

**GENERAL CERTIFICATE OF SECONDARY EDUCATION  
ADDITIONAL APPLIED SCIENCE**

**A193**

Science Work Related Portfolio

## **Controlled Assessment**

### **INSTRUCTIONS TO TEACHERS**

Controlled assessment tasks are subject to differing levels of control at the different stages of preparation and during the production of the work.

Full details of the procedures for controlled assessment tasks are contained in the JCQ Instructions for Conducting Controlled Assessments and clarified in section 5.4.2 of the specification.

This document contains:

- Teacher guidance on task preparation
- Task instructions for the candidate
- The marking criteria.

### **CONTROLLED ASSESSMENT TASKS**

There are three elements to this unit:

#### **Element 1: Set of Standard Procedures**

The controlled assessment task comprises **four** standard procedures

**[Total: 24]**

#### **Element 2: Suitability Test**

The controlled assessment task comprises **one** suitability test

**[Total: 48]**

#### **Element 3: Work-related Report**

The controlled assessment task comprises **one** work-related report

**[Total: 48]**

 Quality of written communication is assessed in this paper.

- The total number of marks is **120**.
- This document consists of **24** pages. Any blank pages are indicated.

## **Element 1 - Standard Procedures**

### **Teacher's Guidance**

During the course and prior to setting this element of the controlled assessment the candidates should have covered and experienced:

- writing a risk assessment
- following a standard procedure on indicators, chromatography, density and microorganisms
- recording their results in an appropriate manner
- processing the results
- evaluating how risks are managed.

The candidates are required to perform the following four investigations using standard procedures under the titles below.

#### **1. Measuring the pH of unknown solutions by making and using a natural indicator.**

Candidates should have covered A3.4 "The use of colour in analysing soil and water" before attempting this standard procedure.

#### **2. Separating and comparing the dyes in different food colourings using chromatography.**

Candidates should have covered A4.4 "Chromatography and electrophoresis" before attempting this standard procedure.

#### **3. Measuring and comparing the density of materials used in sporting equipment.**

Candidates should have covered B1.2 "Mechanical behaviour of materials" before attempting this standard procedure.

#### **4. Measuring the productivity of a microorganism.**

Candidates should have covered B3.4 "Biotechnology and food" before attempting this standard procedure.

It is expected before the candidates attempt this controlled assessment they have received general preparation in their lessons. For the practical skills required, the candidates will have met these while completing GCSE Additional Applied Science.

**Each of the four standard procedures will take one to two lessons, ie about 2 hours.**

Candidates complete this task under informal supervision. The work of individual candidates may be informed by working with others but candidates must provide an individual response. Teachers may give generic, informal feedback while the task is being completed but may not indicate what candidates need to do to improve their work. Candidates should not be given the opportunity to redraft their work, as this is likely to require an input of specific advice. Candidates' access to resources is determined by those available to the centre.

All work should be recorded on loose-leaf paper, and may be handwritten or word processed.

## **Candidate Tasks**

The candidates are to be set the following tasks.

### **Standard Procedure 1**

Perform the following experiment using the given standard procedure.

#### **Measuring the pH of unknown solutions by making and using a natural indicator.**

The acidity of different solutions can be measured using the pH scale.

A solution of pH 7 is neutral; below pH 7 acidic; above pH 7 alkaline.

There are many plants that contain chemicals from the naturally coloured anthocyanin group of compounds that are red in acidic solutions and blue in alkaline.

The juice from red cabbage can be used to measure the pH of a solution as it will change colour depending on the acidity of the solution under test.

**You are required to write a risk assessment, to follow the appropriate standard procedure, record your results in an appropriate manner, process the data you collect and evaluate how you manage risks during the procedure.**

[Total: 6 marks]

### **Standard Procedure 2**

Perform the following experiment using the given standard procedure.

#### **Separating and comparing the dyes in different food colourings (at least 2) using chromatography.**

Paper chromatography is a chemical technique that can be used to separate and identify mixtures of chemicals that are coloured.

It can be used to identify the colours in food colourings and is therefore used by food standards to compare different food colouring additives. The R<sub>f</sub> value or Retardation Factor can be used to compare pigments from different food colourings.

The R<sub>f</sub> values can be calculated by using the following

$$R_f = \frac{\text{distance travelled by substance}}{\text{distance travelled by solvent}}$$

**You are required to write a risk assessment, to follow the appropriate standard procedure, record your results in an appropriate manner, process the data you collect and evaluate how you manage risks during the procedure.**

[Total: 6 marks]

The candidates are to be set the following tasks.

### **Standard Procedure 3**

Perform the following experiment using the given standard procedure.

#### **Measuring and comparing the density of materials used in sporting equipment.**

Properties such as strength, density, stiffness and toughness are all important when manufacturing sports equipment.

You are going to measure the density of some materials found in sports equipment.

The density of a material can be calculated by using the following formula:

$$\text{density} = \frac{\text{mass (g)}}{\text{volume (cm}^3\text{)}}$$

**You are required to write a risk assessment, to follow the appropriate standard procedure, record your results in an appropriate manner, process the data you collect and evaluate how you manage risks during the procedure.**

**[Total: 6 marks]**

### **Standard Procedure 4**

Perform the following experiment using the given standard procedure.

#### **Measuring the productivity of a microorganism yeast.**

Scientists need to assess the productivity of microorganisms that are being used to produce food products. They can do this by removing a sample from the culture vessel, and seeing how many organisms grow when the sample is incubated on an agar plate.


**You are required to write a risk assessment, to follow the appropriate standard procedure, record your results in an appropriate manner, process the data you collect and evaluate how you manage risks during the procedure.**

**[Total: 6 marks]**


## Marking Criteria

The standard procedures will be marked by the centre using the specific marking criteria below. Mark descriptors are given at each of three levels. Marking is by 'best-fit' to the criteria. Each strand is marked out of 6. It is suggested that when using the marking criteria, a mark is allotted to each sub-section of the strands and then an average within the strand calculated using standard mathematical averaging ie 4.5 rounds up to 5 and 4.4 rounds down to 4.

### **Assessment of the quality of written communication (QWC)**

The quality of written communication is assessed in these controlled assessment tasks where indicated by a pencil symbol () . Candidates should be advised that the quality of written communication will be assessed in their evaluation of the management of risk in the practical work. Further information about the assessment of QWC may be found in the specification.

<b>STANDARD PROCEDURES MARKING CRITERIA - TOTAL 6 MARKS</b>
---

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

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

## **Element 2 – Suitability Test**

### **Teacher's Guidance**

During the course and prior to setting this element of the controlled assessment candidates should have covered:

- A2.3 “Antenatal and post-natal care”
- tests to assess glucose levels in urine, such as using Benedict’s reagent to detect glucose, using Clinistix® and potassium manganate (VII) to estimate glucose concentration
- researching and presenting secondary data on the purpose of a procedure
- planning experiments and writing risk assessments
- carrying out experiments accurately and safely
- collecting and recording data to an appropriate level of accuracy
- processing and analysing data, identifying any patterns in the results
- evaluating the experimental procedure used including evaluation of data, equipment and management of risk
- writing a conclusion, justifying and assessing suitability of a procedure.

The centre will need to provide opportunities for their candidates to perform the set suitability test and to produce a written scientific report. The candidates need to include in the report their research, results, conclusions and evaluations. Guidance as to the information that needs to be included is found in the assessment criteria.

**The time suggested to be spent on the Suitability Test is 10 lessons, ie, about 12 hours.**

Candidates should be allowed to use the Internet for research, but must record all sources used. Candidates may work in groups of no more than 3 (2 is recommended) and may collaborate in the development of the plan. This task is under medium control and informal supervision (except for research which can be under limited supervision). 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 an individual response. Teachers may give generic, informal feedback while the task is being completed but may not indicate what candidates need to do to improve their work. Candidates should not be given the opportunity to redraft their work, as this is likely to require an input of specific advice. Candidates' access to resources is determined by those available to the centre and/or to candidates at home. All work should be recorded on loose-leaf paper, and may be handwritten or word processed.

## **Candidate Task**

The candidates are to be set the following task.

### **SUITABILITY TEST**

**What is the best method for testing for the presence of glucose in urine in a busy pathology laboratory?**

You are required to compare different procedures to test for glucose in urine, in samples from patients who may have abnormally high levels.

Urine does not usually contain glucose. If the blood glucose level rises above a certain value, then some glucose 'passes' through the kidneys into the urine.

The normal glucose range in urine is 0 – 0.8 mmol/l (0 – 15 mg/dl).

When abnormal values of glucose are found during a urine test, further action is required by the patient. If blood glucose is detected and remains high the patient most probably has diabetes.

**You must plan and carry out a Suitability Test to decide on the procedure for testing glucose most suitable for a technician to use when working in a busy pathology laboratory. You must present your findings in the form of a scientific report which assesses the suitability of the tests you have chosen to compare.**

**[Total: 48 marks]**



## Marking Criteria

The suitability test will be marked by the centre using the specific marking criteria below. Mark descriptors are given at each of four levels. Marking is by 'best-fit' to the criteria. Each strand is marked out of 8. It is suggested that when using the marking criteria, a mark is allotted to each sub-section of the strands and then an average within the strand calculated using standard mathematical averaging ie 6.5 rounds up to 7 and 6.4 rounds down to 6.

### Assessment of the quality of written communication (QWC)


The quality of written communication is assessed in these controlled assessment tasks where indicated by a pencil symbol (✎). Candidates should be advised that the quality of written communication will be assessed in strands B, E and F. Further information about the assessment of QWC may be found in the specification.

## SUITABILITY TEST MARKING CRITERIA – TOTAL 48 MARKS

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

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

### Strand B: Planning and risk assessment

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

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


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

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

**Strand D: Processing and analysing data**


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

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

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

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

**Strand F: Justifying a conclusion**

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

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

## **Element 3 – Work-related Report**

### **Teacher’s Guidance**

In this element, candidates are required to collect primary data (information), from their visits to work places, from talking to practitioners, from surveys etc, and secondary data (information), from published sources such as the Internet. They process, analyse and interpret the collected data to produce a scientific report.

During the course and prior to setting this element of the controlled assessment the candidates should have covered:

- collecting, presenting and referencing primary data from individuals and organisations
- collecting, processing, analysing, presenting and referencing secondary data from their own research
- researching:
  - information about work carried out in a job role and qualifications needed
  - skills used in a job role/workplace
  - application of scientific knowledge used in a job role/workplace
  - the financial or regulatory factors that affect a job role/workplace
- collating research into an ordered logical report which contains appropriately used visual material.

### **Work-related Report Task**

**Research a practitioner in a job role linked to any profession that uses materials to support their every day work.**

**The time suggested to be spent on assessment of the Work-related Report is about 18 lessons, ie about 18 hrs, to include 5-6 hours for a visit to a practitioner / work place if possible. Candidates will need to be prepared appropriately for the visit in order to gather relevant information.**

Candidates should be allowed to use the Internet for research, but must record all sources used. Candidates may work in groups of no more than 3 (2 is recommended). This task is under medium control and informal supervision (except for research which can be under limited supervision). 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 an individual response. Teachers may give generic, informal feedback while the task is being completed but may not indicate what candidates need to do to improve their work. Candidates should not be given the opportunity to redraft their work, as this is likely to require an input of specific advice. Candidates' access to resources is determined by those available to the centre and/or to candidates at home. All work should be recorded on loose-leaf paper, and may be handwritten or word processed.

## **Candidate Task**

The candidates are to be set the following task.

### **Work-related Report**

**Research a practitioner in a job role linked to any profession that uses materials to support their every day work.**

People working in industrial research or standards organisations require a good knowledge of materials and their properties. Many other people need knowledge of materials and their properties for their job, eg dentists, engineers and sportspersons.

People taking part in sports need to use equipment made of high quality materials which respond to the forces they are subjected to. Staff working in health clubs are also dependent on the reliability of materials that they use.

**You are required to produce a report which includes a description of the work carried out in your chosen job role and the workplace associated with the role, shows evidence of individual research, and make links to relevant scientific knowledge and skills involved in the job role chosen.**

**[Total: 48 marks]**



## Marking Criteria

The work-related report will be marked by the centre using the specific marking criteria below. Mark descriptors are given at each of the four levels. Marking is by 'best-fit' to the criteria. Each strand is marked out of 8. It is suggested that when using the marking criteria, a mark is allotted to each sub-section of the strands and then an average within the strand calculated using standard mathematical averaging ie 6.5 rounds up to 7 and 6.4 rounds down to 6.

### **Assessment of the quality of written communication (QWC)**

The quality of written communication is assessed in these controlled assessment tasks where indicated by a pencil symbol (✎). Candidates should be advised that the quality of written communication will be assessed in strand F. Further information about the assessment of QWC may be found in the specification.

**WORK RELATED REPORT MARKING CRITERIA – TOTAL 48 MARKS**
**Strand A Collecting primary data (information)**

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

**Strand B Collecting secondary data (information)**

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

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

**Strand C The work carried out**

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

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

**Strand D Skills used in the workplace**



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

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

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

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

**Strand F Quality of the presentation**

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

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

Work-related report topics need to allow coverage of the people involved and their qualifications appropriate to the controlled assessment brief. Appropriate job roles to be considered are job roles involved in:

- one part of the National Health Service eg local hospital pathology department, health centre or surgery
- the work of a physiotherapist at a football club
- production on a local farm, nursery, market garden or garden centre
- veterinary practices
- a brewery or maltings
- food production
- the pharmaceutical industry
- chemical analysis used in a context such as a council environmental health department, the enforcement of food standards
- one aspect of forensic science in practice
- the work of a person using chemicals on a big or small scale, eg beauty care or hairdressing, swimming pool maintenance
- factory formulation of paints
- a chemical plant or oil refinery
- an optician's practice
- a sports centre
- theatre productions (not actors)
- the way that materials are formed, worked or joined by a firm that manufactures some material or product.

---

Centres may contextualise the work-related report task to best suit their local circumstances and access to resources, whilst ensuring that the candidates can access the full range of marking criteria.

**BLANK PAGE**

**PLEASE DO NOT WRITE ON THIS PAGE**

**PLEASE DO NOT WRITE ON THIS PAGE**



**Copyright Information:**

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

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