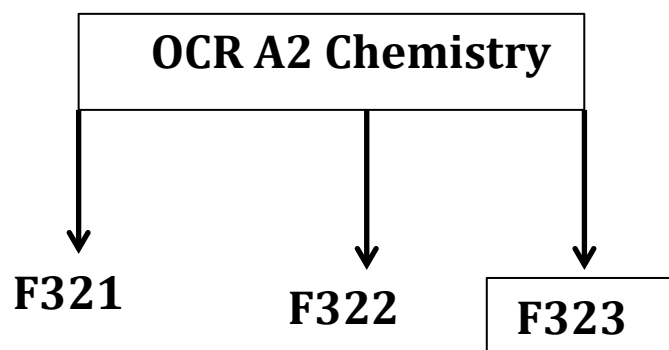


## OCR Advanced GCE Chemistry A (H034)

# F323: Practical Skills in Chemistry 1



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Unit F323: <i>Practical Skills in Chemistry 1</i>		Paper code: F323																																	
1. Exam paper- Unit F323: Practical skills in Chemistry 1 Internal assessment		10 % of Advanced GCE Chemistry																																	
<b>Overview of content</b>																																			
<ol style="list-style-type: none"> <li>Module 1: Qualitative task [10 marks]</li> <li>Module 2: Quantitative task [15 marks]</li> <li>Module 3: Evaluative task [15 marks]</li> </ol>																																			
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<ol style="list-style-type: none"> <li>The qualitative, quantitative and evaluative tasks are assessed internally under controlled conditions.</li> <li>The total number of marks is 40.</li> <li>Grades A*–E are available.</li> <li>Grades assessment by year:</li> </ol>																																			
<table border="1"> <thead> <tr> <th>Year</th> <th>Raw Marks to 90 % UMS - A*</th> <th>Raw Marks to 80 % UMS grade 'A'</th> </tr> </thead> <tbody> <tr> <td>Jan 2010</td> <td>N/A</td> <td>-</td> </tr> <tr> <td>Jun 2010</td> <td>N/A</td> <td>34</td> </tr> <tr> <td>Jan 2011</td> <td>N/A</td> <td>-</td> </tr> <tr> <td>Jun 2011</td> <td>N/A</td> <td>34</td> </tr> <tr> <td>Jan 2012</td> <td>N/A</td> <td>-</td> </tr> <tr> <td>Jun 2012</td> <td>N/A</td> <td>35</td> </tr> <tr> <td>Jan 2013</td> <td>N/A</td> <td>-</td> </tr> <tr> <td>Jun 2013</td> <td>N/A</td> <td>35</td> </tr> <tr> <td>Jun 2014</td> <td>N/A</td> <td>36</td> </tr> <tr> <td>Jun 2015</td> <td>N/A</td> <td>36</td> </tr> </tbody> </table>			Year	Raw Marks to 90 % UMS - A*	Raw Marks to 80 % UMS grade 'A'	Jan 2010	N/A	-	Jun 2010	N/A	34	Jan 2011	N/A	-	Jun 2011	N/A	34	Jan 2012	N/A	-	Jun 2012	N/A	35	Jan 2013	N/A	-	Jun 2013	N/A	35	Jun 2014	N/A	36	Jun 2015	N/A	36
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# OCR Advanced GCE Chemistry A

A2 unit F323: *Practical Skills in Chemistry 1*

Qualitative Task

Quantitative Task

Evaluative Task



**OCR**  
RECOGNISING ACHIEVEMENT

**SPECIMEN**

Advanced Subsidiary GCE  
**CHEMISTRY A**  
Unit F323: Practical Skills in Chemistry 1:  
Evaluative Task  
**Specimen Task**  
For use from September 2008 to June 2009.  
Candidates answer on the task sheet.

**F323 (3)**

All items required by teachers and candidates for this task are included in this pack.

**INFORMATION FOR CANDIDATES**

- Evaluative Task: Acid/carbonate reaction

**INFORMATION FOR TEACHERS**

- Mark scheme.
- Instructions for Teachers and Technicians.

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## Overview of F323: *Practical skills in Chemistry 1*

### What are practical skills?

- There is the formal internal assessment of your practical work in AS year, entitled *Practical Skills in Chemistry 1* (unit code F323).
- You will need to carry out three different types of task set by OCR.

### How much is the formal internal assessment of your practical skills worth?

- The F323 unit is worth 40 marks, which is 10% of your entire A level course.
- Your school will supply OCR with a single mark out of 40.

### Who does the marking and when?

- Your teacher will mark your practical skills tasks as you do them throughout the course, using a mark scheme provided by OCR.
- Within each teaching centre marks will be internally moderated by your teacher(s).
- The marking will be checked by OCR moderators. Marks can be changed to bring the marks of your school or college into line with those from other teaching centres.

### What proportion of the formal assessment will be done in lessons?

- All the tasks will be carried out under supervision during lesson time.
- Your teacher must be able to say that the work is yours.
- Both you and your teacher will have to sign documents to this effect.

### What tasks do I have to do for *F323: Practical skills in chemistry 1*?

- A **qualitative** task worth 10 marks
- A **quantitative** task worth 15 marks
- An **evaluative** task worth 15 marks

**What is covered by the qualitative task? [10 marks]**

- You will carry out a practical task using instructions supplied by OCR.
- You are expected to carry out the task skillfully and safely using qualitative techniques.
- You will need to make and record valid observations and organise them in an appropriate way.

**What is covered by the quantitative task? [15 marks]**

- You will carry out a practical task using instructions supplied by OCR.
- You are expected to carry out the task skillfully and safely using quantitative techniques.
- You will need to make and record accurate observations and organise them in an appropriate way.
- You will then process your results to reach valid conclusions.

**What is covered by the evaluative task? [15 marks]**

- You will carry out an evaluative task using instructions supplied by OCR.
- Evaluative tasks will be based on a quantitative task.
- Evaluative tasks will *not* require additional data collection.
- The data along with your own knowledge will be used to reach valid conclusions.
- You will need to assess the reliability and accuracy of an experimental task.
- You will need to identify anomalies as well as identify significant weaknesses in procedures and measurements.
- You will use your knowledge to understand and select simple improvements to procedures and measurements.

**Do you have to plan a practical?**

- No, but you may be required to suggest changes to techniques or apparatus which will improve the accuracy or reliability of the results and/or the validity of the conclusions.

**Will every piece of practical work be assessed?**

- No. OCR provides certain tasks, which can be done at any point during the course, but your teacher should do other work with you to develop your skills.

- The *minimum* number of practical assessments would be one for each of the three types of task. However, it is likely that you will do more than three.

**If I do more than three practical assessments, which ones count towards A2?**

- Your final mark out of a possible 40 will be comprised of the *best* scores that you achieve for a qualitative task, a quantitative task and an evaluative task.

## How BioChem Tuition prepares their students for F323: *Practical Skills in Chemistry 1*?

### The Qualitative, Quantitative and Evaluative Task – [10 hours]

BioChem Tuition will revise the AS theory that is likely to appear in the practical tasks. This will be followed by practice of wide range of skills required to successfully complete the practical material. Although OCR does not release the F323 practical tasks externally, BioChem Tuition has prepared past exam papers covering range of AS topics. These papers will help identify the likely questions in the exam. Learning every possible question type, avoiding careless mistakes and applying the right knowledge forms the key to attain the right grade. BioChem Tuition can also help students with any specific task that they are undertaking in school. Given our interaction with students from various schools, we can provide you with up-to-date information on the knowledge likely to appear in the current practical tasks.

#### **When carrying out qualitative and quantitative tasks, students will be taught:**

- How to make comments about safety. These comments should be relevant to the practical and *not* be general safety comments.
- An explanation as to *why* you are taking a safety precaution is helpful, for example, including a reference to a hazard.
- Organise your work area and wipe up any spillages.
- How to make measurements with accuracy.
- All the raw readings should be recorded to the same number of decimal places.
- Calculations should be calculated to no more decimal places than the input data.
- How to measure data with a degree of precision consistent with the equipment used to make the measurement.
- Repeat measurements where necessary and calculate an average.
- How to record all your results in a table with column headings labeled with a quantity *and* a unit.
- Carefully describe any observations. Drawing diagrams may also be necessary.
- Scales on graphs must be labelled with the quantity being measured along with its unit and the value being changed along with its unit. Scales must be linear and simple.
- The scale must be correctly selected to make good use of the graph paper.
- How to plot all points accurately and clearly. Use a sharp pencil and check carefully any points that do not appear to fit a trend.
- Draw lines with a ruler through the points if there is any uncertainty about the intermediate values between your readings, otherwise draw a line of best-fit through your points. The line must be thin and clear.

**In addition to points set out in qualitative and quantitative section, while carrying out evaluative tasks, students will be taught:**

- How to carry out calculations using the correct mean of a set of data.
- Make a note of procedural errors as you carry out a practical.
- Explain how each of these difficulties or errors could have affected your results.
- How to assess the reliability of the experiment, identify anomalous results and refer to the scatter of points of the replicates about the mean or best-fit line.
- How to put errors in order of significance.
- How to calculate the percentage error of measurements. Take care with stopwatches – often a stopwatch will read to 0.01 s; however, human reaction time is at least 0.1 s, therefore it is not 0.01 s but 0.1 s.
- Explain how these procedural errors may be overcome by suggesting improvements to the procedure and to the apparatus used which would improve the accuracy of the experiment. Your improvements *must* relate to the experiment and be possible within a school laboratory.



### 3.3 AS Unit F323: *Practical Skills in Chemistry 1*

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This unit assesses practical and investigative skills developed within contexts encountered during AS Chemistry. Further information on the assessment of the tasks is provided as Appendix D.

Candidates are required to carry out **three** tasks:

1. Qualitative task [10 marks]
2. Quantitative task [15 marks]
3. Evaluative task [15 marks]

Tasks will be chosen from a selection provided by OCR.

The Qualitative and Quantitative tasks will test skills of observation and measurement.

Candidates will carry out these tasks under controlled conditions.

Each task will be internally assessed using a mark scheme provided by OCR.

Candidates may attempt more than one task from each category with the best mark from each category being used to make up the overall mark.

Centres will supply OCR with a single mark out of 40.

#### **How Science Works**

**5a** Carry out experimental and investigative activities, including appropriate risk management, in a range of contexts.

**5b** Analyse and interpret data to provide evidence, recognising correlations and causal relationships.

**5c** Evaluate methodology, evidence and data, and resolve conflicting evidence.

The mark schemes supplied by OCR will be based on the following generic criteria:

	<b>Assessable Learning outcomes</b>
<p><b>1. Qualitative Task</b></p> <ul style="list-style-type: none"> <li>Candidates carry out a practical task using instructions supplied by OCR.</li> </ul>	<p>Candidates should be able to:</p> <ul style="list-style-type: none"> <li>(a) demonstrate skilful and safe practical techniques using suitable qualitative methods;</li> <li>(b) make and record valid observations, organise results suitably.</li> </ul>
<p><b>2. Quantitative Task</b></p> <ul style="list-style-type: none"> <li>Candidates carry out a practical task using instructions supplied by OCR.</li> </ul>	<p>Candidates should be able to:</p> <ul style="list-style-type: none"> <li>(a) demonstrate skilful and safe practical techniques using suitable quantitative methods;</li> <li>(b) make and record accurate measurements to an appropriate precision;</li> <li>(c) analyse, interpret and evaluate experimentally derived results quantitatively to reach valid conclusions.</li> </ul>
<p><b>3. Evaluative Task</b></p> <ul style="list-style-type: none"> <li>This task may extend one of the qualitative or quantitative tasks.</li> <li>Candidates will evaluate the quality of the data and procedures.</li> <li>Evaluative tasks will <b>not</b> require additional data collection.</li> </ul>	<p>Candidates should be able to:</p> <ul style="list-style-type: none"> <li>(a) analyse and interpret data, identify anomalies and reach valid conclusions;</li> <li>(b) assess the reliability and accuracy of an experimental task, identify significant weaknesses in experimental procedures and measurements;</li> <li>(c) understand and select simple improvements to experimental procedures and measurements.</li> </ul>

## The Tasks

Tasks, mark schemes and guidance for teachers and technicians can be downloaded from the OCR Interchange site.

Further advice and guidance on the use and marking of the tasks can be found in the Practical Skills Handbook.