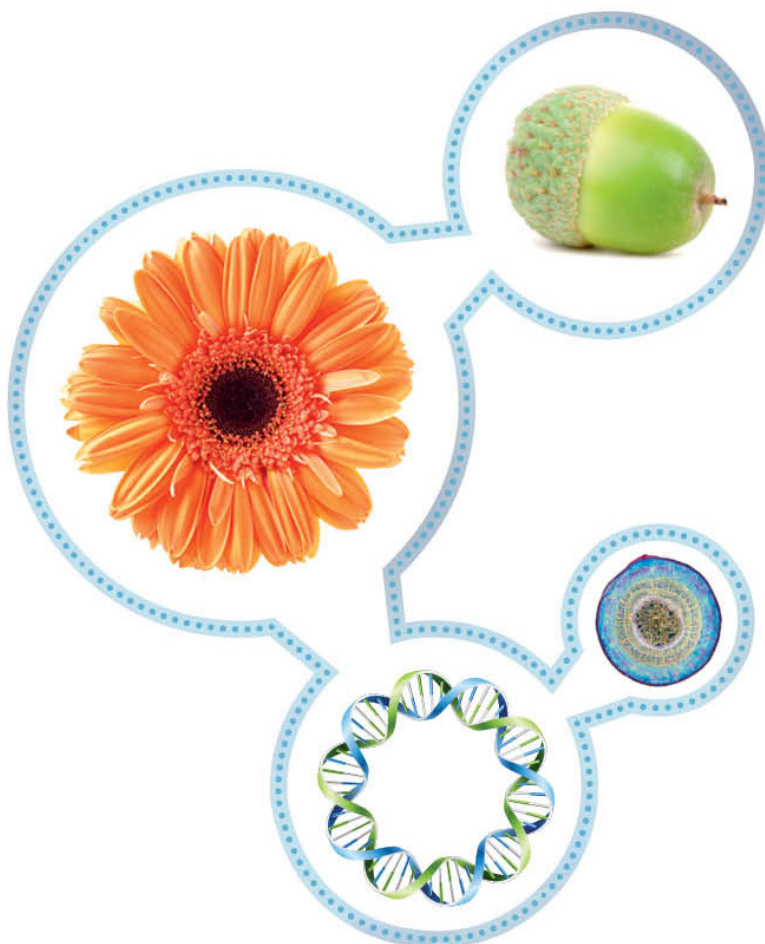
The same OCR controlled assessment tasks must NOT be used as practice material and then as the actual live assessment material. Centres should devise their own practice material using the OCR specimen controlled assessment tasks as guidance, if they wish to do so.

**WHEN AND HOW TO GIVE CONTROLLED ASSESSMENT TASKS TO CANDIDATES**

Controlled assessment tasks will be available from Interchange; teachers without direct access to Interchange should ask their Examinations Officer to download the task titles.

Controlled assessment task titles valid for two years will be available from Interchange. This is to enable effective management of practical work preparation and Health and Safety requirements.

It is the responsibility of the centre to ensure that the correct task titles are used, depending on when they plan to submit the candidates' work.





## SECTION E

# PREPARING AND MANAGING A WORK-RELATED PORTFOLIO

## PREPARATION FOR THE STANDARD PROCEDURES

The centre will need to provide opportunities for their candidates to perform the practical work involved in the Standard Procedure, and time to record and process results and to evaluate the way in which the risks were managed for their portfolio evidence. There is no requirement for all candidates to complete the same Standard Procedures or all candidates to be assessed at the same time. The candidates may carry out as many of the **eight** Standard Procedures as the centre wishes to use, any or all of which can be assessed by the centre. The final assessment total submitted to OCR for the candidate will be the mark for the **four** highest scoring Standard Procedures.

The centre is advised to assess each Standard Procedure, throughout the course, following the teaching and learning of the appropriate topic. It is therefore expected that before candidates attempt each Standard Procedure they will have received sufficient preparation of the knowledge and skills required. It is hoped that each centre should incorporate as much practical work as possible into their study programme. Centres are advised to use the teacher guidance for topic coverage given with the specific Standard Procedures, provided by OCR, to organise the planning of the teaching and learning before each assessment. When planning, lessons should be allocated to give candidates the opportunity to use appropriate laboratory facilities where required.

It is expected that each complete Standard Procedure will take **2 lessons or up to 2 hours** and will be completed under informal supervision. This means that the work of individual candidates may be informed by working with others, i.e. the candidates can carry out practical work in pairs or groups (it is advisable to limit group size to 3). Candidates, however, must provide independent written or word-processed evidence for their portfolio. Teachers may give generic, informal feed back while the task is being completed but may not indicate what candidates need to do to improve their work. Candidates should not be given the opportunity to redraft their work.

When supervising the tasks teachers are expected to:

- monitor candidates' progress and prevent plagiarism
- ensure compliance with Health and Safety requirements
- ensure work is completed in accordance with the specification requirements and can be assessed in accordance with the marking criteria.

If the activity spans more than one lesson, all work and USB memory sticks must be collected in and stored securely until the next lesson.

The following information may be used as guidance for teachers to support the teaching and learning of the candidates before they carry out Standard Procedures.

As preparation for the **practical task** the candidates will need to:

- be taught how to write and follow safely a risk assessment
- be aware of Health and Safety guidelines in practical work
- have confidence in the skills needed for the practical tasks to be assessed by the Standard Procedure
- have practice in following practical instructions
- be familiar with a Standard Procedure Candidate Task Sheet and a Standard Procedure (to be provided by the centre), that will provide the practical instruction.

As preparation for the **written assessment** evidence the candidates will need to:

- learn how to collect and record data from experimental procedures
- follow instructions to process data both graphically and using mathematical techniques (Appendix B Mathematics skills for GCSE science qualifications)
- understand how risks need to be managed
- be able to evaluate how risks are managed
- understand the requirements from the marking criteria needed in order to complete the portfolio evidence
- know the word control is **200 words** for each Standard Procedure and that footnotes, figures, tables, diagrams, charts and appendices are not included in the word count.

A suitable portfolio or work folder could be provided for each candidate, in which evidence of completion of each Standard Procedure can be kept. Candidates' access to resources is determined by those available to the centre.

## PREPARATION FOR THE SUITABILITY TEST

The centre will need to provide opportunities for their candidates to research and perform the practical work involved in the Suitability Test and time to produce a written report. There is no requirement for all candidates to complete the same Suitability Test or all candidates to be assessed at the same time. The candidates may carry out as many of the **three** Suitability Tests as the centre wishes to use, any or all of which can be assessed by the centre. The final assessment total submitted to OCR for the candidate will be the mark taken for the highest scoring Suitability Test.

The centre is advised to assess the Suitability Test at the appropriate time within the course following the teaching and learning of the associated topic coverage. It is expected that candidates will extend their knowledge and skills from the Standard Procedures so that they are suitably prepared to carry out the Suitability Test. This needs to be taken into consideration when planning the timings for this assessment.

It is hoped that each centre should incorporate as much practical work as possible into their study programme to ensure that candidates are suitably confident and have sufficient knowledge and understanding to be able to plan the experimental work and complete risk assessments.

Centres are advised to use the teacher guidance for topic coverage given with the Suitability Test provided by OCR to organise the planning of the teaching and learning before each assessment. When planning, lessons should be allocated to give candidates the opportunity to use appropriate laboratory facilities where required.

It is expected that the Suitability Test will take about **12 lessons or up to 12 hours**. This task is under medium control. This means that the research is done under limited supervision from the teacher i.e. the requirements are clearly specified, but some work may be completed without direct supervision from the teacher. The candidates are allowed to use the Internet for their research, but must record all sources used. The practical work, analysis of results and report writing is under informal supervision. This means that the work of individual candidates may be informed by working with others i.e. the candidates can carry out practical work in pairs or groups (it is advisable to limit group size to 3). Candidates, however, must provide independent written or word-processed evidence for their portfolio. Teachers may give generic, informal feed back while the task is being completed but may not indicate what candidates need to do to improve their work. Candidates should not be given the opportunity to redraft their work.

When supervising the tasks teachers are expected to

- monitor candidates' progress and prevent plagiarism
- ensure compliance with Health and Safety requirements
- ensure work is completed in accordance with the specification requirements and can be assessed in accordance with the marking criteria.

If the activity spans more than one lesson, all work and USB memory sticks must be collected in and stored securely until the next lesson.

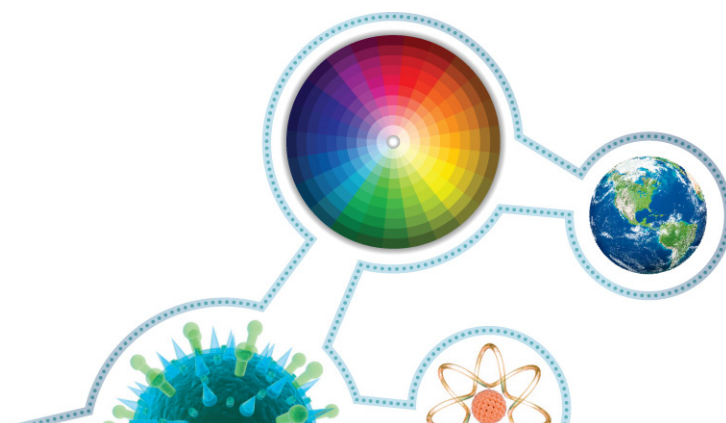
The following information may be used as guidance for teachers to support their planning of teaching and learning requirements of the candidates before they carry out a Suitability Test.

As preparation for the **research and planning** the candidates will need to:

- understand what is meant by secondary data
- learn how to research and use secondary data for a given purpose
- learn how to use and analyse researched data to provide information on the purpose of a Suitability Test
- revise and confirm how to write and follow safely a risk assessment
- learn how to use their knowledge to devise a suitable plan to test suitability.

As preparation for the **practical work** the candidates will need to be:

- aware of Health and Safety guidelines in practical work
- confident in the skills needed for the practical tasks and to know how to follow instructions
- able to select appropriate equipment
- familiar with a Suitability Test Candidate Task Sheet.



As preparation for **collecting, processing and analysing data** the candidates will need to:

- learn how to collect, devise suitable formats and record data from experimental procedures
- learn the techniques of processing data both graphically and using mathematical techniques (Appendix B Mathematics skills for GCSE science qualifications)
- have a knowledge of different types of errors
- know what is meant by anomalous results and how to analyse them
- understand what is meant by 'uncertainty' with reference to data collected
- understand how risks need to be managed
- understand the requirements from the marking criteria needed in order to complete the evidence for their portfolio.

As preparation for **evaluating and report writing** the candidates will need to:

- be able to evaluate work completed
- understand the terms validity and quality, linked to the evidence collected and to be able to evaluate evidence referring to these terms
- learn how to manage risks when using practical techniques
- learn how to present a scientific report
- understand the requirements from the marking criteria needed in order to complete the portfolio evidence
- know the word control is **1500 words** for the Suitability Test report and that footnotes, figures, tables, diagrams, charts and appendices are not included in the word count.

A suitable portfolio or work folder could be provided for each candidate, in which notes and portfolio evidence is kept. This will enable checks to be made on progress. Candidates' access to resources is determined by those available to the centre.

## PREPARATION FOR THE WORK-RELATED REPORT

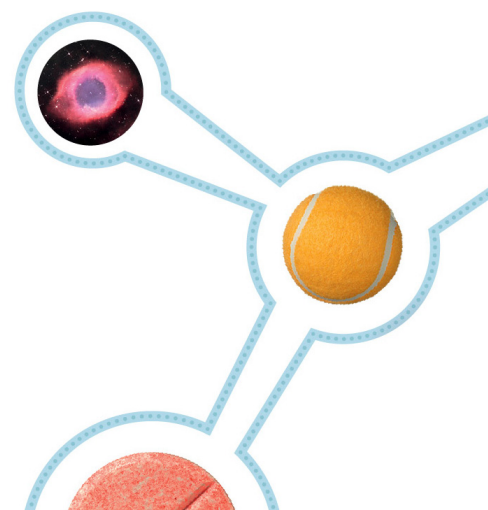
The centre will need to provide opportunities for their candidates to research, to take part in either a visit, interview, or listen to a practitioner and provide time to produce a written report. There is no requirement for all candidates to complete the same Work-related Report or for all candidates to be assessed at the same time. The candidates may carry out as many of the Work-related Reports as the centre wishes to use, any or all of which can be assessed by the centre. However, it is advisable to check timing when planning the task to ensure sufficient time is spent to produce **one**

report. The final assessment total submitted to OCR for the candidate will be the mark taken for the highest scoring Work-related Report.

The centre is advised to assess the Work-related Report at an appropriate time within the course following the teaching and learning of the associated topic coverage. Candidates will need experience in research techniques and report writing before they are confident to complete this task. This needs to be taken into consideration when planning the timings for this assessment.

Centres are expected to use the teacher guidance for the range of organisations and job roles given with the Work-related task provided by OCR to organise the planning of the teaching and learning before each assessment. When planning, lessons should be allocated to give candidates the opportunity to use appropriate research and computer facilities where required.

It is expected that the Work-related Report will take about **18 lessons or up to 18 hours**. This will include 5-6 hours allocated for a visit or talk/interview from a practitioner. This task is under medium control. This means that the research is done under limited supervision from the teacher, i.e. the requirements are clearly specified but some work may be completed without direct supervision from the teacher. The candidates are allowed to go on a visit or use a practitioner and use the Internet for their research, but must record all sources used. The report writing is under informal supervision. This means that the work of individual candidates may be informed by working with others but candidates must provide their own individual written or word-processed evidence for their portfolio. Teachers may give generic, informal feedback while the task is being completed but may not indicate what candidates need to do to improve their work. Candidates should not be given the opportunity to redraft their work.



When supervising the tasks teachers are expected to

- monitor candidates' progress and prevent plagiarism
- ensure compliance with Health and Safety requirements
- ensure work is completed in accordance with the specification requirements and can be assessed in accordance with the marking criteria.

If the activity spans more than one lesson all work and USB memory sticks must be collected in and stored securely until the next lesson.

The following information may be used as guidance for teachers to support their planning of teaching and learning requirements of the candidates before they carry out a Work-related Report.

As preparation for the **collecting of primary and secondary data** the candidates will need to:

- understand what is meant by primary data
- be aware of questions which need to be asked when going on a visit or interviewing a practitioner
- learn how to reference sources accurately
- understand what is meant by secondary data
- learn how to select and use secondary data for a given purpose.

Candidates will cover specific information for this section when they study the People and organisations section in the specification. It is therefore important that this is sufficiently linked with this work needed for the Work-related Report. As preparation for their **individual research** on their chosen organisation and job roles the candidates will need to:

- understand the structures of organisations and the roles of employees
- learn how various job roles and organisations fit into the wider picture
- understand the reasons for the location of organisations and the effects of different organisations on society
- be able to identify technical skills that are used in the work place
- know where to find the qualifications needed and personal qualities required for different job roles
- have been taught the science involved
- be aware of the technical skills needed
- learn about the impact of financial and regulatory factors
- be familiar with a Work-related Report Candidate Task Sheet and the list of organisations provided.

As preparation for **presenting their Work-related Report** the candidates will need to:

- learn how to present a scientific report
- investigate the use of visual material to support text
- be aware of the requirements to support quality of communication
- understand the requirements from the marking criteria needed in order to complete the portfolio evidence
- know the word control is **1500 words** for the Work-related Report and that footnotes, figures, tables, diagrams, charts and appendices are not included in the word count.

A suitable portfolio or work folder could be provided for each candidate, in which notes and portfolio evidence is kept. This will enable checks to be made on progress. Candidates access to resources is determined by those available to the centre.

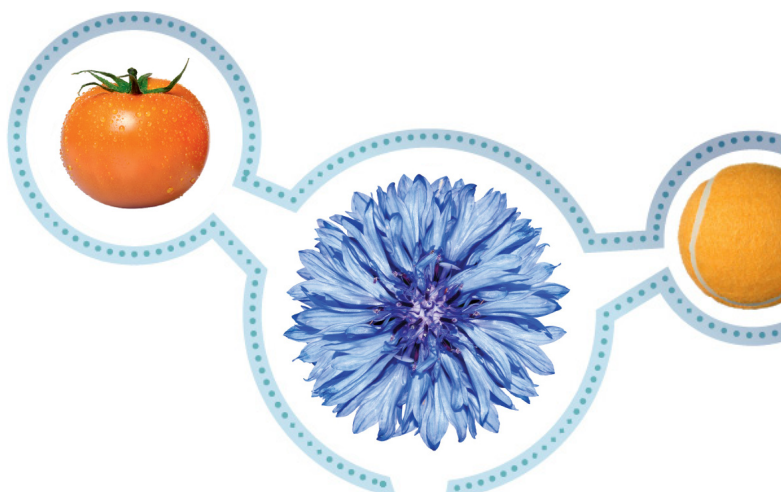
### CONTROLLED ASSESSMENT TASK SECURITY

It is the responsibility of the centre to ensure that downloaded controlled assessment task titles and candidates' scripts are stored securely. Any breach in security must be reported to OCR as soon as possible by submitting a written report (a blank report form is available on Interchange) from the Head of the Centre to the OCR Quality and Standards Division detailing the circumstances, the candidates concerned and any action taken.

Candidates' scripts for all completed controlled assessment must be stored securely and they should be available for moderation.

### CANDIDATE ABSENCE AT THE TIME OF ASSESSMENT

If a candidate is absent from a centre when an assessment is carried out, the controlled assessment task may be set at an alternative time provided that the centre is satisfied that security has been maintained by keeping all materials secure.



## UNEXPECTED CIRCUMSTANCES

If an unexpected problem (such as a fire alarm or other circumstance beyond the teacher's control) occurs while a controlled assessment task is taking place, the task may be resumed subsequently provided the teacher ensures that no candidate is likely to have been advantaged or disadvantaged by doing so.

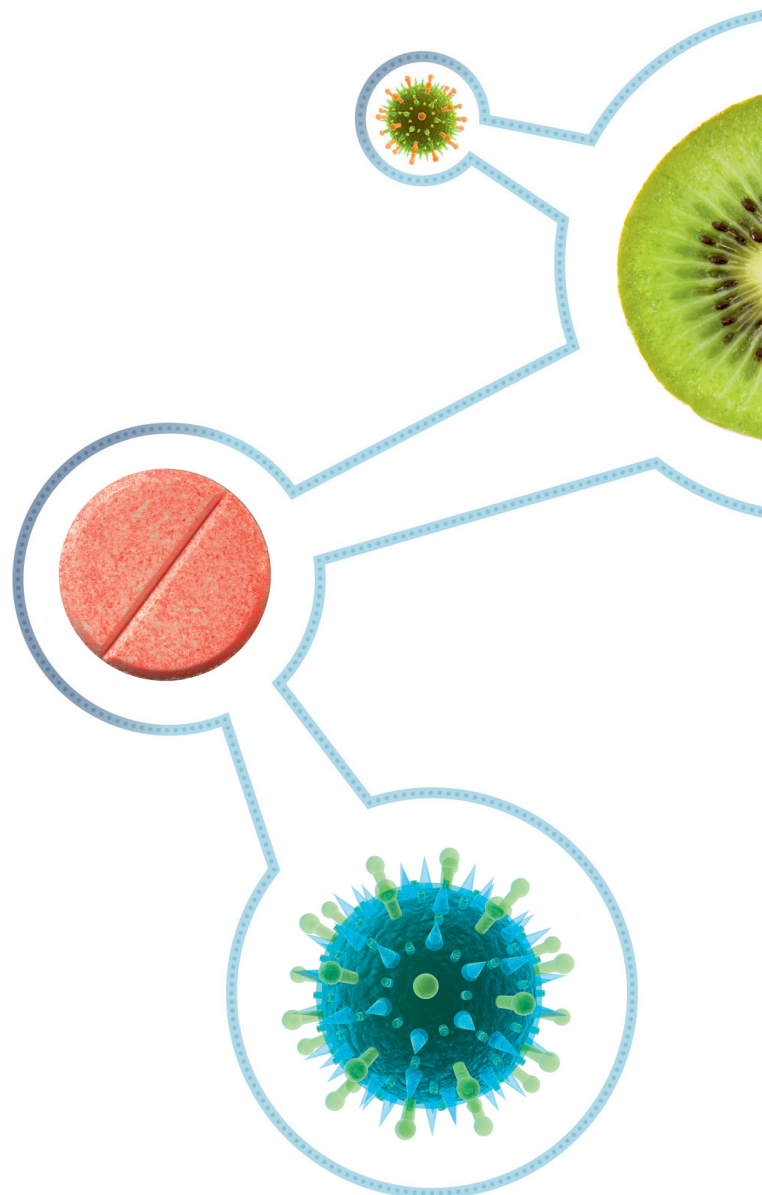
## REFERENCING OF RESEARCH SOURCES

Candidates must also be guided on the use of information from other sources to ensure that intellectual property rights and any confidentiality issues are maintained at all times. It is essential that any material directly used from a source is appropriately referenced, and candidates should learn how to reference information sources using one of the accepted conventions.

While, for scientific writing, the Harvard System is usually the preferred convention, candidates may find the use of the Vancouver System more conducive to their referencing of information sources, as it uses a numbering system sequential in the report.

	Harvard System	Vancouver System
referred to in text	text (author[s], year)	text [numbered reference – 1, 2, 3, etc]
cited in list of references	Author[s] (date). Title of book. Publisher.  The references are listed in alphabetical order, according to the authors.	1. Author(s). Title of book. Publisher: Date.  The references are listed in the order in which they are used.

Candidates should be encouraged to write out the URLs of websites in full. If it is not possible to indicate a date of publication of material on a website, then the date the website was accessed should be indicated in the list of references.



## SECTION F

## TEACHER GUIDANCE ON TASK MARKING

## GENERIC GUIDANCE ON HOW TO MARK CONTROLLED ASSESSMENT TASKS

The starting points for marking the tasks are the relevant Marking Criteria Grids. For Additional Applied Science there are separate marking grids for each controlled assessment task. These contain levels of criteria for the skills, knowledge and understanding that the candidate is required to demonstrate. Before the start of the course, and for use at INSET training events, OCR will provide exemplification through real or simulated candidate work, which will help to clarify the level of achievement the assessors should be looking for when awarding marks.

The tasks are to be marked using the relevant marking grids, the Standard Procedures will be marked out of 24 marks, the Suitability Test out of 48 marks and the Work-related Report out of 48 marks. When these are combined a total mark out of 120 is awarded.

The assessment task(s) for each unit should be marked by the teacher according to the given marking criteria within the relevant unit using a 'best fit' approach. For each aspect of performance, one of the four band descriptors provided in the marking grid that most closely describes the quality of the work being marked should be selected. When each aspect of the performance within a strand has been assessed in this way, an average within the strand is calculated using standard mathematical averaging i.e. 4.5 rounds up to 5 and 4.4 rounds down to 4.

Marking should be positive, rewarding achievement rather than penalising failure or omissions. The award of marks must be directly related to the marking criteria.

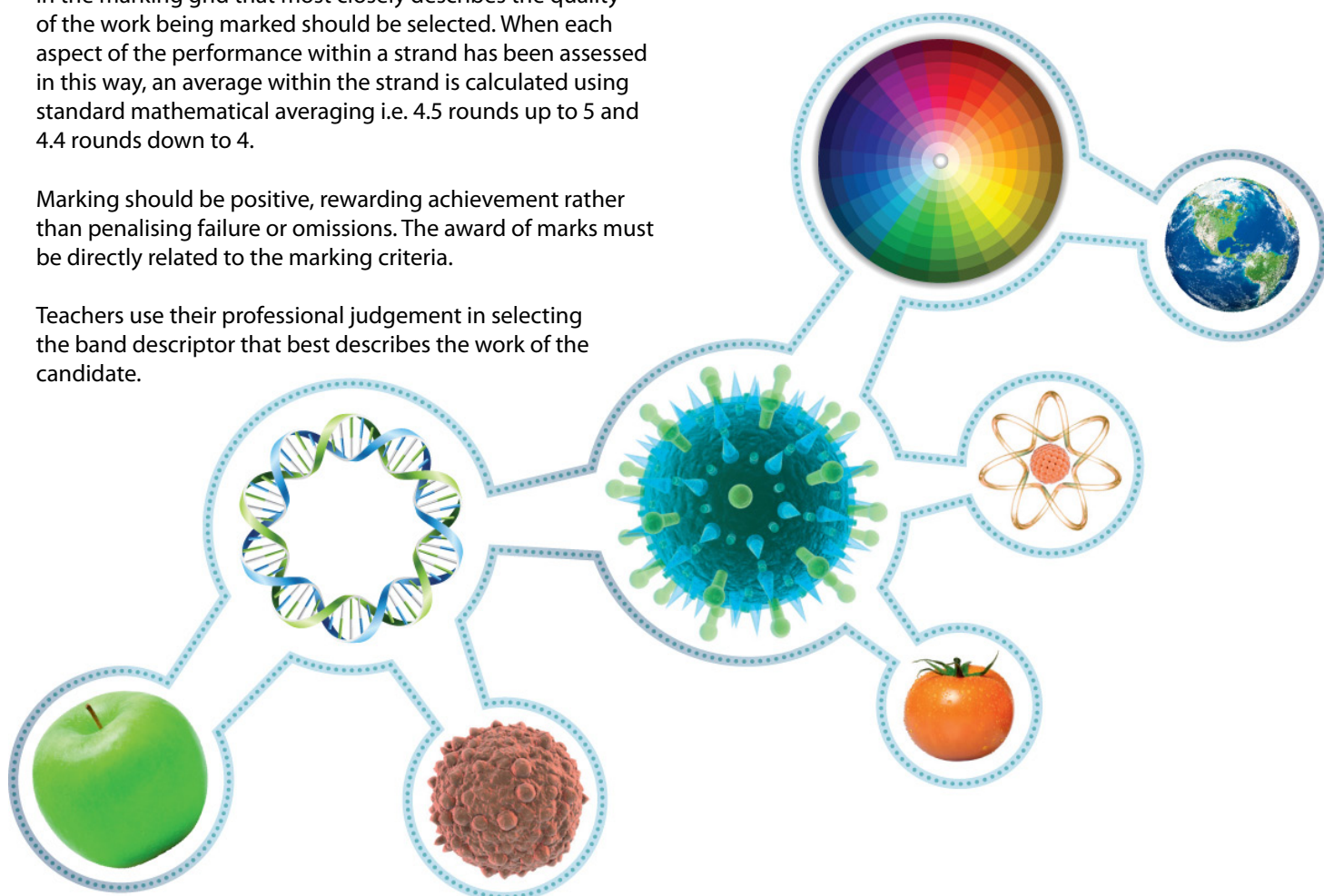
Teachers use their professional judgement in selecting the band descriptor that best describes the work of the candidate.

Centres should use the full range of marks available to them; centres must award full marks in any band for work that fully meets that descriptor. This is work that is 'the best one could expect from candidates working at that level'.

Only one mark per assessment objective/criteria will be entered. The final mark for the candidate for the controlled assessment unit is out of a total of 120 and is found by totalling the marks for each of the marking criteria strands.

## INTERPRETATION OF THE CONTROLLED ASSESSMENT MARKING CRITERIA

For GCSE in Additional Applied Science, OCR will assume medium level of control in the marking of the tasks. The three elements of controlled assessment will be marked by the centre assessor(s) using the awarding body marking grids available in the specification. There are separate marking criteria for each element. A sample of the candidates' work will be externally moderated by an OCR appointed moderator during the June assessment series. The external moderation will be postal or through the OCR repository (see details of appropriate formats in the specification).



## STANDARD PROCEDURE (0-6 MARKS FOR EACH PROCEDURE)

Teachers are advised to read the guidance given in the specification section 5.5 Task marking. Specifically, section 5.5.3 Use of the 'best fit' approach to marking grids, gives detailed guidance on marking decisions.

### (a) collect primary data

1-2	Candidates working at these lower levels will have possibly collected one or two pieces of data and will have recorded them in a table which can be provided by the centre. There may be some errors or inaccuracies in their recording. At least one piece of data needs to be recorded correctly.
3-4	Candidates will have collected a range of data from the procedure and will have recorded it appropriately in a format which can be provided by the centre. Minimal errors or inaccuracies may be seen, e.g. omission of units /inconsistent significant figures.
5-6	Candidates will have collected all data that is required by the procedure and will have recorded it accurately in a format which can be provided by the centre. There should be no errors for 6 marks.

### (b) process primary data

1-2	Candidates working at these lower levels will probably display data in simple bar charts or if graphs are shown there will be errors in plotting and lack of labels on axes. A result from a basic mathematical technique may be seen, e.g. a simple mean or a subtraction in finding a yield.
3-4	Candidates working at this level will draw line graphs but there will be some errors in scales, plotting or drawing the line of best fit. Answers from mathematical techniques will be seen but will possibly show some errors.
5-6	Candidates will produce well-drawn line graphs with appropriate lines of best fit, axes will be labelled and appropriate scales will be chosen. Mathematical techniques will be correctly carried out with answers clearly and accurately presented.

### (c) manage risks when carrying out standard procedures

1-2	Candidates will make simple comments about taking care when handling equipment, chemicals or biological material. The statements will probably be generic and be basic laboratory safety.
3-4	Candidates will identify the hazards involved with the use of equipment, chemicals or biological material, they will include some risks and will suggest some precautions to minimise these.
5-6	Candidates will produce information on potential hazards and whether they are high or low risk and the steps which were made in order to minimise these risks.

Candidates should produce a risk assessment for this strand. For 3-4 marks this must include how the risks are managed and for 5-6 marks this needs to be supported by a critical evaluation of how the risks are managed.

## SUITABILITY TEST

Teachers are advised to read the guidance given in the specification section 5.5 Task marking. Specifically, section 5.5.3 Use of the 'best fit' approach to marking grids, gives detailed guidance on marking decisions.

### Strand A: Researching the purpose of the test

#### (a) Collect and process secondary data

The aim of this strand is for candidates to demonstrate that they can collect and use secondary data to describe the purpose of the material (or substance) or process or device and its relevance in the workplace context.

Lower level 1-4 marks	Candidates will produce some research which is relevant to the task but it will not be logically presented. For the lower marks there will also be irrelevant material. Some description of the use or purpose will be stated.
Higher level 5-8 marks	Candidates will have selected suitable research, it will be well presented and easy to follow and a detailed description of the use or purpose will be included. Higher level marks will be awarded where candidates have been selective in only choosing relevant material and the description is detailed but precise.

**(b) Analyse and interpret secondary data**

The aim of this strand is for candidates to demonstrate that they can use secondary data to describe the desirable properties of the material (or substance) or process or device and explain their relevance.

Lower level 1-4 marks	Lower-marked candidates will produce some research which will include irrelevant material. Work will not be logically presented. Statements and limited description of the properties will be seen. There will be no link to the suitability of the material/process/device.
Higher level 5-8 marks	Candidates will have selected suitable research, and used it to give a description of the properties which will be studied in the Suitability Test practical work. Explanation of why one of these properties is necessary is needed for 5-6 marks. However, for higher level marks, the level of description needs to be detailed, logical and both or more of the explanations need to show high level understanding.

Lower level 1-4 marks	Candidates should make a simple comment about taking care when handling equipment, chemicals or biological material but without linking this to the appropriate risks. For 3-4 marks, identification of hazards will be included, but risk assessments will be lacking in detail.
Higher level 5-8 marks	Candidates will have identified significant risks, with some precautions to minimise these. Risk assessments will be workable documents.  Higher level candidates will be producing detailed and relevant risk assessments which include all potential hazards and the ways in which risks are minimised will be fully identified.

**(b) Devise methods to solve problems**

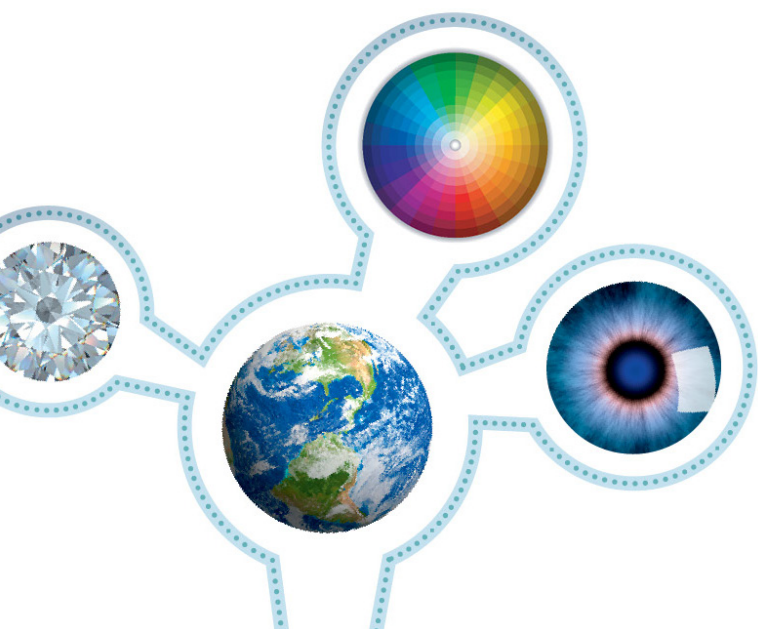
The aim of this strand is for candidates to show their ability to plan how they will organise experimental procedures to demonstrate suitability of their chosen material/device/procedure.

**Strand B: Planning and risk assessment**

**(a) Assess risks for the collection of data**

The aim of this strand is to assess how candidates can manage the risks for their experimental procedures. Candidates will need to write their risks assessments following completion of their planning.

Lower level 1-4 marks	Lower-marked candidates planning will be focused on one straightforward experimental procedure that they are aiming to carry out. For 3-4 marks, there will probably be information on planning possibly two procedures but most of the marks for planning work will be from description of methods which the candidates are going to use.
Higher level 5-8 marks	Candidates will need to be carrying out at least one complex procedure and their plan should be linking to the purpose of the suitability of the chosen material/procedure/device. Higher level candidates should be completing a range of experimental work to enable comparisons to be made, rather than repeating the same procedure. Planning should reflect this. Their plans need to include experimental work which will enable them to collect high quality data. 7-8 marks should indicate candidates have worked independently- centres can indicate this by annotating work.





**(c) Quality of written communication**

Quality of written communication will be assessed in this strand, alongside the science content in the planning section of this report.

<p>Lower level 1-4 marks</p>	<p>For 1-2 marks, candidates will use minimal scientific vocabulary and content. Work will not be structured and show limited focus on the task.</p> <p>3-4 marks will show some structure and some evidence of structured plan. (refer to marking criteria)</p>
<p>Higher level 5-8 marks</p>	<p>For 7-8 marks, higher level candidates will make full and effective use of scientific terminology, the plan will be organised effectively, relevant and logically-sequenced. It will be easy to follow and concise. (refer to marking criteria)</p>

<p>Higher level 5-8 marks</p>	<p>Candidates working at this level need to be given the opportunity to devise their own format for recording their data - centres can indicate this by annotating work.</p> <p>For 5-6 marks, candidates need to collect a range of data (from more than one experiment), with some evidence of repetition and generally of good quality. The data needs to be correctly recorded with minimal errors.</p> <p>For 7-8 marks, the data needs to show that it has been collected from an appropriate range of experimental work which supports the plan to demonstrate suitability. Data will be recorded accurately and to an appropriate degree of precision (see marking criteria).</p>
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**Strand C: Collecting data****(a) Collect primary data**

The aim of this strand is for candidates to collect and record sufficient data to support their experimental procedures to demonstrate suitability of their chosen material/device/procedure.

<p>Lower level 1-4 marks</p>	<p>For 1-2 marks, candidates will have collected one or two pieces of data and recorded this in a table provided by the centre. It will be of low quality and will reflect the completion of minimal practical work.</p> <p>For 3-4 marks, candidates need to show evidence of collection and recording of data from all their completed experimental work. There may be some errors or omissions in the recording.</p>
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**Strand D: Processing and analysing data****(a) Process primary data**

The aim of this strand is for candidates to demonstrate that they can process and use the data they have collected.

<p>Lower level 1-4 marks</p>	<p>For 1-2 marks, candidates working at these lower levels will probably display data in simple bar charts, or if line graphs are shown, there will be errors in plotting and lack of labels on axes. Alternatively, a result from a basic mathematical technique may be seen, e.g. the calculation of a simple mean.</p> <p>For 3-4 marks, candidates working at this level may draw line graphs where appropriate but there will be some errors in scales, plotting or drawing the line of best fit. Alternatively, there will be answers from one mathematical technique, but possibly with some errors.</p>
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Higher level 5-8 marks	For 5-6 marks, candidates will use well-produced graphs or charts or use correctly-completed mathematical techniques to support their data. Minimal errors will be seen.
	For 7-8 marks, candidates will produce and use well-drawn line graphs with appropriate lines of best fit, axes will be labelled and appropriate scales will be chosen. Alternatively, clearly-labelled charts or correctly completed mathematical techniques, with answers clearly and accurately presented, will be used to support the Suitability Tests. Some indication of level of uncertainty of data should be seen for full marks.

**(b) Analyse and interpret primary data**

The aim of this strand is for candidates to demonstrate that they can interpret and analyse the primary data they have collected to support the desirable properties of the material / process or device they have chosen.

Lower level 1-4 marks	For 1-2 marks, candidates will just identify a trend or pattern in the results.
	For 3-4 marks, candidates will give statements and limited description of their data. There will be some link to the purpose of the test to indicate the suitability of the material/process/device.
Higher level 5-8 marks	The level of description and evidence of understanding the data collected should support the mark awarded. Work at this higher level should show evidence of how the trends or patterns in the data link to the purpose of the test. For 8 marks, there should be evidence of analysing the level of uncertainty of the data collected. (see marking criteria)

**Strand E: Evaluating****(a) Evaluate methods used to solve practical problems**

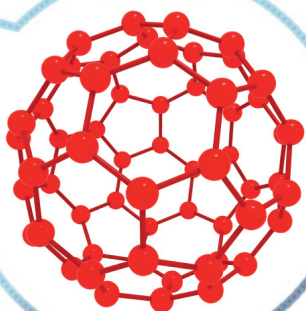
The aim of this strand is to assess how candidates:

Lower level 1-4 marks	For 1-2 marks, candidates should make a simple comment about how the primary data was collected- this may be found in the methods, if they have included these with their work.
	For 3-4 marks, candidates will state a problem they had with the experimental work or make a statement that everything went well.
Higher level 5-8 marks	5-6 marks - work at this level involves descriptions rather than simple comments or statements, with some suggestions on how to improve to include limited practical detail, e.g. change the temperature, but no information on how to do it.
	7-8 marks - needs to include an evaluation of the methods used with an explanation to support any improvements. If candidates' work did not require any significant changes then a statement indicating this, with sufficient justification of why methods were successful, will still support the award of higher marks.

**(b) Evaluate the validity and quality of evidence**

The aim of this strand is for candidates to show their ability to:

Lower level 1-4 marks	For 1-2 marks, candidates may make a statement that their results are 'repeatable' (similar to other groups' results) but do this without referring to their data and a simple statement about the suitability of their chosen material/device/procedure (this may found be elsewhere in the report).
	For 3-4 marks, candidates may make a statement that their results are 'repeatable' (similar to other groups' results) and 'accurate', with a statement about the suitability of their chosen material/device/ procedure.



Higher level 5-8 marks	For 5-6 marks, candidates will identify outliers or justify a claim if there are no outliers and assess the accuracy and repeatability of the results from the spread of data and link it with the suitability of their chosen material/device/ procedure.
	For 7-8 marks, candidates may indicate a variation in data, in terms of its repeatability, and link the quality of data to relevant limitations of the experimental techniques and with the suitability of their chosen material/device/ procedure. (refer to marking criteria)

**(c) Evaluate the management of risks when using practical techniques**

The aim of this strand is for candidates to show their ability to demonstrate that the safety procedures put in place i.e. suitable risk assessment, allowed safe completion of the experimental work.

Lower level 1-4 marks	Lower level candidates should have shown evidence that they can manage risks successfully and work safely. This can be indicated by a statement or brief annotation from both the candidate and the teacher. Support from the teacher is allowed at this level to ensure safety.
Higher level 5-8 marks	Higher level candidates should have shown evidence of safely completing experimental work, using an appropriate risk assessment with no intervention needed for the teacher. This can be indicated by a statement or brief annotation from both the candidate and the teacher.

**(d) Quality of scientific communication**

Quality of written communication will be assessed in this strand, alongside the science content in the evaluation of this Suitability Test.

Lower level 1-4 marks	Lower level candidates will use minimal scientific vocabulary with frequent errors in punctuation and grammar. Work will not be structured and show limited focus on the task. (refer to marking criteria)
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Higher level 5-8 marks	Higher level candidates will make full and effective use of scientific terminology, with evaluations suitably structured and focused, and supported by good spelling, punctuation and grammar. (refer to marking criteria)
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**Strand F: Justifying a conclusion**

**(a) Draw evidence-based conclusions**

The aim of this strand is for candidates to show their ability to use the data collected and their scientific knowledge to conclude suitability of the material/device or procedure.

Lower level 1-4 marks	Lower level candidates will have reported some data found and may just make a simple conclusion, e.g. a statement about the experiment or a statement to say which material /device/procedure is most suitable, but with no justification.  For 3-4 marks, there will be a conclusion based on the results collected. It will show limited scientific knowledge but a statement about how the results support suitability is needed.
	For 5-6 marks, candidates will be carrying out at least one complex procedure and the conclusion should be linked to the overall pattern of results obtained, supported by recommendations of suitability of the material /device/ procedure.  For 7-8 marks, higher level candidates should be completing a range of experimental work to enable the collection of high quality data. Conclusions should reflect the overall pattern of results and show full understanding of the scientific knowledge involved. Limitations of the data collected and the link to the recommendation of suitability of the material/device/ procedure is required.  For 7-8 marks, candidates should be demonstrating independent thought and work.
Higher level 5-8 marks	

**(b) Quality of scientific communication**

Quality of written communication will be assessed in this strand, alongside the science content in the conclusion section of this report.

Lower level 1-4 marks	For 1-2 marks, candidates will use minimal scientific vocabulary and content, and spelling punctuation and grammar will be of poor quality.  For 3-4 marks, candidates will show limited use of scientific vocabulary. The conclusion will be understandable and spelling, punctuation and grammar will show several errors.  (refer to marking criteria)
Higher level 5-8 marks	Higher level candidates will make full and effective use of scientific terminology in their conclusions. The conclusions will be organised, easy to follow and well-reported, and suitably persuasive to support the suitability of the material/ device/procedure. Spelling, punctuation and grammar will show minimal or no errors. (refer to marking criteria)

Higher level 5-8 marks	Candidates will have collected and selected relevant primary data for their report from a variety of sources, which includes suitable selection of the data collected from a visit or practitioner.  For 7-8 marks, candidates will comment on the validity of the sources used.
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Note : Primary data is data which is collected by the candidate directly from their own observations and experiences. It is hoped that all candidates will have the opportunity to collect data from either a visit or a practitioner. If a face to face opportunity is not possible, candidates can obtain their data through telephone conversations, letters or electronic means and discussion.

**(b) References to sources**

The aim of this strand is for candidates to demonstrate that they can reference their sources accurately and correctly.

Lower level 1-4 marks	Lower level candidates will have referencing in their report that is limited to a telephone conversation, email, visit, survey.  (see marking criteria)
Higher level 5-8 marks	Candidates will have identified a range of sources that they have accessed to complete collection of primary data, and it will be recorded in sufficient detail to know from whom, when and how data was collected.  (see marking criteria)

**WORK-RELATED REPORT**

Teachers are advised to read the guidance given in the specification section 5.5 Task marking. Specifically, section 5.5.3, use of the 'best fit' approach to marking grids, gives detailed guidance on marking decisions.

**Strand A: Collecting primary data (information)**

**(a) Collecting primary data (information)**

The aim of this strand is for candidates to demonstrate that they have collected suitable primary information for their Work-related Report.

Lower level 1-4 marks	Candidates working at lower levels will not show collection of data beyond original stimulus material. Candidates, in this instance, will need to show evidence that they have asked questions or gathered information from peers or teachers during discussion, or practitioners if they go on a visit.  3-4 marks will reflect that work has been produced by using an additional source, e.g. from email, telephone call etc.
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**Strand B: Collecting secondary data (information)****(a) Collecting secondary data (information)**

The aim of this strand is for candidates to demonstrate that they can research to collect relevant secondary data to support their Work-related Report.

<p>Lower level 1-4 marks</p>	<p>For 1-2 marks, candidates working at lower levels will provide evidence of basic research skills and have found secondary data linked to a job role, e.g. evidence probably from a careers site. Work may be cut and pasted or a complete article included which will probably contain irrelevant information.</p> <p>For 3-4 marks, candidates will show that they have completed research using secondary data to identify suitable facts needed for their report, e.g. specific qualifications needed for the job role. Candidates may highlight chosen information to identify facts required.</p>
<p>Higher level 5-8 marks</p>	<p>For higher marks, candidates should show research skills demonstrating suitable selection of appropriate material from the available resources rather than indiscriminate copying.</p> <p>7-8 mark higher level candidates, will show the ability to adapt and re-structure secondary data collected to suit the purpose of the Work-related Report. At this level, candidates will possibly comment on the validity of the sources used.</p>

Note: Secondary data is data that has already been collected and presented by somebody else for some other reason than to use for this Work-related Report. There is a wide range of secondary data that can be accessed from published material, e.g. books, letters, records, policies, results from market research, as well as material on the internet or the candidates' own notes.

**(b) References to sources**

The aim of this strand is for candidates to demonstrate that they can reference secondary sources accurately and correctly.

<p>Lower level 1-4 marks</p>	<p>Lower level candidates will have limited referencing in their report: Internet references will give Google/ Wikipedia etc. and referral to text books may be limited to a title. (see marking criteria)</p>
<p>Higher level 5-8 marks</p>	<p>Higher level candidates should be showing evidence of referencing through their report in addition to including a reference list. For 7-8 marks, candidates will have identified a range of sources and should cite books or articles using one of the accepted conventions.</p>

**Strand C: The work carried out**

Note: In this strand the marking depends on how the candidates have used their research in their report

1-2 marks, candidates **make a relevant statement**.

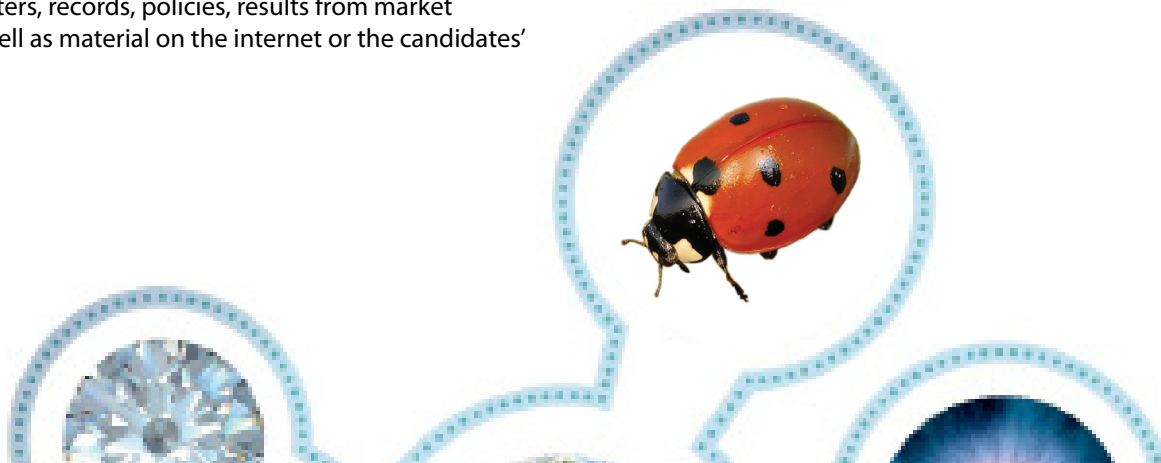
3-4 marks, candidates **identify** the work etc.

5-6 marks, candidates need **to explain** the roles of employees/purpose of work etc.

7-8 marks, candidates need **to analyse** the importance / purpose/factors which influence the work.

**(a) The organisation/workplace**

The aim of this strand is to assess how candidates use their research from both primary and secondary sources on the structure of their chosen workplace in their Work-related Report.



Lower level 1-4 marks	<p>For 1-2 marks, candidates will just make a statement about the organisation they are studying, e.g. information on a department, number of employees etc. Cut and pasted data and irrelevant material will be seen at this level.</p> <p>For 3-4 marks, candidates will need to identify the structure of the organisation and name the different types of employees.</p> <p>Work at this level will just include basic statements to identify the structure, etc, of the workplace.</p>
Higher level 5-8 marks	<p>For 5-6 marks, candidates need to give explanations on how the employees contribute to the organisation rather than simple comments or statements.</p> <p>For 7-8 marks, candidates need to use their research to analyse the importance of the roles of the employees. Material should be suitably selected from their research and link directly to the specific organisation the candidate is studying. At this level, work should not be generic.</p>

**(b) The work carried out in a chosen job role and its place in the wider organisation**

The aim of this strand is to assess how candidates use their research from both primary and secondary sources to identify and describe the work carried out in a chosen job role and how it fits into the wider organisation.

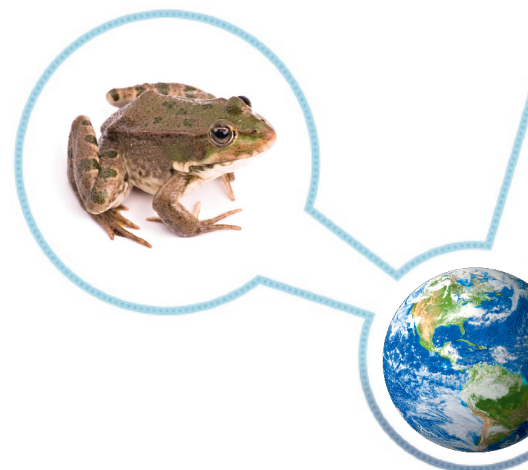
Lower level 1-4 marks	<p>For 1-2 marks, candidates will just make a statement about the nature of the work in the organisation they are studying e.g. a midwife works with pregnant ladies to deliver babies. Cut and pasted data and irrelevant material will be seen at this level.</p> <p>For 3-4 marks, candidates will need to identify the work and its purpose and place in the wider organisation, e.g. the purpose of the midwife’s work and how it links to the NHS or the community.</p> <p>Work at this level will just include basic statements to identify the requirements of this strand.</p>
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Higher level 5-8 marks	<p>For 5-6 marks, candidates need to give explanations on the purpose of the job role showing understanding of how it fits into the wider organisation rather than simple comments or statements.</p> <p>For 7-8 marks, candidates need to use their research to analyse the purpose of the work and its importance in the wider organisation. Material should be suitably selected from their research and link directly to the specific organisation the candidate is studying. At this level, work should not be generic.</p>
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**(c) The location of the organisation/workplace and the effect on society**

The aim of this strand is to assess how candidates use their research from both primary and secondary sources on the location of the organisation and its effect on society in their Work-related Report.

Lower level 1-4 marks	<p>For 1-2 marks, candidates will just make a statement about where the workplace / organisation is located and one effect it has on society, e.g. the hospital is located on the main A road; the public can get there easily. Cut and pasted data and irrelevant material will be seen at this level, road maps are often seen.</p> <p>For 3-4 marks, candidates will identify one reason for the location of the workplace / organisation and one effect of the work on the society.</p> <p>Work at this level will just include basic statements to identify the requirements of this strand.</p>
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Higher level 5-8 marks	For 5-6 marks, candidates need to give explanations on the reasons for the location of the organisation and more than one effect the work has on society rather than simple comments or statements.
	For 7-8 marks, candidates need to use their research to analyse the factors which influence the location of the organisation and its impact on society.
	Material should be suitably selected from their research and link directly to the specific organisation the candidate is studying. At this level, work should not be generic.

Lower level 1-4 marks	For 1-2 marks, candidates will just make a statement about a technical skill used e.g. a midwife needs to know how to take a blood sample. Cut and pasted data and irrelevant material will be seen at this level. The skill may be difficult to find in the report and linked with basic science knowledge.
	For 3-4 marks, candidates will need to identify examples of more than one skill that is involved in the job role. Again, this may be included in scientific knowledge or in qualifications.  Work at this level will just include basic statements to identify the requirements of this strand. However, the skill needs to be technical – not a personal attribute, e.g. is very calm, has a pleasant personality is not acceptable.
	For 5-6 marks, candidates need to explain how the technical skills are applied in the workplace. The technical skill information at this level needs to link to how the practitioner uses the skill within the job role.  For 7-8 marks, candidates need to use their research to analyse the technical skills applied in the workplace, e.g. why and how these skills are necessary. Material should be suitably selected from their research and link directly to the specific organisation the candidate is studying. At this level, work should not be generic.
Higher level 5-8 marks	

#### Strand D: Skills used in the workplace

Note: In this strand the marking depends on how the candidates have used their research in their report

1-2 marks, candidates **make a relevant statement**.

3-4 marks, candidates **identify** the work etc.

5-6 marks, candidates need **to explain** the roles of employees/purpose of work etc.

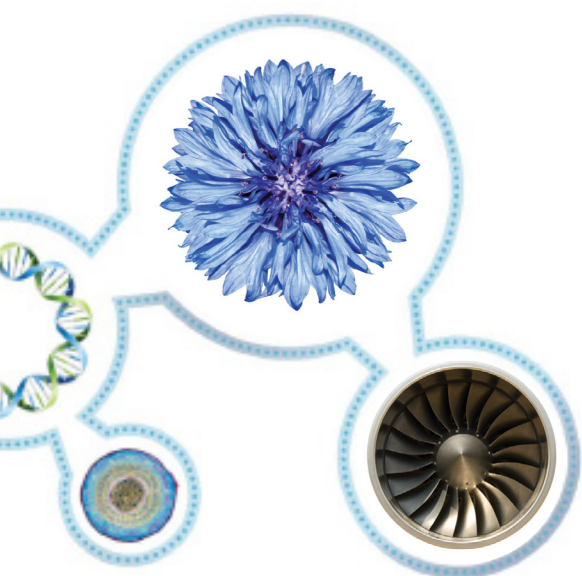
7-8 marks, candidates need **to analyse** the importance/purpose/factors which influence the work.

##### (a) Technical skills applied in the workplace

The aim of this strand is to assess how candidates use their research skills and their understanding of skills needed at work, to find out about the technical skills used in their chosen job role applied in the work place.

##### (b) The expertise needed by an individual, or a working group, with the vocational qualifications and personal qualities required

The aim of this strand is to assess how candidates use their research skills from both primary and secondary sources to find out about the expertise, qualifications and personal qualities used in their chosen job role for their Work-related Report.



<p>Lower level 1-4 marks</p>	<p>For 1-2 marks, candidates will just make one statement about the expertise or qualifications or personal qualities needed in the job role. Cut and pasted data and irrelevant material will be seen at this level. It is common to see qualifications needed to get on a course to do, e.g. nursing etc., and candidates include this rather than the qualifications needed to do the actual job, this is not acceptable.</p> <p>For 3-4 marks, candidates will need to identify in their report the expertise or qualifications or personal qualities needed in the job role.</p> <p>Work at this level will just include basic statements or information which identifies the qualifications etc., needed in the job role. Candidates will probably identify qualifications <b>and</b> personal qualities etc., but the work will be at a lower level than the explanation needed for 5-6 marks, so will still be 3-4 marks.</p>
<p>Higher level 5-8 marks</p>	<p>For 5-6 marks, candidates need to explain how the expertise, personal qualities and qualifications needed in the job role are applied in the workplace. Note that as well as the need to include all three qualities, the work needs to be an explanation of what these are and how they are used, and not just statements to identify them.</p> <p>For 7-8 marks, candidates need to use their research to analyse the expertise needed in the workplace, e.g. why and how this expertise is needed. It is also necessary to explain the relevance of the personal qualities and qualifications needed in the job role, e.g. why and how and the link within the job role. Material should be suitably selected from their research and link directly to the specific organisation the candidate is studying. At this level, work should not be generic.</p>

### Strand E: Scientific knowledge applied in the workplace

Note: In this strand the marking depends on how the candidates have used their research in their report:

1-2 marks, candidates **make a relevant statement**.

3-4 marks, candidates **identify** the work etc.

5-6 marks, candidates need **to explain** the roles of employees/purpose of work etc.

7-8 marks, candidates need **to analyse** the importance/purpose/factors which influence the work.

#### (a) Scientific knowledge applied in the workplace

The aim of this strand is to assess how candidates use their research skills and their scientific knowledge to find out about how science knowledge is applied in their chosen job role.

<p>Lower level 1-4 marks</p>	<p>For 1-2 marks, candidates will just make a relevant statement about the scientific knowledge used in the type of work studied, e.g. knowledge which they have covered in the related topic from either A191 or A192. Cut and pasted data and irrelevant material will be seen at this level.</p> <p>For 3-4 marks, candidates will need to identify examples of scientific knowledge involved in the chosen job role. Work at this level will just include basic statements to identify the requirements of this strand.</p>
<p>Higher level 5-8 marks</p>	<p>For 5-6 marks, candidates need to explain how the scientific knowledge underpins the work described. Candidates at this level should not be just including the related science but must indicate how it is used by the practitioner chosen.</p> <p>For 7-8 marks, candidates need to use their research and their scientific knowledge to analyse the science knowledge required in the workplace e.g. why and how this science is needed. It is also necessary to explain how the science underpins the job roles. Material should be suitably selected from their research and link directly to the specific organisation the candidate is studying. At this level, work should not be generic.</p>



**(b) Financial or other regulatory contexts that impact on the work done (eg, health and safety regulations)**

The aim of this strand is for candidates to show their ability to recognise how different factors can affect the work done in workplaces that use science.

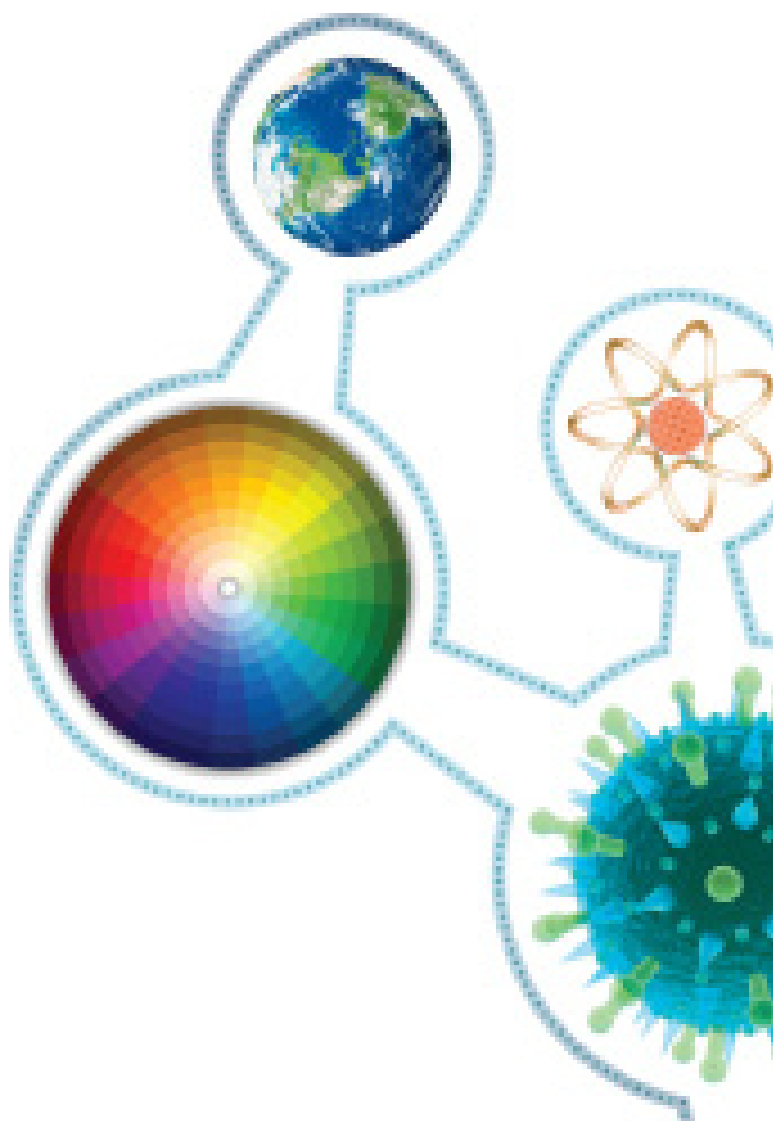
<p>Lower level 1-4 marks</p>	<p>For 1-2 marks, candidates will just make a relevant statement about a financial or other regulatory factor used in the work place, e.g. health and safety regulations are easy to find and important in all work places. Cut and pasted data and irrelevant material will be seen at this level.</p> <p>For 3-4 marks, candidates will need to identify two examples of the impact of financial or regulatory factors (this can include 1 from each section or 2 from the same) involved in the chosen job role. Work at this level will probably just include basic statements on the factors with minimal reference to impact. Again take care candidates include the impact of these regulations and not just statements of what they are.</p>
<p>Higher level 5-8 marks</p>	<p>For 5-6 marks, candidates need to explain the <b>impact of two examples</b> of financial or other regulatory factors on the work. Care needs to be taken that candidates explain the impact of their chosen factors rather than just give detail on these.</p> <p>For 7-8 marks, candidates need to use their research to analyse the <b>impact of their two chosen examples</b>.</p> <p>Material should be suitably selected from their research and link directly to the specific organisation the candidate is studying. At this level, work should not be generic.</p>

**Strand F: Quality of the presentation**

The aim of this strand is to assess how candidates can organise and write a scientific report, using relevant scientific or technical vocabulary and suitable visual material.

**(a) The structure and organisation of the scientific report****(b) Use of visual means of communication (charts, graphs, pictures etc)****(c) General quality of communication**

**It is advisable that candidates are given the marking criteria for this section so that they are aware of what they need to do to complete a well structured scientific report.**



**SECTION G****SUBMITTING A CONTROLLED ASSESSMENT TASK****ANNOTATION OF CANDIDATE WORK**

The Code of Practice for GCSE Examinations requires teachers to show how the marks for internally assessed work have been awarded. One convenient way of meeting this requirement is by hand-writing annotation on each candidate's work. At the very least this should consist of a shorthand reference to the appropriate Aspect or Strand, with an indication of the mark level, at the appropriate point in the work where the award of the mark is evidenced, eg A(b)4 or F3. Annotations are particularly helpful where assessment decisions may not be immediately apparent, and in these cases a brief explanation will help moderators to support centre marks.

**INTERNAL STANDARDISATION AND RECORDING OF MARKS**

When marking work, it is important that internal moderation takes place within the centre to ensure that the same standards are being applied by all the members of staff. This should ensure that marks submitted from the centre form a single, coherent order of merit. If there are differences in the way in which the marking criteria have been applied by different teachers, this can lead to a significant violation of this order. As a result, moderators may require centres to re-mark the work of all candidates at short notice.

Centres should provide a brief report for moderators, outlining details of internal standardisation processes, with the requested sample of work.

Final marks awarded should be recorded on the cover sheet (Appendix F). This should be secured to the front of each piece of work using a treasury tag.

**STORAGE OF SCRIPTS**

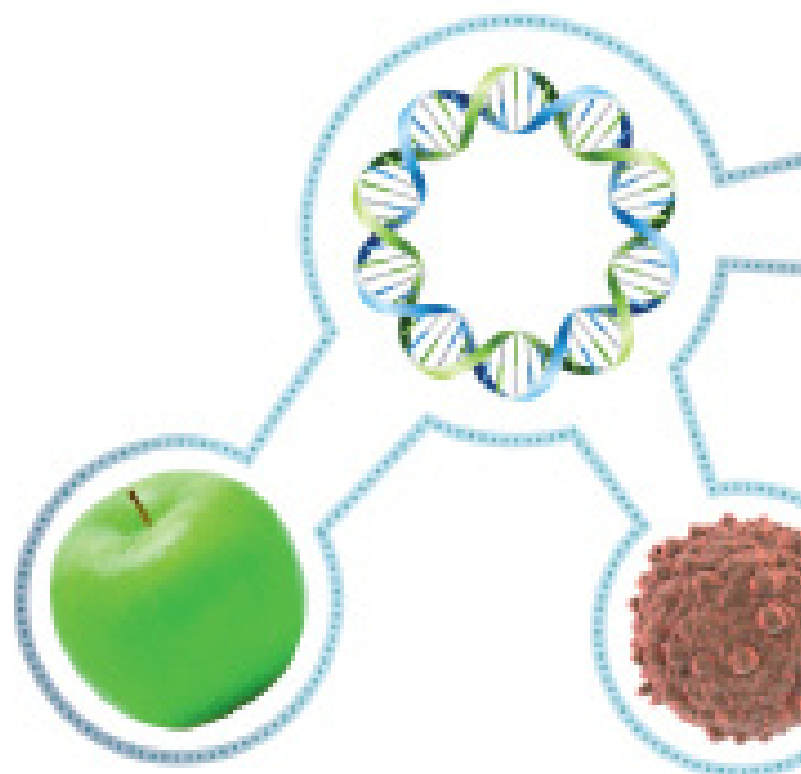
When the task and its associated marking are complete the scripts should be stored securely. In addition to samples being requested during moderation, samples of work may also be required for Enquiries about Results.

**AUTHENTICATION**

The Ofqual Code of Practice for the conduct of GCSE examinations requires that every teacher involved in the internal assessment of controlled assessment ensures that each piece of assessed work can be authenticated with confidence as being the work of the candidate who submits it. This is particularly important when candidates have undertaken some of their work not under the direct supervision of the teacher or have been working in groups.

A Student Authentication Form is available for use internally. Teachers must complete a Centre Authentication Form to confirm that all work submitted is that of the candidates.

A teacher may have some residual concerns about the extent to which the response does not represent the work of a particular candidate. For example, there may be evidence that too much help has been given or that a candidate has simply copied work directly from another candidate. In such circumstances, that piece of work should not be counted for assessment purposes and the candidate should undertake another controlled assessment task.



## SECTION H

# CANDIDATE GUIDELINES FOR CONTROLLED ASSESSMENT

## THE CONTROLLED ASSESSMENT TASK

The task titles for this subject are set by OCR.

### TASK TAKING

#### What can I do in relation to research, data collection and planning?

Once you have been given the task title, you will have time to do the research/data collection and make notes which you will use later when you write up the task. Your teacher will tell you how much time you will have and will give you advice on how and where you will gather data and/or where you will find resources (for example the library or the internet).

Things to think about/remember:

- think about how you will approach the task. (You can discuss this with your teacher)
- make a plan of how you will spend the time you have for research/data collection. This way, you can make sure that you have time to cover everything you want to do. This plan may be useful to refer back to when you are writing up the task
- make sure that you keep a record of where all the information you want to use comes from. This will allow you to include references and a bibliography when you write up the task
- think about how you will use your research or the data that you have collected to respond to the task. It maybe helpful to make a basic plan so that you can check you have all the information that you need
- remember, you will not have access to resources other than your notes when you write up the task, so you need to make sure that you have all the information that you need in your notes.

During research/data collection, you can talk to your teacher about the task and ask them for advice. You can also work with other candidates and share ideas about the task with them.

#### How much teacher support can I expect?

During your work for controlled assessment you must produce work/evidence independently but your teacher will be able to give you some advice, support, guidance and feedback but the amount will vary depending upon the type of task you are doing.

You must make your own judgements and draw your own conclusions but your teacher will:

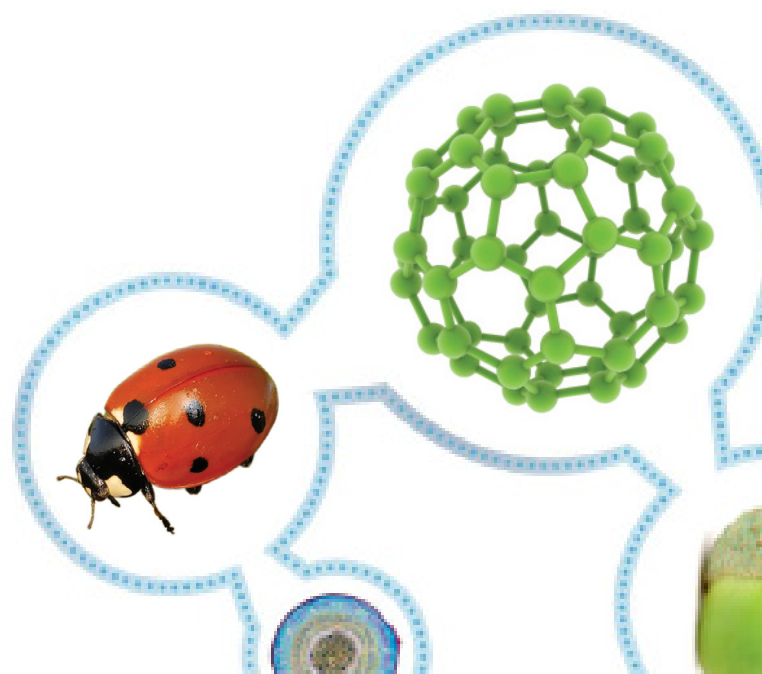
- offer advice about how best to approach a task
- offer guidance on the way you work in groups so that you all have an opportunity to tackle your tasks
- offer advice to help your research if this is appropriate
- monitor your progress to make sure your work gets underway in a planned and timely manner
- ensure that your work meets the Specification requirements.

The support given by your teacher will be to make sure you understand what it is you have to do. Your teacher will not be allowed to provide model responses for you or to work through your responses or outcomes in detail.

#### What can I expect in the supervised sessions?

This is where you will complete the task by analysing and evaluating the data that you have collected and the research that you have done. Depending on the type of task, this analysis/evaluation of findings may take a variety of forms. You will have already discussed with your teacher which format is suitable for the task that you are doing.

This part of the task has to be completed under informally supervised conditions. This means that all of this stage of the task has to be completed within school time and supervised by your teacher but it is not under exam conditions.



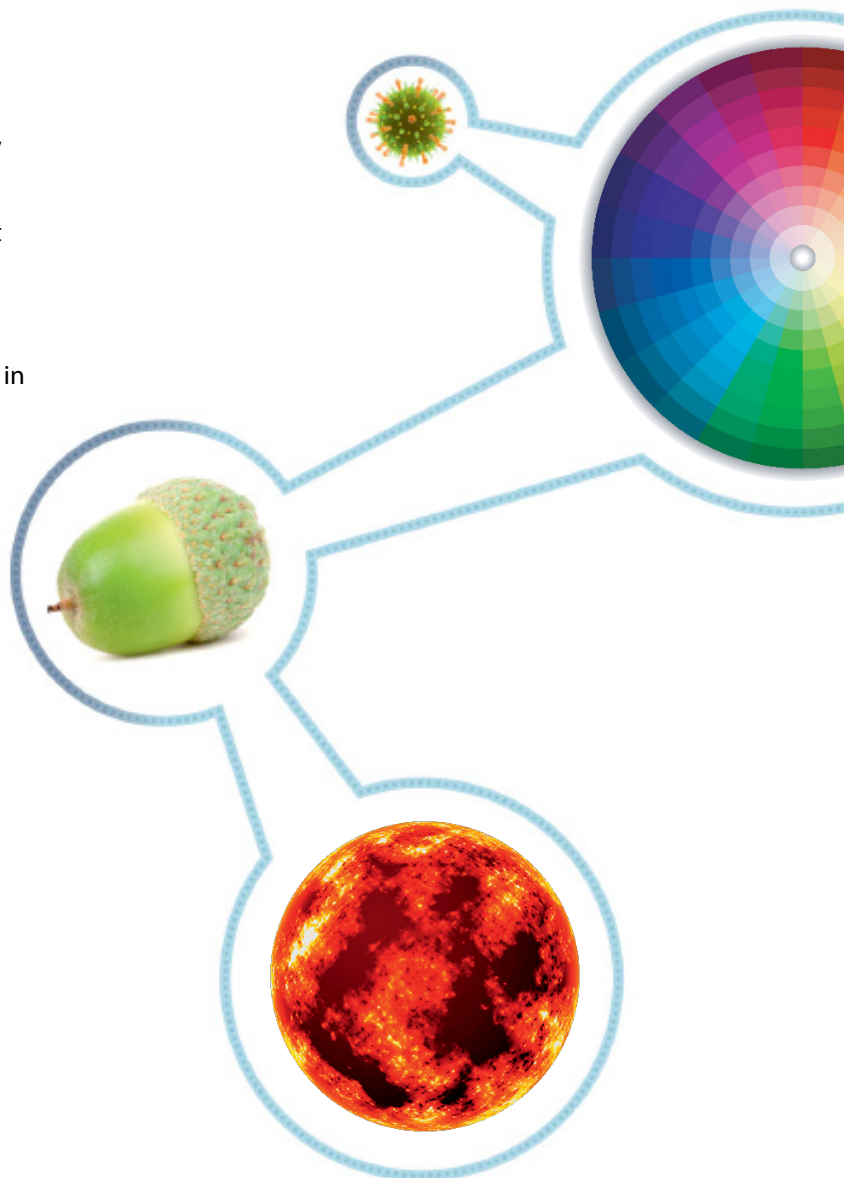
Things to think about/remember:

- the analysis/evaluation of findings is the part of the work that you will be assessed on
- make sure that you include all the relevant information from your notes
- remember that it must be your own work
- remember that if you quote from another source (for example a book or the internet) you must acknowledge this properly.

You will have access to all the notes that you made during the research/data collection period. You will not be allowed to take in a draft or final version of your analysis and evaluation however, as this part of the work needs to be completed under controlled conditions.

It will probably take several hours to write up your findings, but you will not have to do this all in one go. At the end of each session your teacher will collect in your work and your notes. They will give these back at the start of the next session.

It is a good idea to prepare a detailed plan of what you are going to do, with timings, so that you complete everything in the time available.



## SECTION I

## FREQUENTLY ASKED QUESTIONS

**When can controlled assessment be taken?**

The controlled assessments should be submitted on May 15th of the year clearly indicated on the front cover of the task, but can be taken at any point during the year, or preceding year, if appropriate. This should, of course, be synchronised with the teaching of the appropriate module. Some tasks, for instance, fieldwork or work with plants, may also be seasonal.

**When and where can teachers and candidates access the material?**

On the OCR Interchange, in the June two years prior to submission of the task.

**Can any preparation work be done out of the classroom?**

Yes, in the planning stages in conditions of limited control, at the discretion of the centre. Materials collected and added to work folders during this phase should be checked by the teacher.

**Is there a minimum or maximum time that can be spent on the assessments?**

Recommended times are provided for the different phases of the controlled assessment tasks and are indicated in the specification, Section 5, and also in this document, but these are not time limits.

**Where can the controlled materials be accessed and by whom?**

On the OCR Interchange, by staff involved in the administration of the controlled assessment tasks.

**How long is each assessment valid for, i.e., can we use last year's assessment this year?**

Tasks are valid for two years, after which they will be reviewed. The year of submission is indicated clearly on the front cover of the controlled assessment task.

**Where can the Mark Schemes be accessed?**

The Marking Criteria for the assessment of candidate work are in Section 5 of the specification. These are generic criteria.

**Do we have to take the controlled assessment under exam conditions/teacher supervision?**

It is not necessary to administer any part of the tasks under exam conditions. The analysis, evaluation and review stages of the controlled assessment task are under a medium level of control and with informal teacher supervision. The candidates

work can be informed by others but they must provide an individual response i.e they must write it up on their own and reach their own conclusions. Research, planning and collection of data stages are under limited control.

It is not necessary for different groups of candidates, working on the same controlled assessment tasks in one centre, to carry these out all at the same time.

**Are the controlled assessments the same as written examinations, can we re-sit?**

Yes, but care must be taken to ensure the task is for the appropriate year of submission and taken along side all the other units, re-sitting individual units mid-course is no longer possible.

**Are materials sent based on estimated entries or can we download them from Interchange?**

Downloaded from the Interchange.

**Do we mark them or does OCR?**

The controlled assessment tasks are marked by the centre and moderated by OCR.

**Is it possible for candidates to work together?**

Candidates will be able to work together in the collection of information stage, the planning stage and during practical work



and collection of practical data. However, each candidate will need to provide an individual response.

**Can the teacher provide resources for their candidates?**

Teachers, librarians and ICT staff can provide resources for the controlled assessment, but the onus is on candidates working at higher levels to collect their own resources.

**In the Suitability Test, can candidates be given a method to work from?**

If candidates intend to pursue a method that is impracticable, or likely to be hazardous, they should also be issued with a method. In these circumstances, the maximum mark the candidate can be awarded will be 1 or 2.

**In the Suitability Test, what happens if a candidate is absent for the phase where they have to make choices about methods, techniques and equipment?**

It is possible that this phase may extend over more than one lesson, so on their return, the candidate can engage in the process.

If the candidate is absent for longer than this, they may resume work at the appropriate stage, but it may be preferable for them to carry out an alternative task on another occasion in order to maximise their mark.

**In the controlled assessment, can a writing frame be issued to candidates?**

Provided that writing frames are generic, and therefore appropriate for any task, these may be used. However, they must not prompt candidates to make decisions or present work in particular ways that are worthy of credit in their own right. Writing frames are likely to limit the performance of higher attaining candidates.

**Can candidates undertake research work outside the classroom?**

Yes, during research and planning phases. Each student should be provided with a work folder so that the teacher can check work added to this when working outside the classroom.

**Can candidates use ICT?**

Yes, candidates can use ICT to compile their reports according to the guidelines indicated in this document. It is essential that candidates using ICT should have no unfair advantage over those opting to handwrite reports. Candidates can access the internet but must reference any information they use from it, making sure that they produce an individual response to information gathered.

**Can candidates use computer software, such as Microsoft Excel, to draw graphs?**

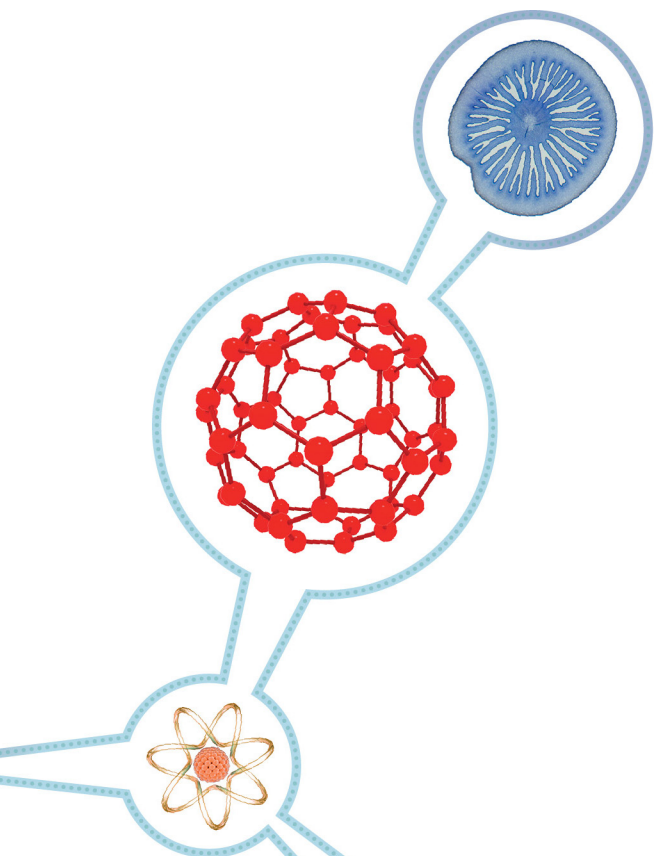
Yes. Such graphs will be marked on the same criteria as hand-drawn graphs and can therefore give access to full marks. However, if a candidate is to draw a graph of sufficient quality using such software, they will need to be very proficient in its use. Common pitfalls include reproducing the graph at an inappropriately small size, failing to include gridlines, plotting incorrect lines of best fit and omitting appropriate titles for the axes.

**Can tasks be modified, either by teachers or candidates?**

The controlled assessment tasks are set by OCR. This is under high control.

However, it is possible for tasks to be contextualised to take account of local circumstances and the interests and abilities of the candidates concerned. Nevertheless, the controlled assessment will still need to match both the marking criteria and the set tasks, and if there is any doubt concerning this, confirmation should be sought from OCR.

In addition, the nature of the controlled assessment tasks



already provides scope for candidate choices.

### How should I allow my candidates to do their analysis and evaluation?

This should be under informal teacher supervision.

### How should I mark their work?

Mark candidates' work using the Marking Grids in Section 5 of the specification.

### Can candidates select the task?

The controlled assessment tasks are set by OCR.

From those available, teachers select the controlled assessment task, but these will allow contextualisation or a choice of method by the candidates.

### In what form can the candidates present their work?

As hand-written, or word-processed reports, or using some other means of presentation, e.g., an electronic presentation.

### Can we provide students with the marking criteria during their analysis, evaluation and review? Can we use 'student-speak' versions?

The OCR Marking Criteria can be provided during this period of high level of control.

If using centre-devised 'student-speak' marking criteria, the centre must ensure that these truly are a correct interpretation of the marking criteria, and not inaccurate or misleading, and do not give undue guidance to candidates.

### Can teachers give any feedback to students during the analysis, evaluation and review stage?

Teachers may give generic, informal feedback while the task is being completed but may not give guidance specific to the task or indicate what candidates need to do to improve their work.

### Does OCR provide definitions of scientific terms, such as 'accuracy' and 'precision', in its guidance?

No, but OCR-endorsed publications by Oxford University Press and Collins give detailed sections on controlled assessment. The publication: ASE-Nuffield (2010). *The Language of Measurement. Terminology used in school science investigations.* ASE Nuffield, provides an excellent overview of these, and other scientific terms. (Some of these definitions are included in Appendix E, page 49).

### Can candidates start a controlled assessment task before Year 10?

Yes, there are no restrictions on the year in which controlled assessment tasks can be started. However, consideration will need to be given to the intended year of submission for the controlled assessment. This will affect which year's tasks you select. Furthermore, you will also need to ensure that candidates have been taught the appropriate module content, as well as having developed the necessary skills, before the candidates attempt the controlled assessment.

### I have candidates with physical disabilities that make practical work impossible. Can these candidates be given teacher data?

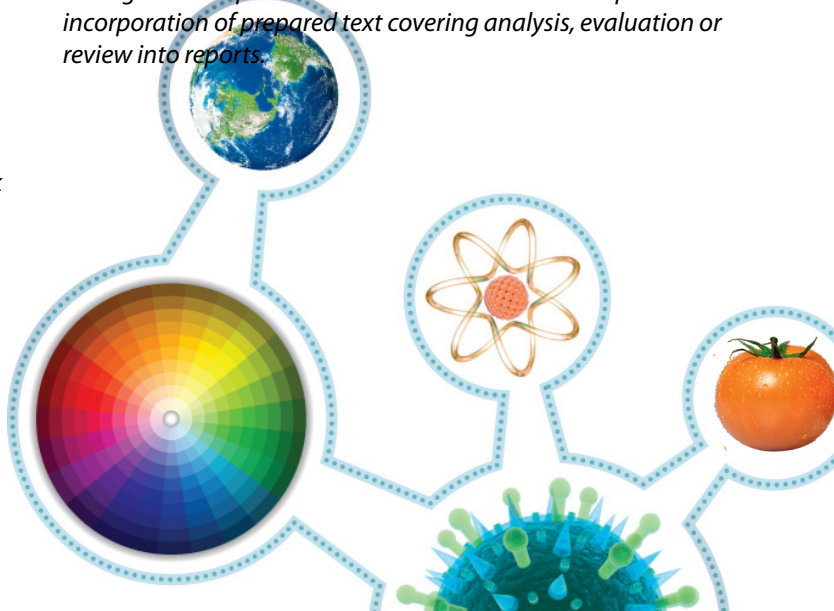
Such candidates can either have an assistant to perform the experiments under their direction, or can use the data from another candidate. The use of teacher data is not allowed. If candidates use data from another candidate they will be unable to access the marks for this skill quality.

### Can candidates have scribes or amanuenses if needed?

Yes, access arrangements are exactly the same as for written examinations.

### Can candidates bring in a word-processed list of references from home?

Yes, this is an example of the kind of material that can be produced under conditions of limited control and brought into the high control part of the assessment. What is not permitted is incorporation of prepared text covering analysis, evaluation or review into reports.







## SECTION J

# GUIDANCE ON DOWNLOADING CONTROLLED ASSESSMENT TASKS FROM INTERCHANGE

## BEFORE YOU START

Controlled assessment materials are available to download from OCR Interchange.

In order to use Interchange for the first time, you just need to register your centre by returning the Interchange Agreement. This can be downloaded from the OCR website at <http://www.ocr.org.uk/interchange>

In addition, you will need to be assigned the 'Tutor / Teacher' Interchange role to access controlled assessment materials. Your Interchange Centre Administrator can assign this for you, as follows:

- select 'Admin' in the left-hand menu
- select 'Manage centre users' from the pop-up menu that appears
- select the relevant username
- select the 'Roles' tab
- select the role of 'Tutor teacher' on the left-hand side of the screen
- click the '>' button to move the role across to the right-hand side of the screen
- click the 'User' tab
- click 'Add'.

Please note that it could take up to 20 minutes for the new role to take effect.

## STEP 1 - LOG INTO INTERCHANGE

Click on the following link <https://interchange.ocr.org.uk>

Enter your log in details



### Welcome

You can use Interchange to securely access candidate information and online services for all OCR qualifications, 24 hours a day.

New features will be added over the coming months. Please check the [OCR website](#) and your email for information.

**Login**

(for centre users this will be your centre number)

(case sensitive)

[Forgotten Your Password?](#)

### New User

To sign up please complete and return the [OCR Interchange Agreement \(118kb\)](#) to receive your login details.

## STEP 2 - PROCEED TO CONTROLLED ASSESSMENT TASKS

Click on 'Coursework and tests'

Click on 'Controlled assessment Materials'

\*\* If you are unable to see either of these menu items then it is likely that you do not have the 'Tutor / teacher' role assigned to you.

The screenshot shows the OCR Interchange homepage. The header includes the OCR logo and 'interchange' branding. A navigation menu on the left is divided into 'By task' and 'By qualification'. The 'By task' menu includes items like 'Entries', 'Coursework and tests', 'e-assessment', 'Certification claims', 'Results', 'Post results', 'Centre information', 'Assessors', 'Search', 'Resources', and 'Admin'. The 'By qualification' menu includes 'GCE, GCSE, Principal Learning...', 'OCR Nationals', 'Functional Skills', 'Skills for Life', 'NVQ', 'Vocationally related', and 'CLAIT and iPro'. The main content area has a 'Welcome to Interchange' heading and a 'What's new?' section with three sub-sections: 'Support material' (linking to 'Controlled assessment materials'), 'Tests' (linking to 'Key Skills test invoices'), and 'Moderation' (linking to 'OCR Repository'). A 'Tell us what you think' section is also present.

## STEP 3 – SEARCH FOR MATERIALS

You can search for materials by unit code. Enter the unit code and click on the 'search' button.

Or, you can search for materials by subject information by selecting from the 'drop down' options.

All available documents will be displayed below the search.

The screenshot shows the 'Controlled Assessment Materials' search page. The header is the same as the previous screenshot. The main content area is titled 'Controlled Assessment Materials' and features a 'Notices' section with a message about availability from June 2009. Below this is a search form with the following fields: 'Unit Code (eg, F123)' with an input box and a 'Search' button; 'Select qualification type' with a dropdown menu set to 'GCSE'; 'Select subject' with a dropdown menu set to 'Art and Design'; and 'Select subject detail' with a dropdown menu set to '3D Design'. Below the search form, two documents are listed: 'A266 - Controlled Assessment' (PDF 254KB) and 'A266 - Resource Booklet' (PDF 254KB). At the bottom, there is a 'Page notes' section with instructions for Windows XP/Vista and Windows 95/98/2000/ME/NT regarding zip extraction.

## STEP 4 – OPEN MATERIALS

Click on the document link. The document will open in your browser.  
Click on 'Save As' to save to a location of your choice.

## STEP 5 – TROUBLESHOOTING

If you search for an invalid unit code, the following error message will be displayed.

The screenshot shows the OCR interchange website interface. The header includes the OCR logo and 'interchange' text, with 'RECOGNISING ACHIEVEMENT' below. Navigation links for 'Help' and 'Log out' are visible. A breadcrumb trail reads 'You are here: Home > Controlled assessment materials'. The main content area is titled 'Controlled Assessment Materials' and features a 'Notices' section. Below this, a search form is displayed with the following elements:

- A text input field for 'Unit Code (eg, F123)' containing the value '04962'. A red error message 'Invalid Unit Code entered' is shown below the input field.
- A 'Search' button.
- Three dropdown menus: 'Select qualification type:' (set to '-Please Select-'), 'Select subject:' (set to '-Nothing to Select-'), and 'Select subject detail:' (set to '-Nothing to Select-').

Below the search form, a 'Page notes' section contains the text: 'Windows XP and Windows Vista have a built in zip extractor. If you use Windows 95, 98, 2000, ME, or NT, use a zip program such as WinZip or PKZip to extract the files.'

If you search for a valid unit code but there is no document currently available, the following message will be displayed.

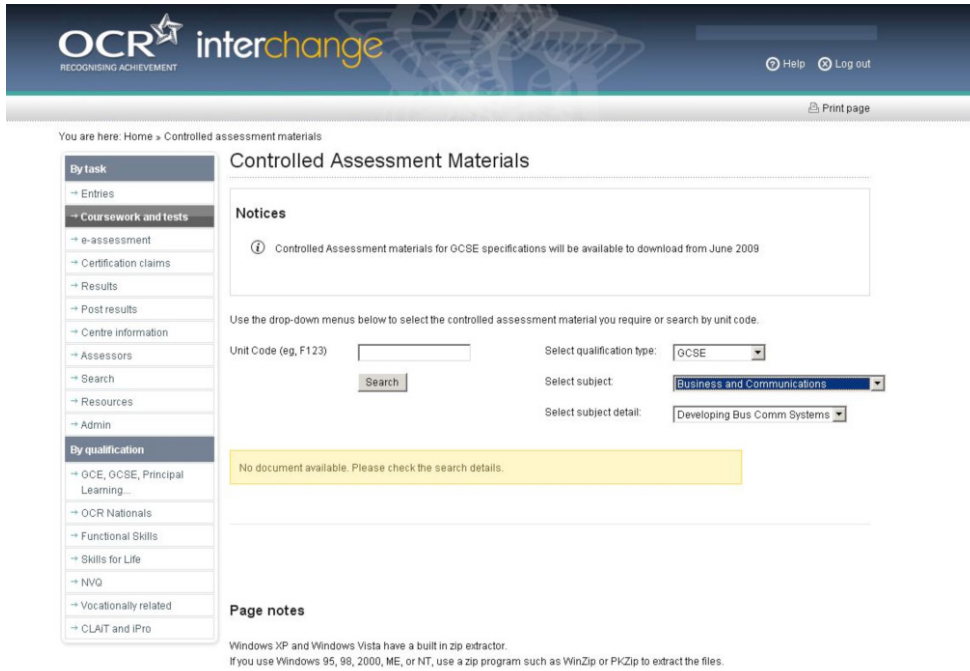
The screenshot shows the same OCR interchange website interface as above. The search form now has the following elements:

- The 'Unit Code (eg, F123)' input field contains the value 'A982'.
- The 'Search' button is present.
- The dropdown menus remain the same: 'Select qualification type:' (-Please Select-), 'Select subject:' (-Nothing to Select-), and 'Select subject detail:' (-Nothing to Select-).

A yellow message box is displayed below the search form with the text: 'No document available. Please check the unit code.'

The 'Page notes' section remains the same as in the previous screenshot.

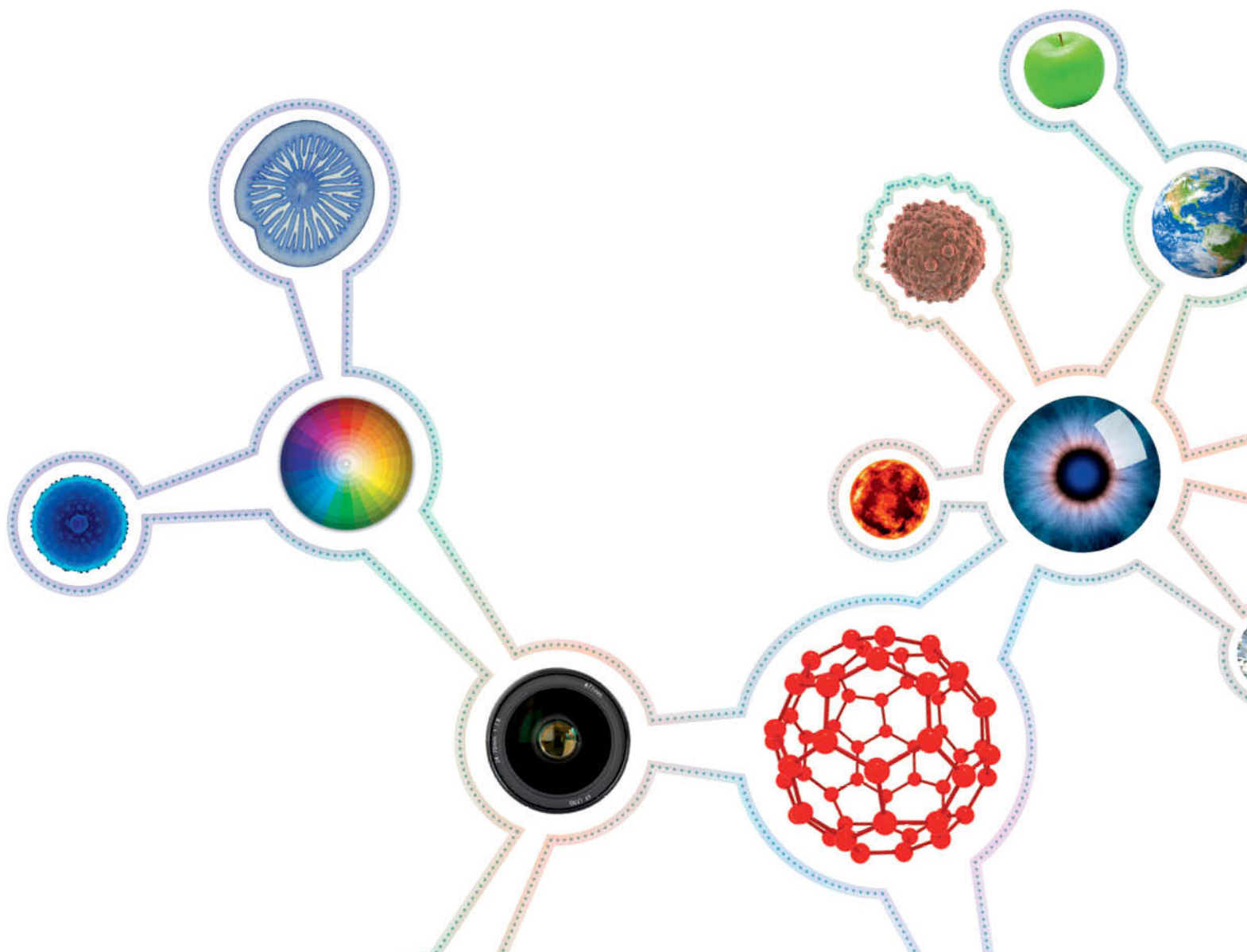
If you search via the 'drop down' menus but there is no document currently available, the following message will be displayed.




The screenshot shows the OCR interchange website interface. At the top, there is a navigation bar with the OCR logo and 'interchange' text. Below this, a breadcrumb trail reads 'You are here: Home » Controlled assessment materials'. The main content area is titled 'Controlled Assessment Materials' and contains a 'Notices' section with an information icon and the text: 'Controlled Assessment materials for GCSE specifications will be available to download from June 2009'. Below the notice, there is a search section with the instruction: 'Use the drop-down menus below to select the controlled assessment material you require or search by unit code.' The search form includes a text input for 'Unit Code (eg, F123)', a 'Search' button, and three dropdown menus: 'Select qualification type:' (set to 'GCSE'), 'Select subject:' (set to 'Business and Communications'), and 'Select subject detail:' (set to 'Developing Bus Comm Systems'). A yellow message box below the search form states: 'No document available. Please check the search details.' On the left side, there is a sidebar menu with categories 'By task' and 'By qualification'. The 'By qualification' section lists various options including 'OCE, GCSE, Principal Learning...', 'OCR Nationals', 'Functional Skills', 'Skills for Life', 'NVQ', 'Vocationally related', and 'CLAIT and iPro'. At the bottom of the page, there is a 'Page notes' section with the text: 'Windows XP and Windows Vista have a built in zip extractor. If you use Windows 95, 98, 2000, ME, or NT, use a zip program such as WinZip or PKZip to extract the files.'

# SECTION K

## APPENDICES



## APPENDIX A: MARKING CRITERIA FOR THE STANDARD PROCEDURE

STANDARD PROCEDURES MARKING CRITERIA					
TOTAL 6 MARKS					
Skills to be assessed	0	1–2	3–4	5–6	AOs
(a) Collect primary data	*	Collects and records some of the data specified by the procedure, with some errors or inaccuracies	Collects and records in an appropriate format the full range of data specified by the procedure, with some errors or inaccuracies	Collects and records accurately and in the most appropriate format the full range of data specified by the procedure	AO1: 2 marks
(b) Process primary data	*	Uses some of the graphical and/or mathematical techniques specified by the procedure, with errors or inaccuracies	Uses the graphical and/or mathematical techniques specified by the procedure with some errors or inaccuracies	Uses correctly the graphical and/or mathematical techniques specified by the procedure	AO2: 2 marks
(c) Manage risks when carrying out standard procedures 	*	Makes relevant comments about the way in which risks were managed; answer is simplistic with limited use of specialist terms.	Writes a limited evaluation of the way in which risks were managed; information is clear and specialist terms are for the most part used appropriately	Writes a critical evaluation of the way in which risks were managed; information is clear and organised and specialist terms are used appropriately	AO3: 2 marks

\* No evidence of achievement, or evidence insufficient for the award of 1 mark

## APPENDIX B: MARKING CRITERIA FOR THE SUITABILITY TEST


5

## SUITABILITY TEST MARKING CRITERIA – TOTAL 48 MARKS

## Strand A: Researching the purpose of the test

Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) Collect and process secondary data	*	Makes some reference to its use or purpose.	Gives a limited description of both its use and some aspect of the workplace context.	Gives a reasonable description of both its use and some aspect of the workplace context.	Gives a detailed logical description of both its use and relevant aspects of the workplace context.	AO1: 1 mark  AO2: 3 marks
(b) Analyse and interpret secondary data	*	Gives a very limited description of its desirable properties or characteristics.	Gives some description of its desirable properties or characteristics.	Gives a description of its desirable properties or characteristics, explaining why at least one of these is necessary.	Gives a clear logical description of its desirable properties or characteristics, explaining why these are necessary.	AO3: 4 marks

## Strand B: Planning and risk assessment

Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) Assess risks for the collection of data	*	Makes a comment about simple safety issues.	Correctly identifies a material or procedure which may be hazardous.	Identifies major hazards and their associated risks and suggests suitable precautions.	Carries out a full and appropriate risk assessment, identifying all hazards and ways of minimising risks associated with the work.	AO3: 3 marks  AO2: 3 marks
(b) Devise methods to solve problems	*	Devises a limited plan using simple procedures producing simple measurements or comparisons.	Devises a basic plan using procedures of limited complexity to test a criterion for suitability.	Devises a workable plan using a complex procedure to test criteria for suitability.	Independently devises a comprehensive, plan using complex procedures which link closely with each of the criteria for suitability.	AO1: 2 marks
(c) Quality of written communication 	*	Produces a plan with little or no structure; the content is not fully focussed on the task.	Produces a plan with some structure and with some focus on the task.	Communicates information relevant to the plan clearly; the plan is effectively organised.	Communicates a well sequenced plan succinctly and with precision.	

\* No evidence of achievement, or evidence insufficient for the award of 1 mark

## Strand C: Collecting data

Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) Collect primary data	*	Partially records data or observations in a given format; data are limited in amount, covering only part of the relevant range and generally of low quality.	Fully records data or observations in a given format; collects an adequate amount or range of data which is of variable quality, with some operator error apparent.	Devises own format and correctly records data including all units of measurement; collects an adequate amount and range of data, with replication; data generally of good quality, with appropriate precision and repeatability.	Devises own format and correctly records data to an appropriate degree of precision; collects data to cover an appropriate range, with values well-chosen across the range; data has a high level of repeatability and low level of uncertainty.	AO2: 6 marks  AO1: 2 marks

\* No evidence of achievement, or evidence insufficient for the award of 1 mark




## Strand D: Processing and analysing data

Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) Process primary data	*	Presents some evidence of processing quantitative data: data presented as simple charts or graphs with significant errors in scaling or plotting, or use of one simple mathematical technique, with some errors.	Uses one graphical or mathematical technique to reveal patterns in the data: charts or graphs used to display data in an appropriate way, with some errors in scaling or plotting; use of one mathematical technique with few errors.	Uses graphical and/or mathematical techniques to reveal patterns in the data: charts or graphs used to display data in an appropriate way, with few errors in scaling or plotting; correct use of more than one mathematical technique.	Uses appropriate graphical and/or mathematical techniques to reveal patterns in the data: type of graph/chart, scales and axes selected and data plotted accurately, including where appropriate a line of best fit; correct use of complex mathematical techniques; appropriate quantitative treatment of level of uncertainty of data.	AO3: 8 marks
(b) Analyse and interpret primary data	*	Identifies one trend/pattern correctly; an attempt is made to interpret the information.	Describes and interprets one trend/pattern with reference to quantitative data and scientific knowledge and understanding, with some errors; any anomalous results identified correctly. States a link to the purpose of the test.	Describes and interprets main trends/patterns with reference to quantitative data and scientific knowledge and understanding, with few errors; with a link to the purpose of the test any anomalous results identified correctly and implications discussed.	Describes and interprets all trends/patterns correctly with reference to quantitative data and relevant scientific knowledge and understanding with a defined link to the purpose of the test level of uncertainty of the evidence analysed.	


\* No evidence of achievement, or evidence insufficient for the award of 1 mark

## Strand E: Evaluating

Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) Evaluate methods used to solve practical problems	*	Makes a relevant comment about how the data were collected.	Comments on any problems associated with the apparatus and techniques used.	Discusses the methods and suggests improvements to apparatus or techniques, with little practical detail.	Evaluates the methods in detail and explains improvements to apparatus or techniques.	AO3: 6 marks  AO1: 2 marks
(b) Evaluate the validity and quality of evidence	*	Makes a relevant comment about the quality of the data and a statement about suitability of the chosen material/device/procedure.	Comments on the accuracy of the data and the suitability of the chosen material/device/procedure.	Discusses the quality of the data including accuracy and correctly identifies any anomalous results with links to and the suitability of the chosen material/device/procedure.	Evaluates the quality of the data in detail, including repeatability and uncertainty making coherent links to the suitability of the chosen material/device/procedure.	
(c) Evaluate the management of risks when using practical techniques	*	Manages risks only with significant teacher intervention.	Manages risks successfully with few problems and minimal teacher intervention.	Manages risks successfully with no significant incidents or accidents and no requirement for teacher intervention.	Manages risks successfully with no incidents or accidents and no requirement for teacher intervention.	
(d) Quality of scientific communication 	*	Makes little or no relevant use of technical or scientific vocabulary, presenting information in a form and structure with little or no suitability to its purpose. Spelling, punctuation and grammar are of generally poor quality.	Makes limited use of relevant technical or scientific, presenting information in a form and structure that has some suitability to its purpose. Spelling punctuation and grammar are of very variable quality.	Makes adequate use of technical or scientific vocabulary throughout, presenting the information in a form and structure that mostly suits its purpose. Spelling, punctuation and grammar are generally sound.	Makes full and effective use of relevant scientific or technical terminology, presenting the information in a form and structure that fully suits its purpose. Spelling, punctuation and grammar are almost faultless.	

\* No evidence of achievement, or evidence insufficient for the award of 1 mark

## Strand F: Justifying a conclusion

Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) Draw evidence-based conclusions	*	Draws some conclusion, but data or observations not linked back to the purpose of the test.	Draws a correct conclusion from individual results or simple pattern in results, by partially applying what has been learnt and linking these to the purpose of the test in a logical manner.	Draws a correct conclusion from overall pattern of results, by mostly applying what has been learnt and linking it clearly to the purpose of the test in a logical manner.	Draws a correct conclusion from overall pattern of results by fully applying what has been learnt and linking it clearly to the purpose of the test. Discusses any limitations, such as range over which it is suitable in a logical concise manner.	AO1: 2 marks  AO3: 6 marks
(b) Quality of scientific communication 	*	Makes little or no relevant use of technical or scientific vocabulary. Spelling, punctuation and grammar are of generally poor quality.	Makes limited use of relevant technical or scientific vocabulary, presenting information in a non persuasive manner in a form that has some suitability to its purpose. Spelling punctuation and grammar are of very variable quality.	Makes adequate use of technical or scientific vocabulary throughout, presenting information in a persuasive manner in a form that mostly suits the purpose. Spelling, punctuation and grammar are generally sound.	Makes full and effective use of relevant scientific or technical terminology, presenting information in a persuasive manner in a form that fully suits its purpose. Spelling, punctuation and grammar are almost faultless.	

\* No evidence of achievement, or evidence insufficient for the award of 1 mark

## APPENDIX C: MARKING CRITERIA FOR THE WORK-RELATED REPORT

5

## WORK RELATED REPORT MARKING CRITERIA – TOTAL 48 MARKS

## Strand A: Collecting primary data (information)

Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) Collecting primary data (information)	*	Collects data only from the original stimulus materials.	Collects data from a few additional sources, although some may be irrelevant or inappropriate.	Collects relevant and appropriate data from a variety of sources including a practitioner and/or workplace visit.	Collects, selects and records accurately an appropriate range of valid data from a variety of relevant sources, including a practitioner and/or workplace visit.	AO1: 4 marks  AO2: 4 marks
(b) Reference to sources	*	Identifies links to some sources of information using limited detail.	Identifies sources using incomplete or inadequate references.	Identifies sources clearly using adequate references.	Identifies sources clearly using references that are accurate, fully detailed and dated.	

## Strand B: Collecting secondary data (information)

Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) Collecting secondary data (information)	*	Researches and provides one piece of secondary data linked to the chosen job role.	Researches and identifies related facts from chosen secondary data linked to the chosen job role.	Researches, selects and uses one piece of secondary data to support the importance of the chosen job role.	Researches, selects and records accurately an appropriate range of valid data from a variety of relevant sources.	AO1: 4 marks  AO2: 4 marks
(b) Reference to sources	*	Identifies links to some sources of information using limited detail.	Identifies sources using incomplete or inadequate references.	Identifies sources clearly using adequate references.	Identifies sources clearly using references that are accurate, fully detailed and dated.	

\* No evidence of achievement, or evidence insufficient for the award of 1 mark

## Strand C: The work carried out

Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) The organisation/ workplace	*	Makes a relevant statement about the structure of the organisation.	Identifies the structure of the organisation and the different types of employees.	Explains how the roles of the employees contribute to the organisation.	Analyses the importance of the roles of the employees to the organisation.	AO3: 8 marks
(b) The work carried out in a chosen job role and its place in the wider organisation	*	Makes a relevant statement about the nature of the work.	Identifies the work and its purpose and its place in the wider organisation.	Explains the purpose of the work and how it fits into the wider organisation.	Analyses the purpose of the work and its importance to the wider organisation.	
(c) The location of the organisation/workplace and the effect on society	*	Makes a relevant statement about the location of the organisation and one effect on society.	Identifies one reason for the location of the organisation and one effect of the work on society.	Explains the reasons for the location of the organisation and some effects on society.	Analyses the factors influencing the location of the organisation and its impact on society.	

\* No evidence of achievement, or evidence insufficient for the award of 1 mark

**Strand D: Skills used in the workplace**



Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) Technical skills applied in the workplace	*	Makes a relevant statement about technical skills used in the workplace.	Identifies relevant examples of technical skills applied in the workplace.	Explains how examples of technical skills are applied in the workplace.	Analyses the technical skills applied in the workplace.	AO3: 8 marks
(b) The expertise needed by an individual, or a working group, with the vocational qualifications and personal qualities required	*	Makes a relevant statement about expertise or vocational qualifications or personal qualities used in the workplace.	Identifies the expertise needed by an individual, or a working group, stating the vocational qualifications or personal qualities required.	Explains how the expertise, vocational qualifications and personal qualities needed by an individual, or a working group relate to the work.	Analyses the expertise needed by an individual, or a working group and explains the relevance to the work of the vocational qualifications and personal qualities required.	

**Strand E: Scientific knowledge applied in the workplace**

Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) Scientific knowledge applied in the workplace	*	Makes a relevant statement about scientific knowledge used in the work described.	Identifies the scientific knowledge involved in the work described.	Explains how scientific knowledge underpins the work described.	Analyses the scientific knowledge needed and explains how it underpins the work described.	AO3: 8 marks
(b) Financial or other regulatory contexts that impact on the work done (eg, health and safety regulations)	*	Makes a relevant statement about one financial or other regulatory factor relevant to the work.	Identifies two relevant examples of the impact of a financial or other regulatory factor on the work.	Explains the impact of two examples of financial or other regulatory factors on the work.	Analyses the impact of two examples of financial or other regulatory factors on the work.	

\* No evidence of achievement, or evidence insufficient for the award of 1 mark

## Strand F: Quality of the presentation

Skills to be assessed	0	1-2	3-4	5-6	7-8	AOs
(a) The structure and organisation of the scientific report 	*	Produces a report with little or no structure and the contents not fully focussed on the task. Presents the information in a form and structure with little or no suitability to its purpose.	Produces a report with an appropriate sequence or structure with some focus on the task. Presents the information in a form and structure that has some suitability to its purpose.	Communicates information relevant to the task in a clear, effectively organised report, and includes contents-listing of key elements, reference page and page numbering. Presents the information in a form and structure that mostly suits its purpose.	Produces a comprehensive, relevant and logically sequenced report which includes contents-listing of key elements, reference page and page numbering. Presents the information in a form and structure that fully suits its purpose.	AO1: 8 marks
(b) Use of visual means of communication (charts, graphs, pictures etc)	*	Uses very little visual material to support the text.	Uses visual material as simply decorative, rather than informative.	Uses a variety of types of visual material to convey information or illustrate ideas.	Uses pictures, diagrams, charts and/or tables effectively and appropriately to convey information or illustrate ideas.	
(c) General quality of communication 	*	Uses little or no relevant technical or scientific vocabulary. Spelling, punctuation and grammar are of generally poor quality.	Uses limited relevant technical or scientific vocabulary. The report is written clearly. Spelling, punctuation and grammar are of very variable quality.	Uses adequate technical or scientific vocabulary. The report is clear and mostly comprehensible. Spelling, punctuation and grammar are generally sound.	Uses full and effective relevant scientific or technical terminology. The report is clear and fully comprehensible. Spelling, punctuation and grammar are almost faultless.	

\* No evidence of achievement, or evidence insufficient for the award of 1 mark

## APPENDIX D: ADVICE TO CENTRES ON PREPARATION OF SAMPLE FOR MODERATION

### Specification J251: Assessment unit A193

This is to remind you of the stages in preparation of a sample of controlled assessment for moderation. If you have any further queries about coursework, or any aspect of the assessment, please contact the science team, tel 01223 553311.

The notes which follow summarise the materials and evidence required for moderation of the coursework assessment, and explain how to use the documentation which is also enclosed.

#### Unit A193

Each candidate is required to complete a Science Work-Related Portfolio.

The final mark for each candidate comprises:

- The marks for **four** Standard Procedures.
- The total mark for **one whole** Suitability Test.
- The total mark for **one whole** Work-Related Report.

It is not permitted to aggregate part-marks from different activities as the assessment covers the candidate's ability to complete all aspect of the task.

The centre will be provided with self-carboning mark sheets (MS1). The top copy of the completed MS1 form is sent to OCR, the second copy to the moderator, to arrive no later than 15th May, and the third copy is retained by the centre. Alternatively a centre can submit marks by EDI.

The centre will be sent an e-mail asking for the work of a sample of candidates. The work of these candidates should be sent as quickly as possible to the moderator. The list will identify the names and candidate numbers for each candidate whose work is required by the moderator. This list may be kept to provide a record for you of what work has been sent.

The sample sent to the moderator should contain:

- Brief notes about the activities used for assessment.
- A description of procedures used within the centre to ensure internal standardisation of marking.
- The sample of work for each candidate in the sample.
- A completed record card for each candidate in the sample.

### Recording of marks for assessed work

The cover sheet may be photocopied to make sufficient copies to provide for each candidate in the sample. The sheet should be used by the teacher to record marking decisions when marking the work. The pages in each piece of work should be stapled together. A paper-clip provides a convenient way of linking the piece of work and the completed mark sheet.

It is essential that a completed sheet is sent for each sample of work which is called for moderation. Enter the centre name and number and the candidate name and number at the top of the sheet.

The centre should also keep its own record of the work done and marks awarded.

### Special consideration candidates

If a special consideration application regarding coursework marks has been made for any candidate, the work of the candidate(s) concerned should be added to the sample, with a note to explain that they are for special consideration.

The sample of work will be returned to the centre, normally early in July. A report on the moderation will be sent with the notification of results.

We hope that these guidelines are clear and will help the process of moderation to run smoothly. Please do not hesitate to get in contact if you have any queries.



**APPENDIX E: GLOSSARY OF TERMS**

These definitions are consistent with ASE (2010) *The Language of Measurement: Terminology* used in school science investigations  
ASE. ISBN 978 0 86357 424 5

Term	Definition	Notes
accuracy	how close a reading is to the true value	a measurement result is considered accurate if it is judged to be close to the true value
anomaly (outlier)	value in a set of results that is judged not to be part of the inherent variation	a result which does not agree with other results in the data set eg a result which lies well off the line of best fit
control variable	variables other than the independent and dependent variables which are kept the same	
dependent variable	variable which is measured when ever there is a change in the independent variable	
independent variable	variable which is deliberately changed by the person in the planning of the experiment	
precision	a quality denoting the closeness of agreement between (consistency, low variability of) measured values obtained by repeated measurements	how close the agreement is between measured values
range (of a variable)	the maximum and minimum values of the independent or dependent variables	
repeatability	precision obtained when measurement results are produced in one laboratory, by a single operator, using the same equipment under the same conditions, over a short timescale	how close (precise) values are when repeated by the same person with the same equipment
reproducibility	precision obtained when measurement results are produced by different laboratories (and therefore by different operators using different pieces of equipment)	how close (precise) values are when repeated by different people using different equipment
resolution	smallest change in the quantity being measured (input) by a measuring instrument that gives a perceptible change in the indication (output)	smallest change in a value that can be detected by an instrument
uncertainty	interval within which the true value can be expected to lie, with a given level of confidence or probability	the likelihood of a measurement falling close to the true value. A big range in the measurements of the dependent variable implies a high level of uncertainty. Use of range bars helps to show the level of uncertainty
validity (of experimental design)	suitability of the investigative procedure to answer the question being asked	
valid conclusion	a conclusion supported by valid data, obtained from an appropriate experimental design and based on sound reasoning	

# Additional Applied Science

OCR GCSE J251 Unit A193

## Science Work-Related Portfolio Record Card

Record of all marks awarded for assessed Controlled Assessment **20** award

Centre No:						Centre Name:	
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Candidate No:					Candidate Name:	
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### Standard Procedures

	Standard Procedure 1			Standard Procedure 2			Standard Procedure 3			Standard Procedure 4			Total
Title													Maximum Mark 24
Skill	a	b	c	a	b	c	a	b	c	a	b	c	

### Suitability Test

Title of Suitability Test:

Strand A researching the purpose of the test		Strand B planning and risk assessment			Strand C collecting data	Strand D processing and analysing data		Strand E evaluating				Strand F justifying a conclusion		Total
a	b	a	b	c	a	a	b	a	b	c	d	a	b	Maximum mark 48

### Work-related Report

Title of Work-related Report:

Strand A collecting primary data		Strand B collecting secondary data		Strand C the work carried out			Strand D skills used in the workplace		Strand E scientific knowledge applied in the workplace		Strand F quality of the presentation			Total
a	b	a	b	a	b	c	a	b	a	b	a	b	c	Maximum mark 48

Overall total mark for Unit A193	
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Maximum 120 marks	
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## **GENERAL QUALIFICATIONS**

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