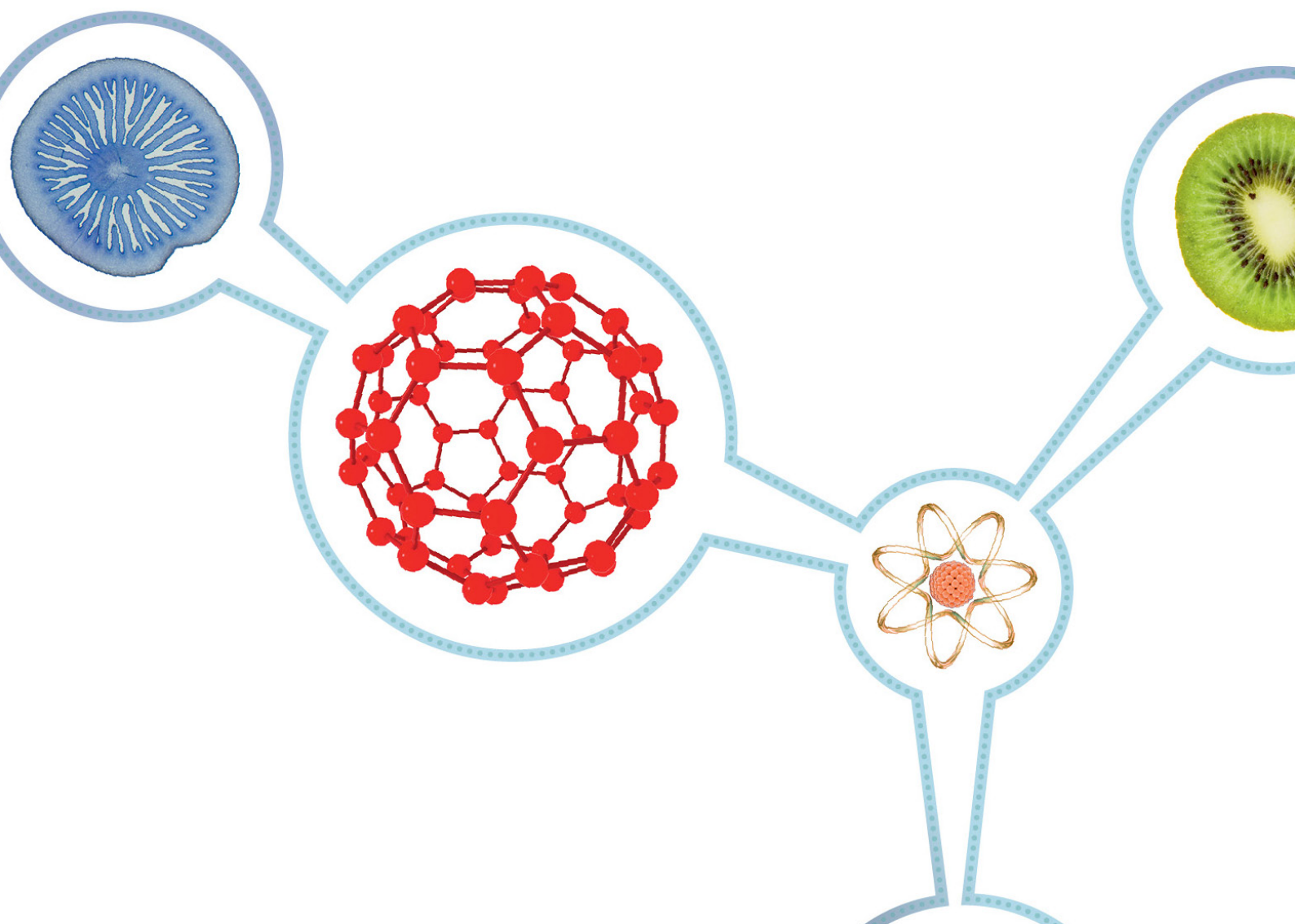**OCR**
RECOGNISING ACHIEVEMENT

ENVIRONMENTAL AND
LAND-BASED SCIENCE
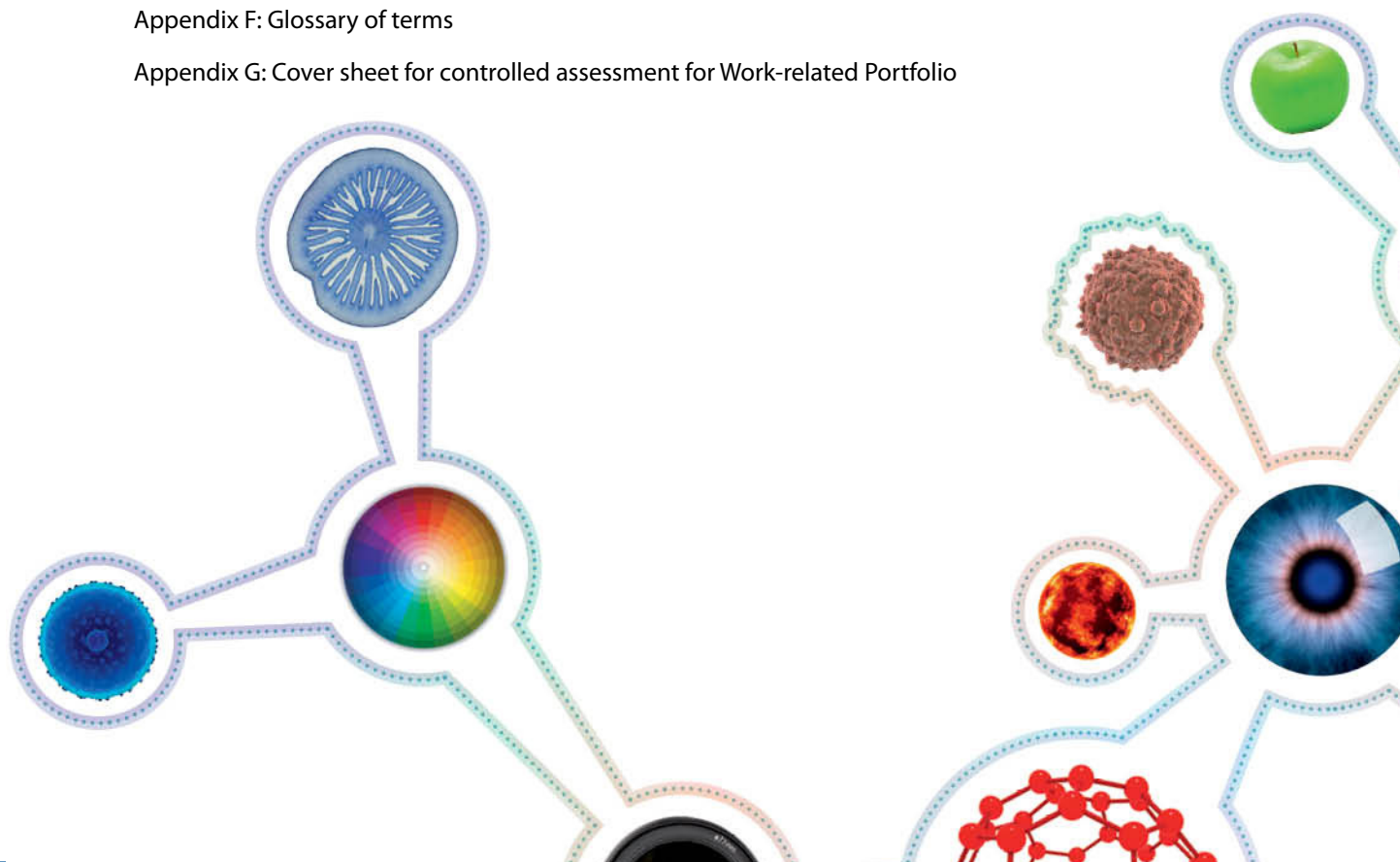
GUIDE TO CONTROLLED ASSESSMENT

VERSION 1   JANUARY 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.

INDEX

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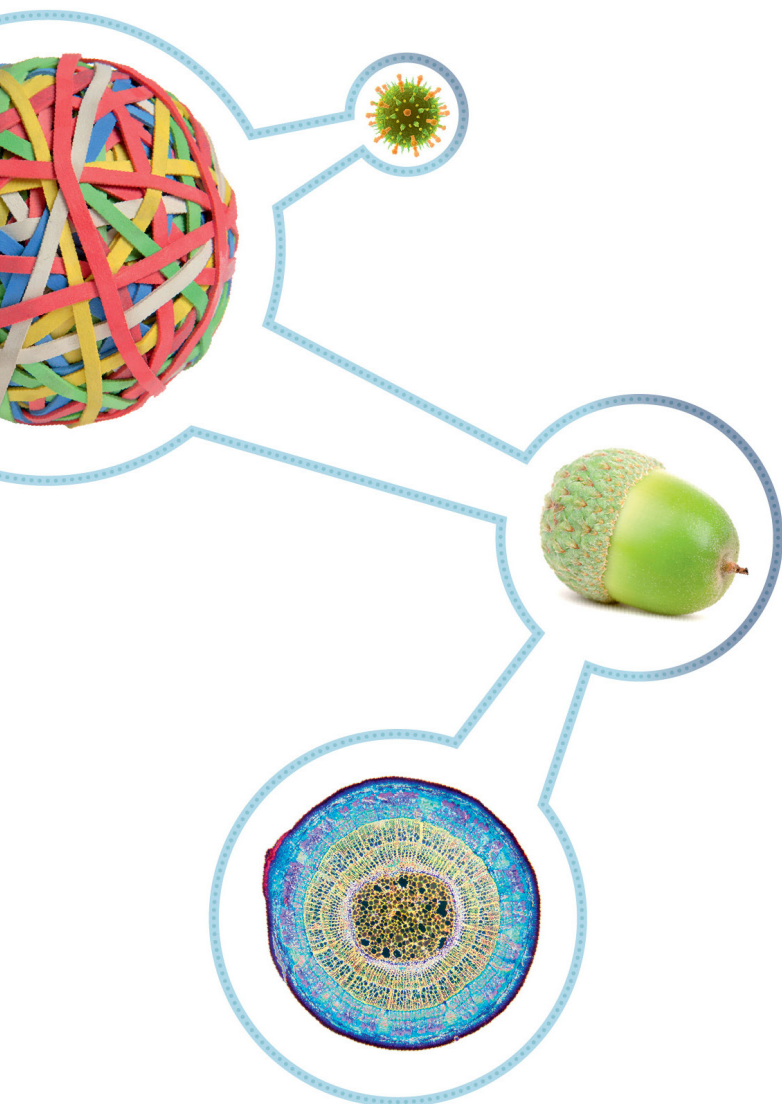
High, medium or limited control levels are set for each of the controlled assessment processes: task setting, task taking and task marking. For each stage, the level of control will ensure reliability and authenticity, and make assessments more manageable for teachers and candidates.

Weighting of Controlled Assessments is defined by QCA subject criteria and for Environment and Land-Based 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. What teacher support 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 – Candidate 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. What teacher support 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 (B684)

The controlled assessment in Unit B684 comprises three elements:
- Pracitcal Scientific Skills
- Investigative Project
- Work-related Activity

For each candidate, the three elements together form the Land based science Portfolio accounting for 60% of the total GCSE qualification and marked out of 120 marks .The Portfolios will be submitted electronically in May following the completion of the Environmental and Land-Based Science course.

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 will be valid for two years and will be available on the OCR Interchange from 1st June 2011. These may then be updated.

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 Practical Scientific Skills Tasks and submit it along with the previous unimproved Scientific Investigation or Work-Related Activity and Scientific Investigation. Centres would have to make sure the tasks are still valid for the session they are to be submitted.

PRACTICAL SCIENTIFIC SKILLS

This element involves the completion of **four** Practical Scientific skills with two being selected from B681 and the other two from the optional module selected, either B682 or B683. **Five** tasks will be available to choose from for each unit and they will be set by OCR.

Each Practical Skills Task task will be related to the appropriate unit content within the specification. The tasks will be able to be contextualised to meet centres own practical situation. OCR will offer advice if centres have concerns about suitability of the task they choose.

The centres will be expected to supply candidates with any practical instructions they will need to follow. However, the controlled assessment task must not be used as practise 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 practical skill tasks completed by the candidates. It will be possible to complete more than the required number of practical skill tasks and choose the best **four** for the final submission. The tasks may form part of effective teaching and learning for the core content of the theory units.

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

SCIENTIFIC INVESTIGATION

This element involves the completion of **one Scientific Investigation** selected from **nine topics** provided by OCR. These will be broad based and the centre is allowed to contextualise these to fit their facilities. It is not expected that all candidates will necessarily do the same investigation but choose one which meets individual interest.

The Investigation should be able to evolve and it is expected that the work will be supported by the course delivery allowing the candidate to have detailed knowledge in their chosen area.

The controlled assessment task must not be used as practise 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.
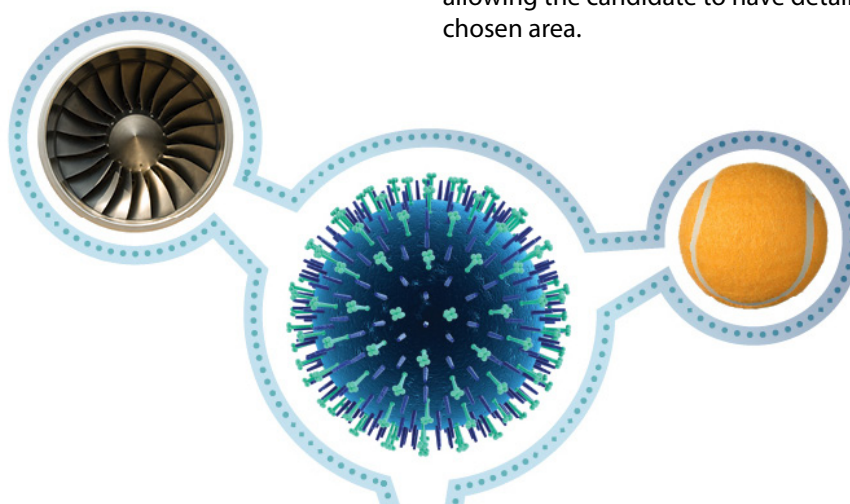
There is no limit to the number of investigations completed by the candidates. It will be possible to complete more than one if desired and choose the best **one** for the final submission. Normally there will however only be time for one although it may suit some candidates to access the course via an open investigative route.

Each Scientific Investigation is marked out of 48 marks. This will be marked by the centre using the 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 task provided by OCR. Organisations and job roles for study should be selected from a 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. Centres may well choose to use mini school based enterprises but are encouraged to link them with, by research, a similar commercial enterprise.

OCR will also provide candidate information 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.
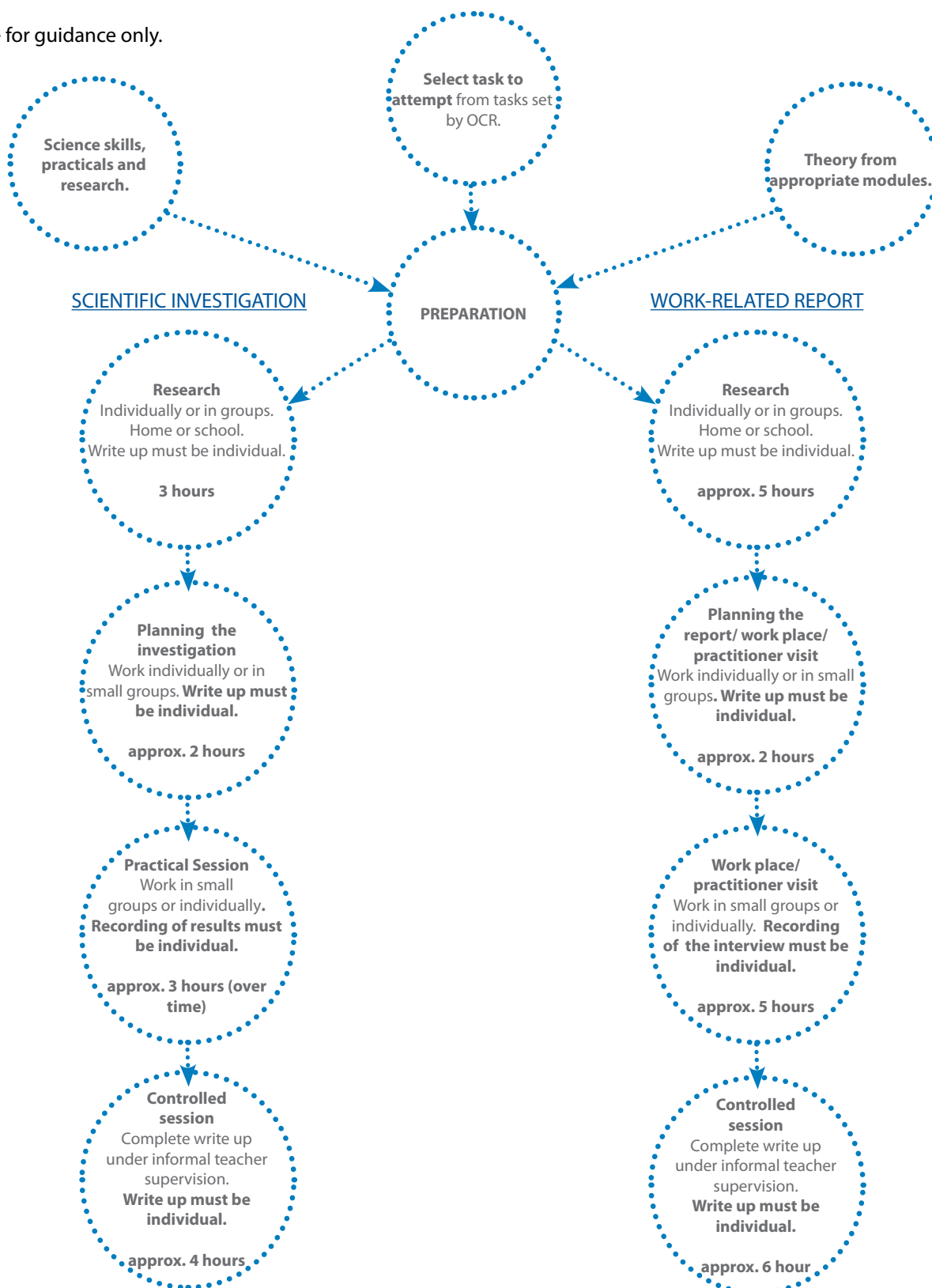
SECTION C
PLANNING AND MANAGING CONTROLLED ASSESSMENT

FLOW CHART SHOWING HOW TO RUN A CONTROLLED ASSESSMENT FOR A WORK-RELATED PORTFOLIO

Times are for guidance only.

Select task to attempt from tasks set by OCR.

Science skills, practicals and research.

Theory from appropriate modules.

SCIENTIFIC INVESTIGATION

PREPARATION

WORK-RELATED REPORT

Research
Individually or in groups.
Home or school.
Write up must be individual.

3 hours

Research
Individually or in groups.
Home or school.
Write up must be individual.

approx. 5 hours

Planning the investigation
Work individually or in small groups. **Write up must be individual.**

approx. 2 hours

Planning the report/ work place/ practitioner visit
Work individually or in small groups. **Write up must be individual.**

approx. 2 hours

Practical Session
Work in small groups or individually. **Recording of results must be individual.**

approx. 3 hours (over time)

Work place/ practitioner visit
Work in small groups or individually. **Recording of the interview must be individual.**

approx. 5 hours

Controlled session
Complete write up under informal teacher supervision.
Write up must be individual.

approx. 4 hours

Controlled session
Complete write up under informal teacher supervision.
Write up must be individual.

approx. 6 hour

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. The tasks will be changed each year. A candidate wishing to resit in a subsequent year will have to choose from the new task titles for that year.

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.
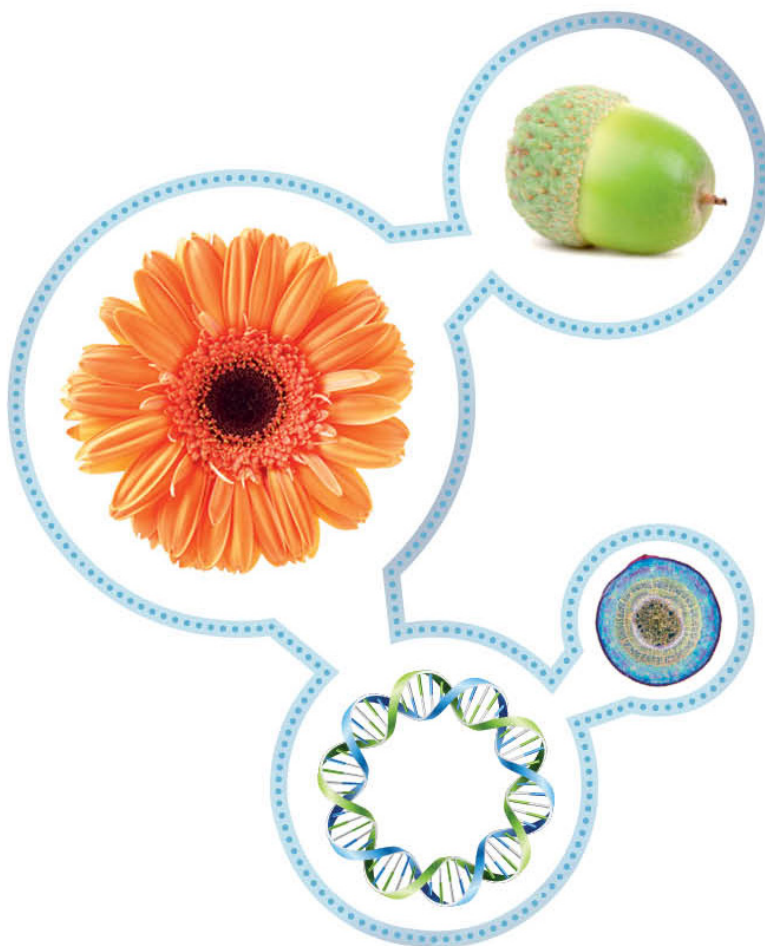
WHEN AND HOW TO GIVE CONTROLLED ASSESSMENT TASKS TO CANDIDATES

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 the correct task titles are used depending on when they plan to submit the candidates' work.

Tasks may only be submitted in June and they must have the correct date on them.

SECTION E

PREPARING AND MANAGING A WORK-RELATED PORTFOLIO

PREPARATION FOR THE PRACTICAL SCIENTIFIC SKILLS

The centre will need to provide opportunities for their candidates to perform the practical work involved in the Practical Scientific Skills, and time to record and process data related to the skill task and to evaluate and critically reflect on the procedure There is no requirement for all candidates to complete the same skill or all candidates to be assessed at the same time. The candidates may carry out as many of the **five** set Practical Scientific Skills 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 practical skills, two from each of the units chosen for examination.

The centre is advised to assess each Practical skill task throughout the course, following the teaching and learning of the appropriate topic. It is therefore expected that before candidates attempt each skill they will have received sufficient preparation of the knowledge and skills required to perform the task safely and in a way which extends the learning experience. It is hoped that the 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 practical scientific skill area. The tasks will often involve a series of practical skills performed over a period of time. Candidates need to work co-operatively to collect sufficient photographic or video evidence through the task period. The facilities required will depend on the centre and centres need to encourage continuous collection of evidence and use appropriate laboratory field or farm facilities where required.

It is expected that each complete practical scientific skill will take the equivalent of about **2 lessons collecting data and carrying out the task and about 1 lesson to process and annotate or up to about 2 hours in total**. In most cases the practical will only take a short time but will be repeated on several occasions. It will be performed 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.

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

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 scientific skills task
- have practise in following practical instructions
- be familiar with the equipment and the working environment. Where animals are involved all necessary health and safety and animal welfare must be considered. Information and advice sheets can be available for candidates to access.

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 Mathematical 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 task.
- know the word control is **200 words** for each practical Scientific Skill write up but that footnotes, figures, tables, diagrams, charts and appendices are not included in the word count.
- Candidates must take responsibility for collecting and storing sufficient photographic evidence and be able to access suitable cameras or digital recorders.

A suitable portfolio or work folder could be provided for each candidate to store electronically and be suitably backed up, in which evidence of completion of each Scientific Practical Skill can be kept. Candidates' access to resources is determined by those available to the centre.

PREPARATION FOR THE SCIENTIFIC INVESTIGATION

The centre will need to provide opportunities for their candidates to research and perform the practical work involved in the Scientific Investigation and time to produce a written report. There is no requirement for all candidates to complete the same scientific investigation or all candidates to be assessed at the same time. The candidates may carry out as many investigations 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 from the highest scoring Scientific Investigation.

The centre is advised to assess the Scientific Investigation at the appropriate time within the course following the teaching and learning of the associated topic. It is expected that candidates will extend their knowledge and skills from the practical scientific skill tasks so that they are suitably prepared to carry out the investigation. 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 them to plan the experimental work and complete risk assessments competently before introducing the Scientific Investigation.

It is expected that the Scientific Investigation will take about **12 lessons or up to 12 hours. This in part may be split over an extended period while collecting the data and performing the investigative work.** 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.
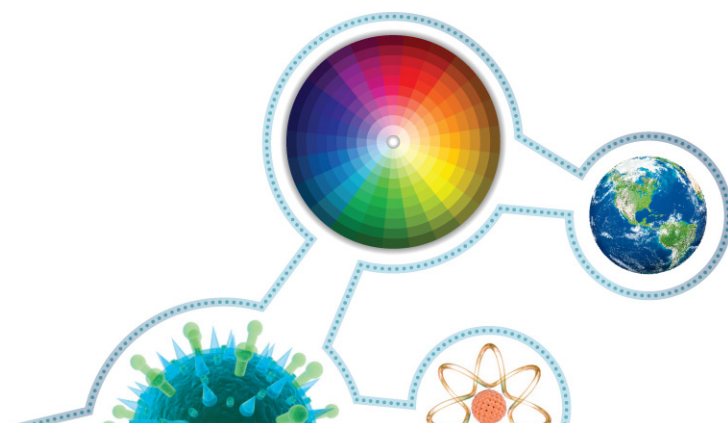
When supervising the tasks teachers are expected to:
- monitor candidates' progress and prevent plagiarism
- ensure compliance with health and safety requirements
- ensure work is completed in accordance with the specification requirements and can be assessed in accordance with the marking criteria.
- Consider implications of safe working in remote field situations.
- Consider the welfare and safety of livestock and the candidates working with them and the welfare impact of such investigative work.

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. Or stored securely on the centres system.

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 the Scientific Investigation.

As preparation for the **research and planning and collecting secondary data** 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 the planned investigation
- revise and confirm how to write and follow safely a risk assessment
- learn how to use their knowledge to devise an effective investigation.

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 the resources and equipment needed to carry out the investigation.

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 Mathematical 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.
- Understand the need to make use of sources used for referencing their work.

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
- know the word control is **1500 words** for the Scientific Investigation and that footnotes, figures, tables, diagrams, charts and appendices are not included in the word count.
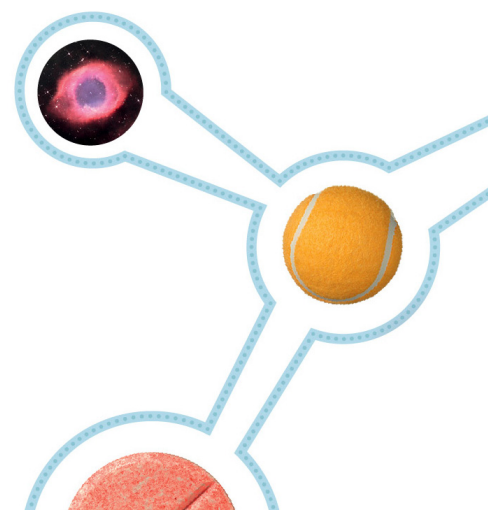
A suitable portfolio or work folder could be provided for each candidate, in which notes and portfolio evidence is kept. This will enable checks to be made on progress. Candidates' access to resources is determined by those available to the centre. Work should be recorded electronically and stored in a secure way by the centre and backed up as necessary to avoid loss or corruption.

PREPARATION FOR THE WORK-RELATED REPORT

The centre will need to provide opportunities for their candidates to research, either to take part in a visit or interview or listen to a practitioner and time to produce a written report. Where an internal enterprise is used it is important to identify individual workers involved beyond the class teacher or fellow students. School technicians may be suitable or other staff associated with the project or site management. There is no requirement for all candidates to complete the same Work-related Report or 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 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 or the time involved in running a centre based enterprise. Where such enterprise involves other aspects of course delivery this should be seen as a guide to the time required.

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 and work may be completed out of the classroom but candidates must provide their own individual 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 or stored securely on the centre system.

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 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.
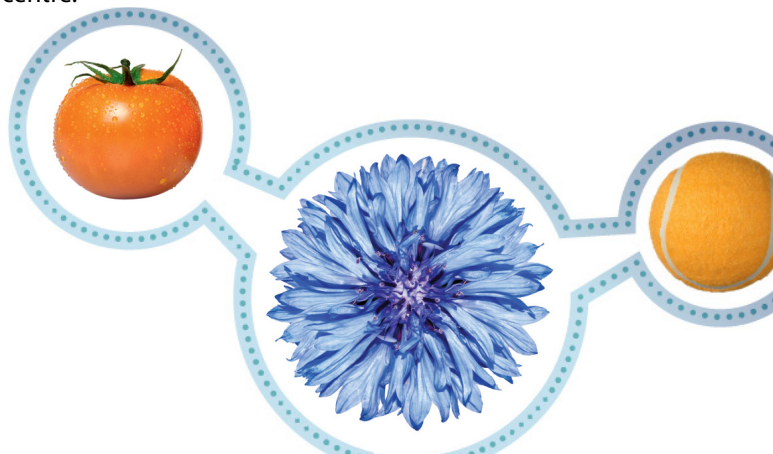- Incorporate the use of data and referenced data within the report.

Candidates will cover specific information for this section when they study the People and Organisation 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** for their chosen organisation and job roles the candidates will need to:
- understand about structures of organisations and 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 qualifications needed and personal qualities required for different job roles
- have been taught the science involved
- are aware of the technical skills needed
- to 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
- make effective use of IT in constructing and presenting the report
- investigate the use of visual material to support text
- be aware of the requirements to support quality of communication
- 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 Head of 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 circumstances 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.
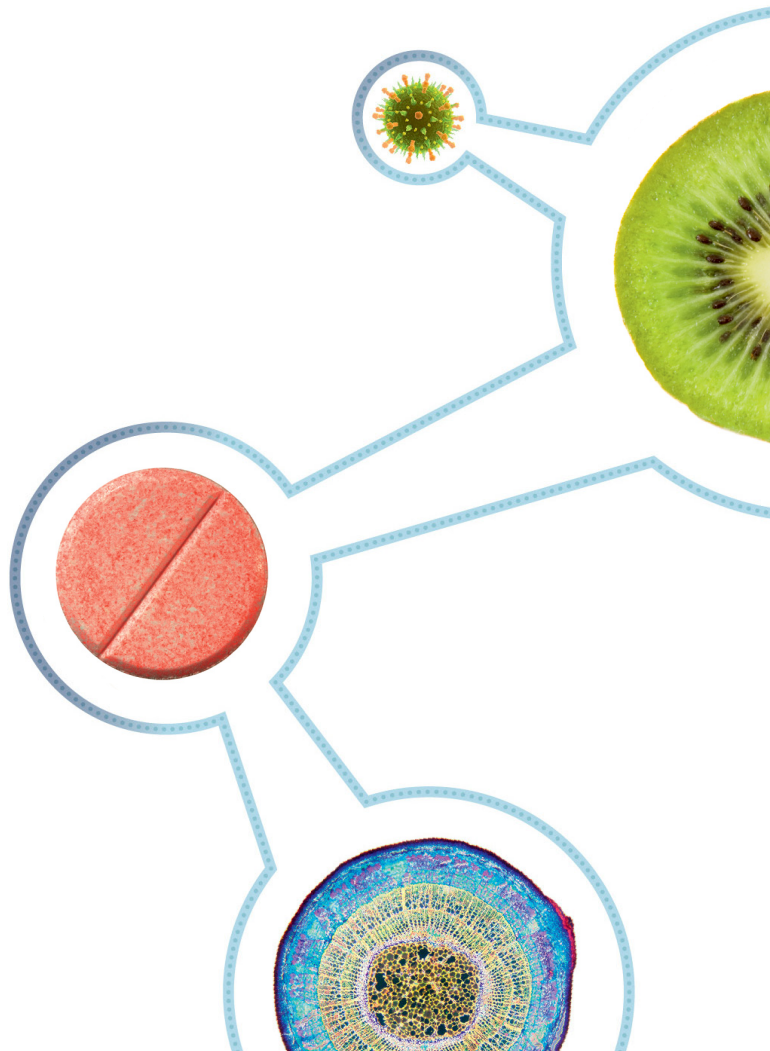
REFERENCING OF RESEARCH SOURCES

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 Environmental and Land-based 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.

Both tasks are to be marked using the relevant marking grids, the Practical Scientific Skills to be marked out of 24 marks, the Scientific Investigation out of 48 and the Work-related Report out of 48. These are combined and a total mark out of 120 awarded.
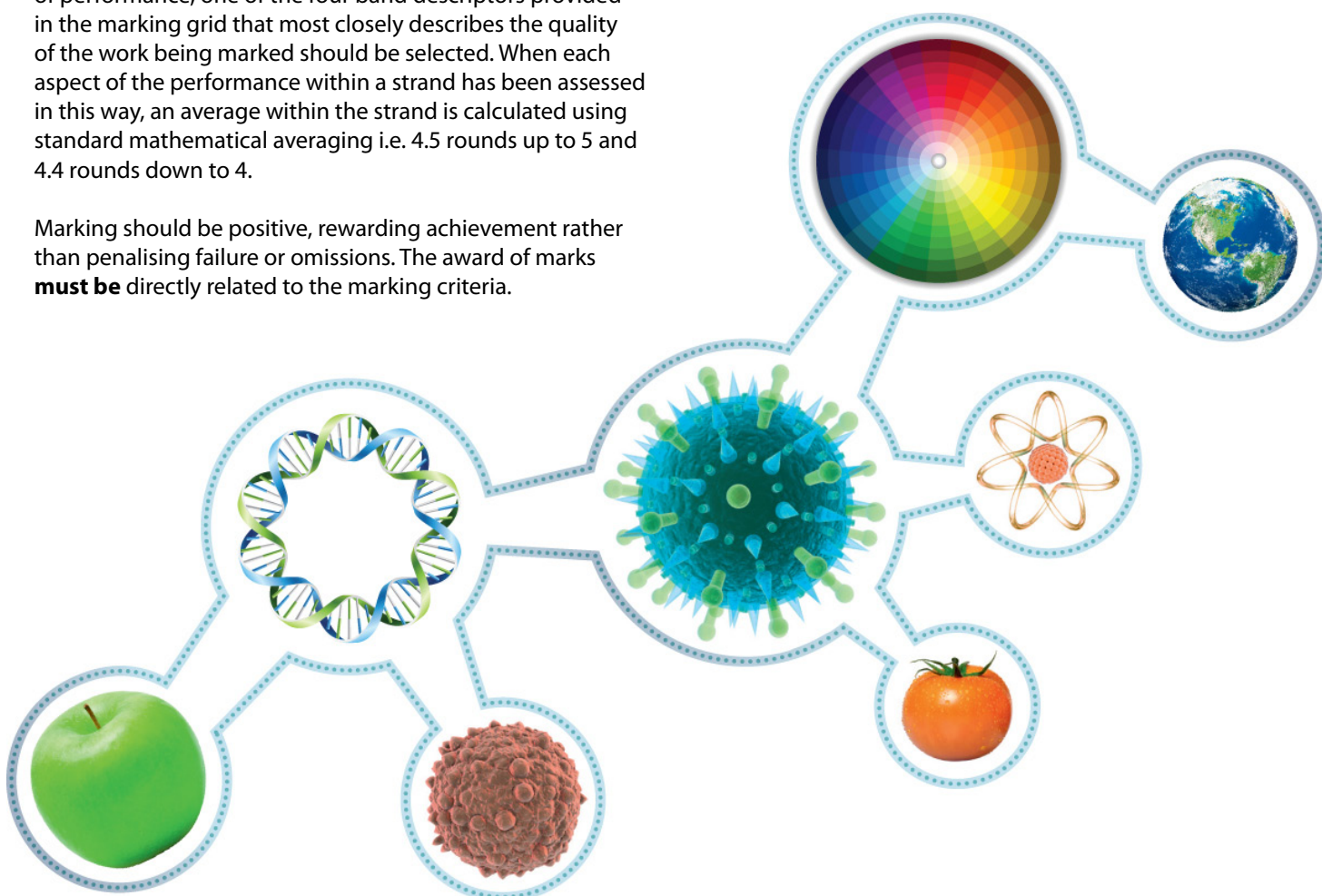
The assessment task(s) for each unit should be marked by the teacher according to the given marking criteria within the relevant unit using a 'best fit' approach. In the Practical Scientific Skills and the Work-related Report, for each aspect of performance, one of the four band descriptors provided 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 Environmental and Land-Based 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 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 via the OCR Repository, CD or memory stick.

PRACTICAL SCIENTIFIC SKILLS (0-6 MARKS FOR EACH PROCEDURE)

Teachers are advised to read the guidance given in the specification 5.2.3 Task marking: Section 5.3.1. Use of the 'best fit' approach gives detailed guidance on marking decisions.

(a) Demonstrate competence in practical scientific skills

1-2	Candidates at this level will carry out simply some practical skills which link together to form a task but they may require guidance when performing the skill.
3-4	Candidates, for 3-4 marks, will be able to carry out a task which involves a series of steps and make the necessary amendments to a procedure or skill with very little help, advise or direct supervision to enable competent performance of the task.
5-6	Candidates, for 5-6 marks, will be able to carry out a series of practical skills required by the task making necessary amendments and modifications to the procedure without the need for any advise. They will achieve a professional and improved outcome as a result of their modification and amendments.

(b) Collect and process primary data

1-2	Candidates working at these lower levels will probably display data in simple bar charts. If graphs are drawn 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 growth rate or compare yield or performance.
3-4	Candidates working at this level will draw line graphs or more complex and appropriate bar charts but there will be some errors in scales, plotting or drawing the line of best fit. Answers from mathematical techniques will be seen but possibly will show some error or be simplistic by nature.
5-6	Candidates, for 5-6 marks, will produce well-drawn line graphs or other appropriate graphs or charts and where 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 relevant to the task.

(c) Evaluate methods used and data collected

1-2	For 1-2 marks, simple annotation of photographic evidence to support and explain the skill demonstrated will be seen (This is me making a seed drill) Some comment about the data and procedure will be used. Identifies and or comments on basic risks.
3-4	Candidates, for 3-4 marks, 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. They will make good use of the photographic evidence to inform the reader and make comments on the data and its validity.
5-6	Candidates, for 5-6 marks will produce information on potential hazards, whether they are high or low risk, and the steps that were made in order to minimise these risks. They will use detailed annotation of film or photographic evidence to inform the reader and make constructive and appropriate observations on the data. They will analyse the performance of the task.

SCIENTIFIC INVESTIGATION

Although selected from nine options candidates may still contextualise these to the available resources.

Teachers are advised to read the guidance given in the specification 5.5 Task marking: Section 5.3.2. Use of the 'best fit' approach gives detailed guidance on marking decisions.

Note : As guidance the marking criteria is hierarchical where indicated lower level aim at G –E candidates Mid marks D-C candidates Higher B-A Candidates. It is advisable to have aspirational but achievable targets but not to over load weaker candidates aiming for the higher marks.

Strand A: Planning and using appropriate secondary data

The aim of this strand is for candidates to demonstrate that they can collect and use secondary data to research their investigation and produce a clear and effective plan supported by research into the related science.

Lower level 1-2 marks	Candidates at this level will produce some research which is relevant to the task but it will not be logically presented. The plan will need some guidance and support in its formulation. Candidates will identify equipment and make some attempt to outline risks. There will be irrelevant research at this level.
3-4 marks	For 3-4 marks, candidates will make some basic attempt to outline a workable but simple investigation. The selection of an investigation will require only basic guidance. The plan will include some secondary data and it will be used in a simple way to inform the development of the plan
Mid marks 5-6 marks	For 5-6 marks, candidates will have selected suitable research and have used it to inform their plan but only superficially. They will show some awareness of the limitations of the procedure and take adequate care to control and manage risks.

7-8 marks	For 7-8 marks, candidates will have selected a range of appropriate secondary data for the plan and worked independently to use the research to devise a workable scientific investigation. They will have attempted to identify and control error to ensure an appropriate degree of precision, and will have a full awareness of the risks involved in the procedure.
Higher level 9-10 marks	Candidates at this level will have independently devised the investigation. Secondary research will be detailed, appropriate and discussed and will have informed the plan for the investigation. The information sourced will be used, explained and clearly identified. The awareness of limitations in the planned procedure will be clear. Candidate will be aware of, identify and manage all risks showing clear evidence of appropriate research.

Strand B: Collecting primary data

The aim of this strand is to collect data from the investigation which will allow the candidate to analyse and evaluate the investigation they have devised.

Lower level 1-4 marks	For 1-2 marks, candidate will have needed constant support and guidance to collect and record simple measurements resulting from carrying out the investigation. Inaccuracies in the measurements will be seen at this level.
3-4 marks	Candidates for 3-4 marks will have needed some help collecting an adequate range of data over a period of time and will have recorded it in a clear but simple format with some inaccuracies using basic recording techniques.

Medium level 5-6 marks	For 5-6 marks, candidates will have collect a good range of data with sufficient accuracy and precision to show error or anomalous results. Their data will show repeatability or include additional data or work from a candidate doing a similar activity. Such work will have been acknowledged. (In ELBS repeatability can be hard as investigations are often seasonal) Candidates will have used their own recording method.
Higher level 7-8 marks	For 7-8 marks, candidates will have collected an extensive amount of relevant data which will allow verification or comparison with the main data. They will have used recording methods which allow suitable precision appropriate to the task (measuring a calf and a rabbit would clearly require different units and methodology).

Strand C: Processing and analysing data

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

Lower level 1-2 marks	Candidates working at these lower levels will have probably made a very basic comment about the data or investigation. They will have displayed data as very simple bar charts, or if line graphs are used, 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.

3-4 marks	Candidates working at this level will have made a relevant comment about what the results show and will have drawn appropriate graphs or charts showing and simply identifying general trends or patterns which relate to the data. There will be some errors in scales, plotting or drawing graphs or charts. Alternatively, there will be answers from one mathematical technique, but possibly with some errors.
Medium level 5-6 marks	For 5-6 marks, candidates will have used at least one well-produced graph or chart, or use correctly-completed mathematical techniques to support their data. An analysis will have been drawn supported by the data and related to the underlying science.
7-8 marks	For 7-8 marks, candidates will have analysed and processed the data as for 5-6 marks but will have used more data and will have clearly explained and identified patterns and trends.They will have identified some specific data expressed in the graphs and made comments to address and justify the significance of this data. They will have related the outcomes to the basic predictions within the plan and will have used the underlying science to attempt to explain the results and patterns shown. They will have used scientific models to support the conclusions drawn.

Higher level **9-10 marks**	For 9 -10 marks candidates will Identify complex patterns and draws a link between different data and explain in detail the patterns and data trends. Attempt will be made to justify conclusions linking it to the underpinning science and relating it to scientific models relating to the investigation undertaken in a logical way. They will make full use of the data and identify points of particular interest or importance by annotation or direct reference to specific points on graphs or in data. Appropriate mathematical processing will be used. This will be clearly linked to scientific models and the relationship will be clearly explained.

Strand D: Evaluating the procedure and the evidence

The aim is to reflect on the procedure assess the validity of their data and conclusions and to identify ways to amend or further improve future work .
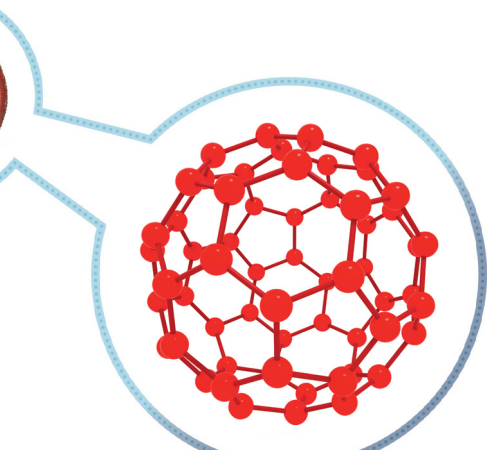
Lower level **1-2 marks**	Candidates will have maked a simple comment about the procedures used and or how the primary data was collected (this may be found in the methods or other parts of the report) some simple comment beyond 'it went well' is required for 2 marks.
3-4 marks	Candidates will state at least one problem they had with the experimental work or will make a statement that everything went well with a simple reason. For four marks they will have suggested some possible improvement, beyond just collecting more data which is unexplained.

Medium level **5-6 marks**	Work at this level will contain descriptions and some discussion rather than simple comments or statements, with some suggestions on how to improve the procedure, which will include some limited practical detail, e.g. change of temperature, but with no detailed information on how to do it. They will Identify anomalous or unexpected results and will attempt to account for and explain these.
Higher level **7-8 marks**	For 7 to 8 marks, candidates will need to include an evaluation of the methods used with an explanation to support and justify reasons for suggested improvements. Anomalous and unusual or unexpected results will need to be explained to show how they do not follow the trends identified. They will give possible scientific explanations or account with reasons for errors in the collection of data and for information on which the results were produced. They will give a full explanation, in scientific terms, of how the investigation might be improved to further strengthen and support any conclusions drawn. If the candidates' work did not require any significant changes then there will be a statement indicating this, with sufficient justification of why methods were successful. This will still support the award of higher marks.

Strand E: Quality of written communication

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

Lower level **1-2 marks**	The report will be of simple format and lack logical structure and with the use of minimal scientific vocabulary and content, and spelling punctuation and grammar will be of poor quality. Visual material will be mainly decorative in nature.

Medium level 3-4 marks	The report will be logical and clearly set out, information will be presented in a logical way with sub headings, contents pages, numbered pages and a bibliography. Appropriate use of scientific and technical terms and a generally sound vocabulary will be evident throughout. Spelling, punctuation and grammar will have only a few errors. The report will be easy to read. The reader will be able to understand its aim and outcomes. (refer to marking criteria)
High level 5-6 marks	For 5 to 6 marks, The report will be well presented, using clear and effective communication with appropriate use of subheadings and annotation of graphical data charts and tables. There will be appropriate use of referencing, detailed contents page and bibliography page, which will be clearly numbered and cross referenced, including references to tables and charts. There will be minimal or no errors in spelling, punctuation or grammar and excellent use of scientific terms will be evident. It will be easy to read and the aim and outcome will be easy to identify.

Strand F: Deremination, initiative and independence

This criteria allows centres to reward candidates who even if not able to produce a high level report they have worked tirelessly and in a responsible and enthusiastic way and gained from the experience.

Lower level 1-2 marks	Candidate will have required constant guidance and support to stay on task and carry out the investigation.
Medium level 3-4 marks	Candidates will have generally worked independently with little need for direct guidance. They will be able to identify problems but will have needed some guidance to resolve them.
High level 5-6 marks	Candidate will have performed the investigation in a mature and responsible way. They will have been able to use their own initiative to resolve problems

WORK-RELATED REPORT

Teachers are advised to read the guidance given in the specification 5.5 Task marking: Section 5.3.3. Use of the 'best fit' approach gives detailed guidance on marking decisions.

Strand A: Collecting primary data (information)

(a) Collecting primary data
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
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 and or from their own enterprise. For 7-8 marks, candidates will comment on the validity of the sources used.

Note : Primary data are 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 to or a visit from a practitioner. If they are reporting on their own centre enterprise. they should include data collected from a similar commercial enterprise. 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 marked candidates will have referencing in their report but it will be 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)

Strand B: Collecting secondary data (information)

(a) Collecting secondary data

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.

Lower level **1-4 marks**	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 paste or a complete article included which will probably contain irrelevant information. 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 have highlighted chosen information to identify facts.
Higher level **5-8 marks**	For higher marks, candidates should show research skills demonstrating suitable selection of appropriate material from the available resources rather than indiscriminate copying. 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 possibly will comment on the validity of the sources used.

Note: Secondary data are 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.

Lower level **1-4 marks**	Lower marked 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.
Higher level **5-8 marks**	Higher marked candidates should be showing evidence of referencing through their report in addition to including a reference list. Candidates will have identified a range of sources and should cite books or articles to one of the accepted conventions and websites should provide the full URL, and record date accessed.

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.
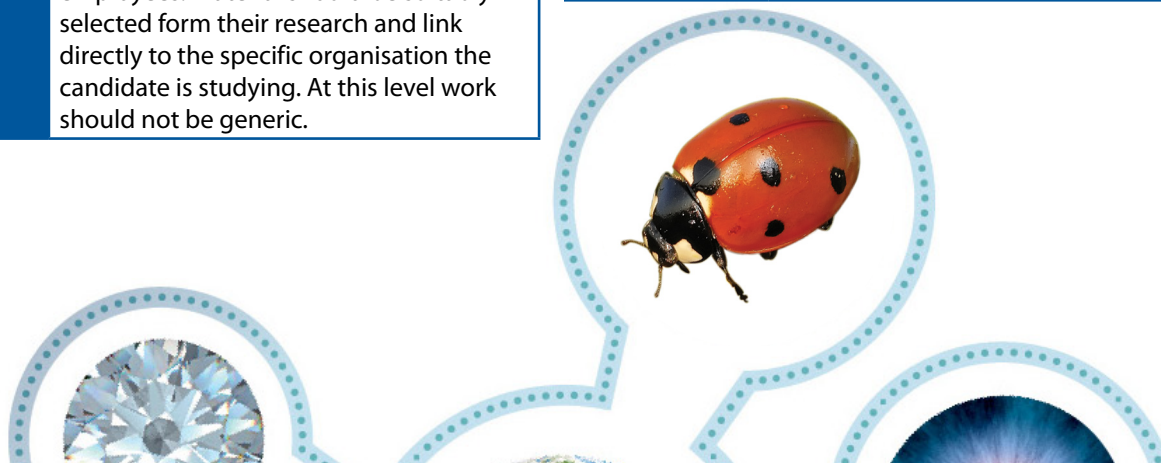
(a) The organisation/workplace

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	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 paste and irrelevant material will be seen at this level. For 3-4 marks, candidates will need to identify the structure of the organisation and name the different types of employees. Work at this level will just include basic statements to identify the structure etc of the workplace.
Higher level 5-8 marks	For 5-6 marks, candidates need to give explanations on how the employees contribute to the organisation rather than simple comments or statements. For 7-8 marks, candidates need to use their researched information to analyse the importance of the roles of the employees. Material should be suitably selected form their research and link directly to the specific organisation the candidate is studying. At this level work should not be generic.

(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	For 1-2 marks, candidates will just make a statement about the nature of the work in the organisation they are studying e.g. The dairy man is responsible for the day to day care and milking of the cows. Cut and paste and irrelevant material will be seen at this level. For 3-4 marks, candidates will need to identify the work and its purpose and place in the wider organisation e.g. The role of the dairy man within the context of the whole farm and the farms role within the local community. Work at this level will just include basic statements to identify the requirements of this strand.
Higher level 5-8 marks	For 5-6 marks, candidates need to give explanations on the purpose of the job role showing understanding of how it fits in to the wider organisation rather than simple comments or statements.eg Links to National and European agricultural policies. For 7-8 marks, candidates need to use their researched information to analyse the purpose of the work and its importance in the wider organisation. Material should be suitably selected form their research and link directly to the specific organisation the candidate is studying. At this level work should not be generic.

(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	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 dairy industry forms an important role in the daily life of the country Cut and paste and irrelevant material will be seen at this level. Road maps, also, will be seen at this level.
	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.
	Work at this level will just include basic statements to identify the requirements of this strand.
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 researched information to analyse the factors which influence the location of the organisation and its impact on society.
	Material should be suitably selected form their research and link directly to the specific organisation the candidate is studying. At this level, work should not be generic.

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.

Lower level 1-4 marks	For 1-2 marks, candidates will just make a statement about a technical skill used e.g. dairy man needs to know how to inject a teat to treat mastitis. Cut and paste and irrelevant material will be seen at this level. The skill may be difficult to find in the report and not linked to 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, but I need to understand the operation of the milking machine to ensure the teats of the cow are not harmed would be acceptable.
Higher level 5-8 marks	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 researched information 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.

(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.

Lower level 1-4 marks	For 1-2 marks, candidates will just make one statement about the expertise or qualifications or personal qualities need in the job role. Cut and paste and irrelevant material will be seen at this level. It is common to see qualifications needed to get on a course for, e.g. tractor driving. Candidates will include this rather than the qualification needed to do the actual job, this is not acceptable.
	For 3-4 marks, candidates will need to identify in their report the expertise or qualifications or personal qualities needed in the job role.
	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 and 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.

Higher level 5-8 marks	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 have an explanation of what these are and how they are used, and not just statements to identify them.
	For 7-8 marks, candidates need to use their researched information 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 to the link them 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.

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.
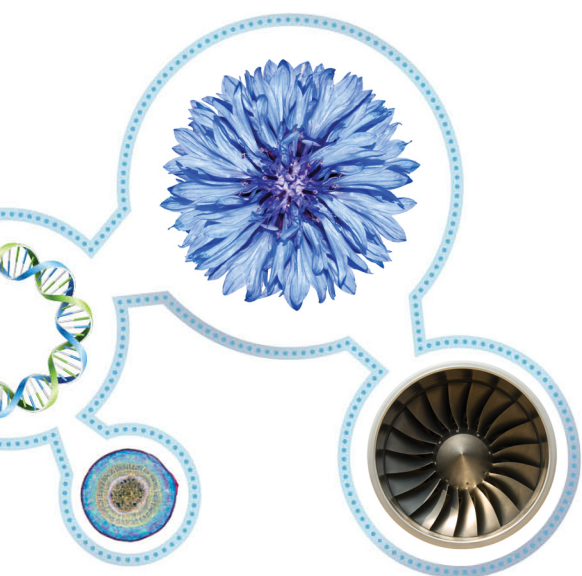
(a) Scientific knowledge applied in the workplace

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.

Lower level 1-4 marks	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 B681 or B682 / B683. Cut and paste and irrelevant material will be seen at this level.
	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.

Higher level 5-8 marks	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. For 7-8 marks, candidates need to use their researched information 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 form their research and link directly to the specific organisation the candidate is studying. At this level, work should not be generic.

(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.

Lower level 1-4 marks	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 paste and irrelevant material will be seen at this level. For 3-4 marks, candidates will need to identify examples of 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.

Higher level 5-8 marks	For 5-6 marks, candidates need to explain the **impact of two examples** of financial or other regulatory factors on the work. Defra or the EU often providing useful relevant information. Care needs to be taken that candidates explain the impact of their chosen factors rather than just give detail on these. For 7-8 marks, candidates need to use their researched information to analyse the **impact of their two chosen examples**. Material should be suitably selected form their research and link directly to the specific organisation the candidate is studying. At this level work should not be generic.

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.

PRODUCING THE E-PORTFOLIO

The centres coursework portfolios should be organised in a candidate folder with the candidate number candidate name and examination number. The centre number is automatically added when the work is uploaded.
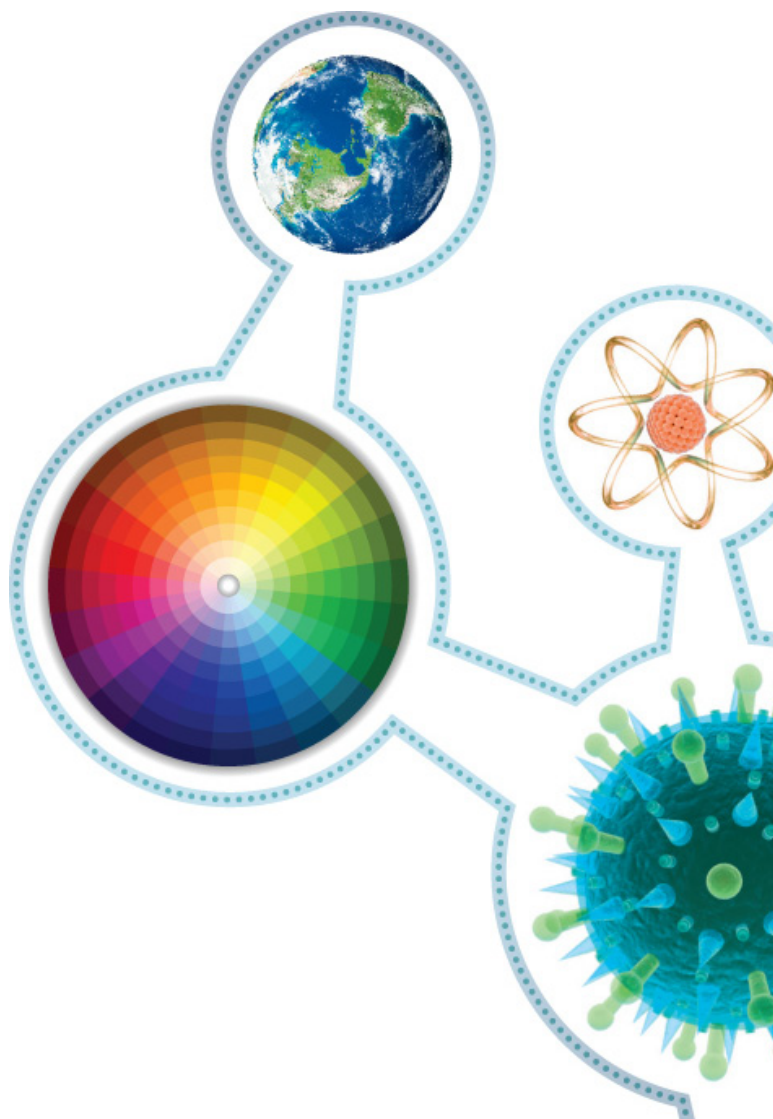
The folder should contain; the candidate record card completed in full (available on the OCR web site), and files marked as follows: Practical Scientific Skills, Work Related Report and Scientific Investigation . A copy of the centre authentication form, CCS 160 should also be included.

Please **do not** include numerous additional files used in the production phases of the candidates portfolio development.

Work should **not** be presented in html format or include hyper links of any form as this causes numerous difficulties for both moderators and awarders in accessing the work. Skills being presented as short video clips suitable compressed (as 7 Zip).This may well prove motivational to candidates.

The deadline for submission being the 15th May in the year of the final written papers. The marks can be submitted electronically or on a MS1 form a copy being sent to OCR and your moderator.

Centres will be advised as to the exact sample shortly after the submission of the marks. Centres with small entries may prefer to load all their candidates work onto the repository at the same time as marks are submitted. For centres with ten or fewer candidates, all the work will be required. Even centres with more candidates might find it easier to load all candidates work to avoid the need to return to add the sample at a later date.

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-written annotation on each candidate's work. At the 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. For electronic versions a separate sheet should be attached detailing annotations.

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 or submitted with the electronic versions
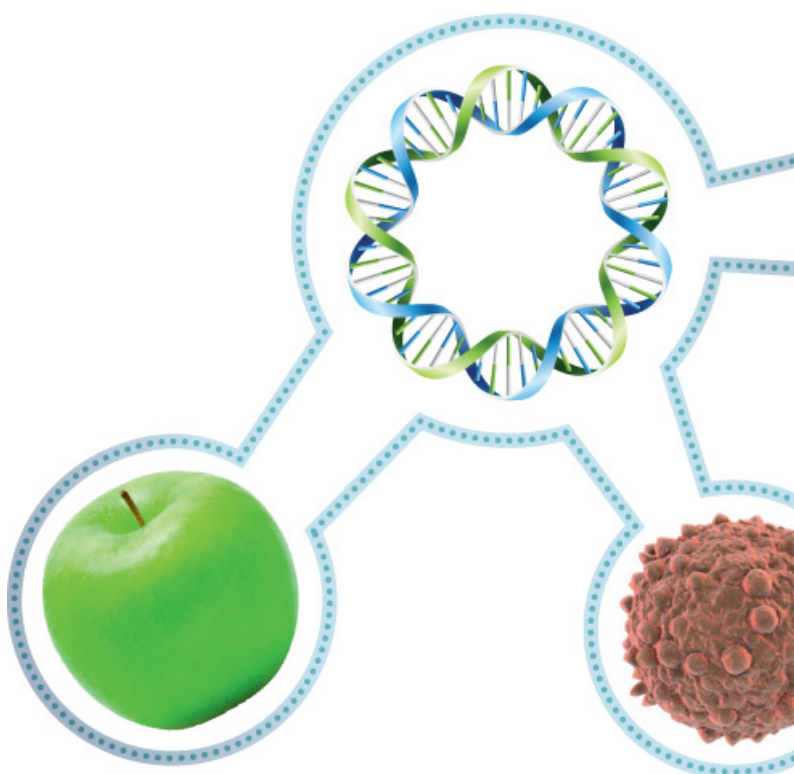
STORAGE OF SCRIPTS

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.
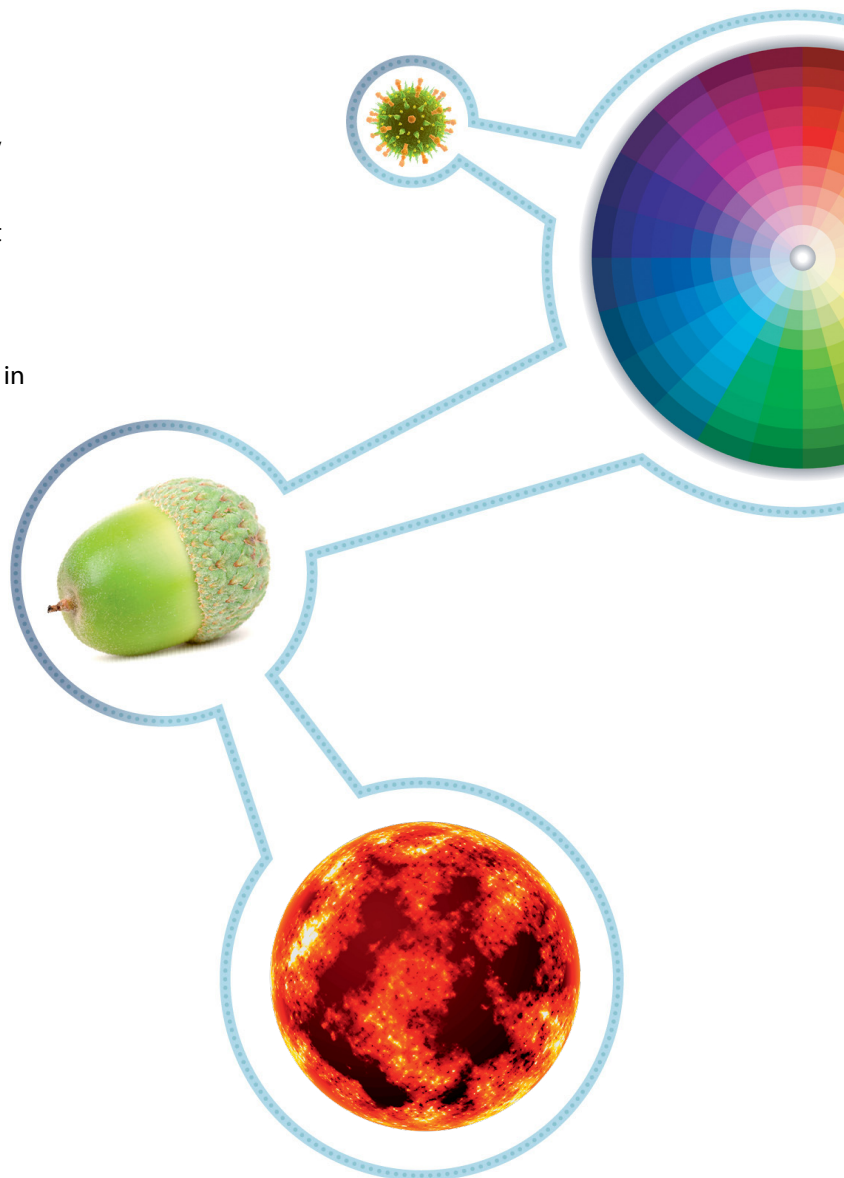
Things to think about/remember:

- 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 assessments be taken?

The controlled assessments should be submitted in the June 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 Scientific Investigation, 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 Scientific Investigation, 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.
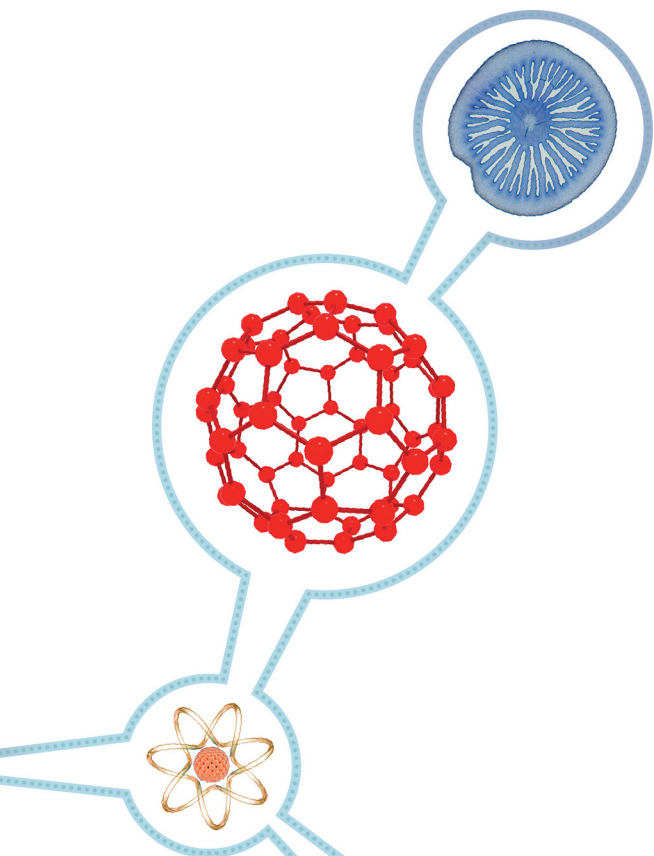
Can candidates use computer software, such as Microsoft Excel, to draw graphs?

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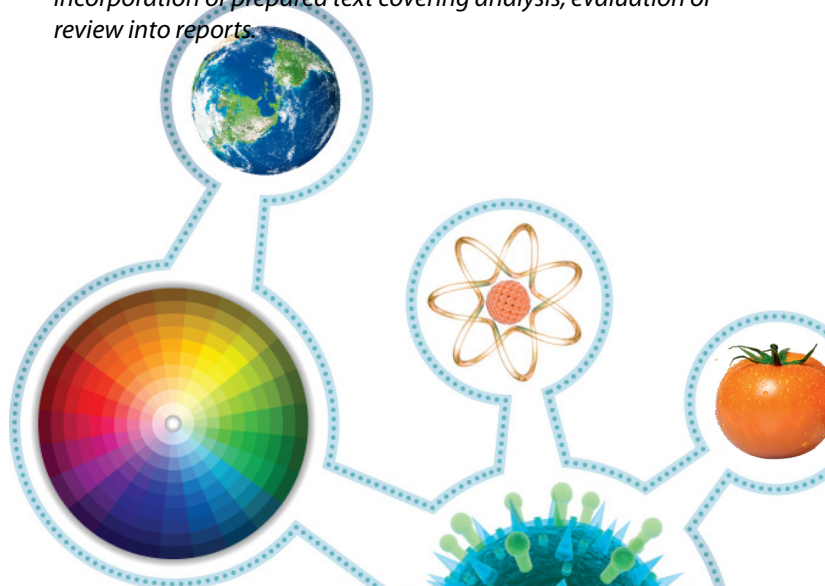
Such candidates can either have an assistant to perform the experiments under their direction, or can use the data from another candidate. The use of teacher data is not allowed. If candidates use data from another candidate they will be unable to access the marks for this skill quality.

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.

Can candidates re-draft their written reports?

No re-drafting of reports is permitted outside conditions of medium control. However, while under informal teacher supervision candidates can continue to amend and edit the reports that they are writing. Teachers cannot provide specific feedback on candidates' drafts or indicate what improvements need to be made.

Can candidates share their results for the controlled assessment task?

Candidates are allowed to work together under conditions of limited control and this can include sharing primary data that they have collected. However, all candidates must make an individual response and therefore have contributed to collecting at least some of the data for themselves.

SECTION J

GUIDANCE ON DOWNLOADING CONTROLLED ASSESSMENT TASKS FROM INTERCHANGE

BEFORE YOU START

Controlled assessment materials will be 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

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.

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.

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.

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

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

SECTION K

APPENDICES

APPENDIX A

5

5.3.1 Element 1: Practical Scientific Skills used in Environmental and Land-Based Science

(4 tasks, each marked out of 6: mark total 24)

Skills to be assessed	0	1 – 2 marks	3 – 4 marks	5 – 6 marks	AO
(a) Demonstrate competence in practical scientific skills	*	Performs a practical task that involves a series of simple step-by-step practical operations with some advice and guidance.	Performs a practical task which involves a series of step-by-step practical operations with little or no advice and guidance. Makes some appropriate amendments to the method.	Performs independently a practical task which involves a series of step-by-step practical operations and makes decisions, amendments and modifications to improve the task outcome.	AO1: 2 marks
(b) Collect and process primary data	*	Collects and records some of the data specified by the task, and uses some graphical or mathematical techniques, with errors or inaccuracies.	Collects and records in an appropriate format a range of data specified by the task, and uses graphical or mathematical techniques, with some gaps in data, errors or inaccuracies.	Collects and records accurately and in the most appropriate format the full range of data and information specified by the task. Uses correctly the graphical or mathematical techniques appropriate to the task.	AO2: 2 marks
(c) Evaluate methods used and data collected ✎	*	Writes relevant comments about the task, including how risks were managed. Comments are simplistic with limited use of specialist terms.	Writes a limited evaluation of the task, including the management of risks. Makes a relevant comment on the appropriateness of the procedure used. Account is clear and specialist terms are for the most part used appropriately.	Writes a detailed critical evaluation of the task, including the management of risks and the appropriateness of the procedure used. Account 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

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APPENDIX B

5

5.3.2 Element 2: Scientific Investigation (mark total 48)

Strand A Planning using appropriate secondary data	Mark
No evidence of achievement, or evidence insufficient for the award of 1 mark.	0
Selects relevant questions with considerable guidance and uses some secondary data within the plan. Identifies basic equipment required and takes action to control risk.	1 – 2
Selects relevant questions with guidance. Plans an appropriate investigation in outline, using some secondary data to inform the plan. Identifies a range of appropriate equipment and takes some action to control risk.	3 – 4
Selects relevant questions with some guidance. Plans an appropriate investigation incorporating some secondary data. Shows an awareness of limitations in the procedure and adequate action to control risk.	5 – 6
Selects relevant questions without guidance. Plans an appropriate investigation using a range of appropriate secondary data to inform the plan. Demonstrates a clear understanding of how to ensure precision, minimise error and control risk.	7 – 8
Selects relevant questions without guidance; clearly expresses information; plans an appropriate investigation using detailed secondary data to inform the plan and identifies a suitable procedure. Justifies how the plan will ensure precision and minimise error. Produces a detailed risk assessment and researches the necessary control procedures.	9 –10

Strand B Collecting primary data	Mark
No evidence of achievement, or evidence insufficient for the award of 1 mark.	0
Carries out the investigation with considerable help; provides some data and partially records data using a given format.	1 – 2
Carries out the investigation, with help; provides an adequate amount or range of data which is of variable quality and fully presents data using a given format.	3 – 4
Carries out the investigation, collecting data of generally good quality with appropriate precision and repeatability; devises own format and correctly records data, including all units of measurement.	5 – 6
Carries out the investigation, systematically collecting an extensive range of accurate and precise data; correctly records data to an appropriate degree of precision, presenting it clearly in the most appropriate format.	7 – 8

5

Stand C Processing and analysing data	Mark
No evidence of achievement, or evidence insufficient for the award of 1 mark.	0
Provides one valid deduction, chart or simple line graph.	1 – 2
Uses simple bar charts or line graphs to identify patterns in the data. Provides deductions that are based on the evidence.	3 – 4
Uses one graphical or mathematical technique to reveal patterns in the data. Provides an analysis of one trend/pattern, which is generally related to the evidence and to the underlying science.	5 – 6
Reveals patterns in the data using graphical and/or mathematical techniques. Provides an analysis of the trends/patterns based on the evidence and on scientific knowledge and understanding. Uses the general pattern of results to give conclusions, with reasons, linked to scientific models.	7 – 8
Identifies complex relationships between variables using appropriate complex graphical and/or mathematical techniques. Uses an appropriate quantitative treatment of level of uncertainty of the data. Provides a comprehensive, effective and coherent analysis based on the evidence and gives conclusions with reasons fully explaining and incorporating the appropriate science. Presents clear links to scientific models.	9 –10

Strand D Evaluating the procedure and the evidence	Mark
No evidence of achievement, or evidence insufficient for the award of 1 mark.	0
Makes a simple comment about the procedures used and the evidence obtained.	1 – 2
Makes a relevant comment about the procedures used and the evidence obtained, and suggests some improvements.	3 – 4
Makes relevant comments about the procedures used, including management of risks, and evidence obtained, including accuracy and any anomalous results. Suggests and explains changes that would improve the investigation.	5 – 6
Considers critically the quality of the evidence, including repeatability and uncertainty, and the management of risks. Considers whether the evidence is sufficient to support conclusions, accounting for any anomalies. Describes in detail, with reasons, further work to provide additional relevant evidence and information which will support conclusions.	7 – 8

5

Stand E The quality of scientific communication	Mark
No evidence of achievement, or evidence insufficient for the award of 1 mark.	0
Report reasonably well presented, but lacking logical format; with gaps and omissions. The response may be simplistic with frequent errors of spelling, punctuation and grammar, and with some use of scientific or technical terms.	1 – 2
Report well set out and a range of visual information used, with sections labelled; sub-headings, a table of contents and bibliography present. Information is effectively organised with generally sound spelling, punctuation and grammar. Scientific and technical terms are used appropriately.	3 – 4
Report well presented, well structured and detailed with good use of visual information, sub-headings, a table of contents and an accurate and detailed bibliography. Pages numbered and cross referenced where appropriate. Good spelling, punctuation and grammar. Scientific and technical terms used accurately and appropriately.	5 – 6

Stand F Determination, initiative and independence	Mark
No evidence of achievement, or evidence insufficient for the award of 1 mark.	0
Completes some parts of a simple investigation but needed guidance.	1 – 2
Completes investigation and responds well to any difficulties when given guidance.	3 – 4
Completes investigation and deals well with any difficulties without direct support.	5 – 6

APPENDIX C

5

5.3.3 Element 3: Work-related Report (mark total 48)

Strand A Collecting primary data (information)

Skills to be assessed	0	1 – 2 marks	3 – 4 marks	5 – 6 marks	7 – 8 marks	AO
(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 marks	3 – 4 marks	5 – 6 marks	7 – 8 marks	AO
(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

5

Strand C The work carried out

Skills to be assessed	0	1 – 2 marks	3 – 4 marks	5 – 6 marks	7 – 8 marks	AO
(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 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

**Where "organisation" is referred to, this could be the Centre if a candidate is reporting on a mini-enterprise

5

Strand D Skills used in the workplace

Skills to be assessed	0	1 – 2 marks	3 – 4 marks	5 – 6 marks	7 – 8 marks	AO
(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 marks	3 – 4 marks	5 – 6 marks	7 – 8 marks	AO
(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

40

5

Strand F Quality of the presentation

Skills to be assessed	0	1 – 2 marks	3 – 4 marks	5 – 6 marks	7 – 8 marks	AO
(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 (PAPER MODERATION)

Specification J271: Assessment unit A684

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 B684
Each candidate is required to complete a Science Work-Related Portfolio.

The final mark for each candidate comprises:
*   The marks for four Practical Scientific Tasks.
*   The total mark for one whole Scientific Investigation.
*   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 not 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 uploaded on to the OCR Repository or 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 filled in electronically or 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. If using paper submission, 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.

I 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.

For production of electronic controlled asessment, please see Appendix A in the specification or Appendix E in this document.

APPENDIX E

Structure for evidence

A controlled assessment portfolio is a collection of folders and files containing the candidate's evidence. Folders should be organised in a structured way so that the evidence can be accessed easily by a teacher or moderator. This structure is commonly known as a folder tree. It would be helpful if the location of particular evidence is made clear by naming each file and folder appropriately and by use of an index called 'Home Page'.

There should be a top level folder detailing the candidate's centre number, candidate number, surname and forename, together with the unit code B684 so that the portfolio is clearly identified as the work of one candidate.

Each candidate produces an assignment for controlled assessment. The evidence should be contained within a separate folder within the portfolio. This folder may contain separate files.

Each candidate's controlled assessment portfolio should be stored in a secure area on the centre's network. Prior to submitting the controlled assessment portfolio to OCR, the centre should add a folder to the folder tree containing controlled assessment and summary forms.

Data formats for evidence

In order to minimise software and hardware compatibility issues it will be necessary to save candidates' work using an appropriate file format.

Candidates must use formats appropriate to the evidence that they are providing and appropriate to viewing for assessment and moderation. Open file formats or proprietary formats for which a downloadable reader or player is available are acceptable. Where this is not available, the file format is not acceptable.

Electronic controlled assessment is designed to give candidates an opportunity to demonstrate what they know, understand and can do using current technology. Candidates do not gain marks for using more sophisticated formats or for using a range of formats. A candidate who chooses to use only word documents will not be disadvantaged by that choice.

Evidence submitted is likely to be in the form of word processed documents, PowerPoint presentations, digital photos and digital video.

To ensure compatibility, all files submitted must be in the formats listed below. Where new formats become available that might be acceptable, OCR will provide further guidance. OCR advises against changing the file format that the document was originally created in. It is the centre's responsibility to ensure that the electronic portfolios submitted for moderation are accessible to the moderator and fully represent the evidence available for each candidate.

Accepted File Formats

Movie formats for digital video evidence

MPEG (*.mpg)

QuickTime movie (*.mov)

Macromedia Shockwave (*.aam)

Macromedia Shockwave (*.dcr)

Flash (*.swf)

Windows Media File (*.wmf)

MPEG Video Layer 4 (*.mp4)

Audio or sound formats

MPEG Audio Layer 3 (*.mp3)

Graphics formats including photographic evidence

JPEG (*.jpg)

Graphics file (*.pcx)

MS bitmap (*.bmp)

GIF images (*.gif)

Animation formats

Macromedia Flash (*.fla)

Structured markup formats

XML (*.xml)

Text formats

Comma Separated Values (.csv)

PDF (.pdf)

Rich text format (.rtf)

Text document (.txt)

Microsoft Office suite

PowerPoint (.ppt)

Word (.doc)

Excel (.xls)

Visio (.vsd)

Project (.mpp)

APPENDIX F: 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	

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Environmental and Land-Based Science

OCR GCSE J271 Unit B684

Science Work-Related Portfolio Record Card

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

Centre No:						Centre Name:	

Candidate No:						Candidate Name:	

Practical Scientific Skills

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

Scientific Investigation
Title of Scientific Investigation:

Strand A Planning using appropriate secondary data	Strand B Collecting primary data	Strand C Processing and analysing data	Strand D Evalatuing the procedure and evidence	Strand E The quality of written communication	Strand F Demonstrating initiative and independence	Total 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 B684 Maximum 120 marks	

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