

# Your guide to the changes for 2022

Following [Ofqual's consultation](#) on arrangements for the assessment of VTQs in the academic year 2021/22, we are carrying forward the below guidance on changes to requirements or alternative approaches to producing work for assessment.

Our changes are designed so that teaching, learning and assessment can continue in the event of any further disruption as a result of a changing public health situation and to make sure that the learning outcomes and assessment criteria can still be met.

Please use the [specification and assignments](#) available on our website, alongside this document, to plan and carry out assessment in 2021-22.

## Suggested adaptations

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
2: Processing and presenting data in science.	LO1: Be able to collect, present and process repeatable experimental data.	P1 collect and present experimental data, including negative values, in appropriate tables with units.	Collection of data from practical investigations is difficult with current guidance/requirements around sharing equipment, quarantining equipment, maintaining social distancing when undertaking practical activities, bubbling, and use of classrooms rather than laboratories.	<p>This Unit is on the processing and presentation of data. The collection of data is within the context of identifying suitable intervals/units for measurement, identifying outliers and conducting repeat measurements.</p> <p>This can be done by teachers demonstrating or showing a practical investigation to candidates and asking candidates to suggest suitable intervals and units of measurement.</p> <p>Suitable data could then be given to candidates for processing and presentation to allow them to access other grading criteria.</p>

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
2: Processing and presenting data in science.		D1 assess the repeatability of experimental data linked to the evaluation of experimental procedures and suggest improvements where necessary.	Collection of data from practical investigations is difficult with current guidance/requirements around sharing equipment, quarantining equipment, maintaining social distancing when undertaking practical activities, bubbling, and use of classrooms rather than laboratories.	<p>Teachers should be aware of the need to give data from a range of experiments and of different quality, as outlined in the delivery guidance. This will allow candidates to discuss repeatability of experiments and experimental design to meet all grading criteria.</p> <p>Visiting moderators will be made aware that common data may be used by all candidates in a centre.</p> <p>Candidates need to assess the repeatability of data and suggest improvements. This is best done by candidates carrying out the investigation but if this is not possible due to Covid-19 restrictions the following adaptations could be made.</p> <p>D1 can be met by teachers demonstrating or showing a practical investigation to candidates and providing them with data from the experiment. The candidates can then use the data to discuss repeatability and suggest improvements to the method of the investigation seen.</p> <p>Visiting moderators will be made aware that common data may be used by large groups or all candidates in a centre.</p>

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
3: Research and development in science	LO2: Be able to plan and use a design process to design or improve an application of science.	<p>P2 describe a series of preliminary practical activities that identify a potential application of science</p> <p>P3 design an application of science using the preliminary practical activities and report on its effectiveness</p> <p>M3 describe the effectiveness of the designed application using appropriate detail in observation, measurement and recording of data</p> <p>D2 evaluate the outcome of tests on the effectiveness of the designed application and report on a series of modifications to improve the design</p>	Conducting practical investigations is difficult with current guidance/requirements around sharing equipment, quarantining equipment, maintaining social distancing when undertaking practical activities, bubbling, and use of classrooms rather than laboratories.	<p>Candidates need to develop their own product. They need to keep a logical record of their practical investigations.</p> <p>This must include:</p> <ul style="list-style-type: none"> <li>• a plan</li> <li>• their results</li> <li>• evaluation of prototypes</li> <li>• proposed modifications.</li> </ul> <p>This is best done by the candidates themselves but if this is not possible due to Covid-19 restrictions the following adaptations could be made.</p> <p>Teachers could themselves identify an application (as suggested in the delivery guidance).</p> <p>They could ask candidates:</p> <ul style="list-style-type: none"> <li>• to suggest a prototype design to address the application</li> <li>• make suitable observations to test the design.</li> </ul> <p>Teachers could then test their own design in order to provide candidates with data.</p> <p>They could then ask candidates:</p> <ul style="list-style-type: none"> <li>• to evaluate the effectiveness of the design</li> <li>• suggest improvements to the design</li> <li>• suggest further tests to be conducted.</li> </ul> <p>Teachers could then produce a revised design (based on the candidates' assessment) and repeat the process until a satisfactory design had been produced.</p> <p>Visiting moderators will be made aware that both common data may be used by large groups of/ all candidates and there may be a possible lack of continuity in the record of practical investigations.</p>

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
4: Practical techniques in science	<p>LO1: Know how organisations and individuals use science to identify hazards and minimise risk.</p> <p>LO2: Know how to use practical techniques in scientific work, in the laboratory and the field, to maintain the quality of the sample and avoid contamination of the laboratory and/or the environment.</p>	<p>M2: define and perform a standard procedure based on the risk assessment</p> <p>P3: identify some of the techniques required to maintain the quality of the sample and avoid contamination of the laboratory and/or the environment</p> <p>M3: describe some of the techniques required to maintain the quality of the sample and avoid contamination of the laboratory and/or the environment</p> <p>D1: explain the importance of some of the techniques required to maintain the quality of the sample and avoid contamination of the laboratory and/or the environment</p>	<p>Conducting the practical work required to perform a standard procedure is difficult with current guidance/requirements around sharing equipment, quarantining equipment, maintaining social distancing when undertaking practical activities, bubbling, and use of classrooms rather than laboratories.</p> <p>Conducting practical work is difficult with current guidance/requirements around sharing equipment, quarantining equipment, maintaining social distancing when undertaking practical activities, bubbling, and use of classrooms rather than laboratories.</p>	<p>Candidates need to carry out a standard procedure but if this is not possible due to Covid-19 restrictions the following adaptations could be made.</p> <ul style="list-style-type: none"> <li>• Candidates could write a standard procedure based on one of the risk assessments constructed for P2</li> <li>• candidates could discuss why particular stages in the standard procedure are important.</li> </ul> <p>Candidates need an understanding of scientific standard procedures, how they relate to risk assessments, and how risk assessments relate to statutory regulations.</p> <p>Candidates could do this by (as identified in the delivery guidance) producing and commenting on a standard procedure produced for an everyday activity.</p> <p>Visiting moderators will be made aware of the lack of any evidence of practical work having been undertaken.</p> <p>It is good for candidates to have practical experience in the handling of samples. But this is not a requirement of the grading criteria.</p> <p>To meet the LO, candidates could research and write about how to collect and preserve the integrity of samples in a number of different scenarios.</p>

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
10: Chemistry of production	LO2: How to maximise rate and yield in a chemical plant.	<p>P3: describe the different factors that affect the rate and yield of a chemical process, and explain why the reaction conditions are selected</p> <p>M2: explain how the rate, in terms of particle collisions, and yield of a chemical process are changed under different conditions</p>	Conducting practical work is difficult with current guidance/requirements around sharing equipment, quarantining equipment, maintaining social distancing when undertaking practical activities, bubbling, and use of classrooms rather than laboratories.	<p>The delivery guidance recommends that “The factors that govern rates of reaction can be explored through a series of practical activities...”.</p> <p>This is not a requirement of the grading criteria. The LO can be met through research perhaps by watching teacher demonstrations or video presentations of investigations.</p>
11: Environmental analysis	<p>LO2: Know some of the methods used for analysing water quality.</p> <p>LO2: Know how and why air quality is monitored and understand the approaches taken to maintain air quality in the UK.</p>	<p>P3: describe some practical techniques for testing water quality and what their outcomes mean</p> <p>P4: describe how and why air quality is monitored in the UK and outline approaches to maintaining air quality</p>	<p>Conducting practical work is difficult with current guidance/requirements around sharing equipment, quarantining equipment, maintaining social distancing when undertaking practical activities, bubbling, and use of classrooms rather than laboratories.</p> <p>Arranging off-site visits to conduct the field work required for sample collection may be difficult under the above guidance/requirements</p> <p>Conducting practical work is difficult with current guidance/requirements around sharing equipment, quarantining equipment, maintaining social distancing when undertaking practical activities, bubbling, and use of classrooms rather than laboratories.</p>	<p>The delivery guidance recommends that candidates have practical experience of using equipment for analysing water quality.</p> <p>This is not a requirement of the grading criterion. Candidates could research practical techniques used for testing water quality.</p> <p>The delivery guidance recommends that candidates have practical experience of using equipment for analysing air quality.</p> <p>This is not a requirement of the grading criterion. Candidates could research practical techniques used for testing air quality.</p>

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
			Arranging off-site visits to conduct the field work required for sample collection may be difficult under the above guidance/requirements.	
12: Chemical design	LO1: Know the main components of washing powders and how they work.	P2: perform a series of experiments to test the effectiveness of washing powders	Conducting practical work is difficult with current guidance/requirements around sharing equipment, quarantining equipment, maintaining social distancing when undertaking practical activities, bubbling, and use of classrooms rather than laboratories.	<p>Candidates need to carry out experiments on washing powders but if this is not possible due to Covid-19 restrictions the following adaptations could be made.</p> <p>Candidates could be provided with data perhaps from investigations demonstrated/video recorded by the teacher. They could use the data to discuss the effectiveness of different washing powders under differing conditions.</p> <p>Candidates could be asked to:</p> <ul style="list-style-type: none"> <li>• identify different conditions (temperature, wash time, hard/soft water, types of stain) that should be tested,</li> <li>• identify the range/interval of measurements to be taken</li> <li>• devise suitable methods.</li> </ul> <p>Visiting moderators will be made aware that the results used by candidates would be the same for all candidates and would not necessarily fit with the method proposed by the candidate.</p>

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
12: Chemical design	LO3: Know the properties and uses of different polymers.	P6: perform experiments to compare the properties of polymers in the context of their suitability for a particular use	Conducting practical work is difficult with current guidance/ requirements around sharing equipment, quarantining equipment, maintaining social distancing when undertaking practical activities, bubbling, and use of classrooms rather than laboratories.	<p>Candidates need to carry out experiments to compare polymers but if this is not possible due to Covid-19 restrictions the following adaptations could be made.</p> <p>Candidates could be provided with data perhaps from investigations demonstrated by the teacher. They could use the data to discuss the polymers, looking at their suitability for a particular use.</p> <p>A demonstration or video presentation would be useful to help candidates understand how suitable different polymers are for particular uses.</p> <p>Visiting moderators will be made aware of the use of common data by all candidates.</p>

## Support

OCR's team of expert Subject Advisors has created videos, webinars, and other resources to guide you through these changes and help you prepare your students.

These resources can be found on [the qualification page on our website](#).

## Contact us

If you would like to contact us, you can do so at:

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