OCR
Oxford Cambridge and RSA

Cambridge Technicals (2016)

Applied Science

Level 3 - Moderated

Level 3 Cambridge Technical Certificate in Applied Science **(05879)**
Level 3 Cambridge Technical Extended Certificate in Applied Science **(05847)**
Level 3 Cambridge Technical Foundation Diploma in Applied Science **(05848)**
Level 3 Cambridge Technical Diploma in Applied Science **(05849)**
Level 3 Cambridge Technical Extended Diploma in Applied Science **(05874)**

OCR Report to Centres September 2018

About this Examiner Report to Centres

This report on the 2018 Summer assessments aims to highlight:

- areas where students were more successful
- main areas where students may need additional support and some reflection
- points of advice for future examinations

It is intended to be constructive and informative and to promote better understanding of the specification content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the examination.

The report also includes links and brief information on:

- A reminder of our **post-results services** including **reviews of results**
- Link to **grade boundaries**
- **Further support that you can expect from OCR**, such as our CPD programme

Reviews of results

If any of your students' results are not as expected you may wish to consider one of our Reviews of results services. For full information about the options available visit the OCR website. If University places are at stake you may wish to consider priority service 2 reviews of marking which have an earlier deadline to ensure your reviews are processed in time for university applications: http://www.ocr.org.uk/administration/stage-5-post-results-services/enquiries-about-results/service-2-priority-service-2-2a-2b/

Grade boundaries

Grade boundaries for this, and all other assessments, can be found on the OCR website .

Further support from OCR

CPD Hub
Your route to OCR's teacher training

Attend one of our popular CPD courses to hear exam feedback directly from a senior assessors or drop in to an online Q&A session.

https://www.cpdhub.ocr.org.uk

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OCR REPORT TO CENTRES

Level 3 Cambridge Technical in Applied Science

As centres became more experienced interpreting the content and grade criteria evidence submitted became more detailed and focused on the grade criteria.

Centres ensured claims for units were submitted on OCR Interchange prior to the moderation visit with the initials of the assessor who assessed the learner's work included where relevant.

Most centres ensured the URS sheets were accurate and completed however not all learners page numbered their portfolios with the assessor completing the URS sheet with the page numbers for the different criteria.

Most assessor comments on the URS were personal to the learner’s quality of evidence however in a few cases comments were just a repeat of the criteria.

The assessors should annotate the portfolios with guidance as to where the work can or needs to be improved but do not tell the candidates what to do, this will help the candidates to improve their work. It helps the moderator if the grades for the various learning outcomes are indicated on the portfolios at the appropriate place.

Verbal presentation by candidates would be useful especially when carrying out investigations and discussions. A witness statement giving exactly the competences displayed by the candidates would evidence this. Again witnessed audit trails of candidates' online interactive activities could be used to show the breadth and depth of candidates' competence.

All research was well referenced throughout by learners.

Learner results for the externally assessed unit 2 tend to be higher if learners have carried out the relevant practical experiments before sitting the external examination. It is recommended that learners maintain an experimental logbook for unit 2 and unit 3 as not only will it help learners in external examinations but it can be used to support grading in the internal units.

Moderated units

At this stage of the qualification centres were only presenting evidence for the Extended Certificate.

Unit 6

Consider the order of delivering LOs/criteria. If D1 and D3 are introduced first (by investigating different bio-hazard labs) then the relevance of legislation and regulations become apparent.

LO3: Candidates will be used to working in a school laboratory but not realise the detailed procedures required when handling very contagious microorganisms. There are different designed laboratories for different levels of biohazards - there are 4 levels of containment laboratories to work with different levels of biohazards.

When planning a laboratory candidates could consider information provided by the A.S.E. as well as relevant health and safety legislation affecting the control of diseases in a laboratory.

An initial introduction examining the different level of containment laboratory might enhance learners' approach to compiling evidence. Learners' experience of science laboratories that has been limited to a school laboratory. Can be enhanced by the use of video in OCR's Sanger Project will allow candidates to "visit/see/experience" a range of bio-laboratories.

The laboratory designs varied with some tending to be general and lack detail as well as explanation. The types of material used could have been included, there needs to be more detail of the materials that would be used for the furniture, flooring, work benches etc. and how the design could minimise risks.

Others were more detailed, as a scenario had been set so the laboratory was designed with a specific purpose.

Ensure assessment of [P4] evidence includes comments relating to the design specification to control risks i.e. does the candidate's design control risks
For [D3] by listing containment control regulations and control of diseases in a laboratory legislation will introduce learners to the idea that in most career situations there are relevant regulations and legislation.

LO2: A risk assessment is simply a means of determining the risk associated with work with a particular hazard. In the workplace, this is most often broken down into five steps.
The methods chosen to control the risks identified by the risk assessment should follow the hierarchical approach which is common to both MHSWR and COSHH.

Candidates should consider how laboratory acquired Infections can be prevented the as well as legislation and guidance for working with biological agents and how it influences procedures and practices.

When evaluating the effectiveness of current legislation and procedures learners could analysis data from infection in various types of laboratory.

For [P2] develop the approach to risk assessing so that it could be applied to a broad range of circumstance i.e. COSHH 5 Steps to risk assessment; hierarchical approach to eliminating and controlling risk so candidates could assess risk in any situation.

Learners need to broaden the range of risk assessments to disposal of waste and the actual chemicals used. Candidates might view a procedure following good practice and another following bad. Notice simple things such as space/set up of equipment so it is safe and easy to reach as well as "protecting" the environment. This should introduce candidates to real life bio-hazard level laboratories.

Ensure the risk assessments are carried out using a formal risk assessment document which is then checked and signed off.

LO1: Candidates will need to know how organisms cause disease and how pathogens are transmitted to be able to reduce risks in a laboratory as well as to categorise hazard substances. For [M1] expand the detail of the transmission of pathogens, this could be done with examples which in turn will give candidates a broader understanding for possible situations in the future.

Unit 18

LO1 Be able to classify and identify microorganisms: Centres tended to give detailed descriptions with downloaded images. A few centres approached the learning objective with a more practical approach where learners were given a range of slides of microorganisms which they identified giving an analysis of their findings. This was linked to unit 2 LO4 [Be able to examine and record features of biological samples] with learners recording relevant data and making biological drawings whilst using a microscope. This approach gave a greater “hands-on” scientific approach as learners would be using Gram Staining and DNA extraction methods.

LO2 Understand the use of microorganisms in agriculture: Centres tended to approach this in two ways. One approach was to give a global view allowing discussion and presentations (the use of witness statements supporting learners’ notes; in one case videos of the presentations supported grading) it may help candidates in presenting their evidence logically if they order their evidence under subheadings - statements from the specifications would be a useful stating point; the other was to analysis and evaluation of the introduction of two or more crops. If time allowed, this second approach would allow learners to undertake visits and record data which could then be analysed.

LO3 Be able to use microbiology in food production: Centres gave a general overview of the four industries given in the specifications.

The grade criteria, requires only one food to be produced– consideration could be given to linking with unit 21 Product testing techniques. {Evidence need only be presented once and can cover several units.] Centres produced a range of food products however some foods allowed a greater depth of knowledge to be shown this was reflected in M4: [Describe the biochemical processes involved in the production of a food from microorganisms] with some learners giving little when giving evidence for biochemical processes.

LO4. Understand the action of antimicrobials on microorganisms. A few centres linked this learning objective to unit 6. Centres were able to give detailed evidence supported with images and the use of case studies to broaden their evidence with summaries from The World Health Organisation, England, the Health and Social Care Act 2008 Code of Practice.

Unit 21

Some centres linked activities across units to produce a project approach; linking testing practicals in unit 21 to production in unit 18. Also the laboratory logbooks used by centres in unit 2 linking to the other units in the qualification displayed a great understanding of a "real" scientific approach to learning.

The approach should be that all measurements and observations should be recorded, in tabular form where appropriate. Measurements should be recorded to the degree of accuracy of the equipment used with learners should be careful in the use of significant figures and decimal places with the evaluations needing to have depth with a reasoned opinion based on the evidence collected. Learner should look carefully at using correct science in the evaluations, some were lacking in detail and did not really show enough understanding. The evaluations should also include comments on the validity and reliability of the investigation as well as how it could be improved.

LO2: When candidates consider the tests in P2 if they should consider the sensitivity, accuracy and reliability of each test then this would link into M2 as well as support the development of regulations in LO1.

Some learners' evidence for M2 explains how the effectiveness of consumer product evidence is established was weak.

LO3: In D1 some candidates linked the results in M3 to establish the comparison of results. Again candidates can link to P2 (test selected) when considering the accuracy of their results.

About OCR

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