CAMBRIDGE
International Education

How to manage your science practical exams

This guidance document is for exams officers, teachers, and supervisors in centres that offer Cambridge International science qualifications that include a practical component. It offers advice on how to use and store confidential instructions, chemicals and materials, and ways in which to manage the number of candidates in practical exams.

What are confidential instructions?

Confidential instructions list all the chemicals and materials required for each specific practical exam. They are confidential and only intended for the member of staff in charge of the laboratory (the supervisor) to carry out preparations before the exam. Under no circumstances must any information in the instructions be given to candidates.
Confidential instructions are sent to you once you have made final entries. Therefore, we encourage you to enter candidates at the earliest possible opportunity.

How do I store the confidential instructions?

You must keep confidential instructions under secure conditions at all times, and the Head of Centre must make sure the contents remain confidential. You must not discuss the instructions with any other centre. If you have any questions, you must ask us. Do not open any question paper packets before the exam.
You must report any known or suspected breach of any confidential material to us. See section 5 of the Cambridge Handbook.

Why are there differences between the confidential instructions and the question paper?

There may be differences between the identity and/or concentrations of chemicals and materials in the confidential instructions and those on the question paper. This is perfectly normal and candidates must not be told the details from the confidential instructions.
Differences may be for safety reasons, or so you do not have to find a less widely-available chemical.

Example

The confidential instructions may specify 0.1 mol dm-3 hydrochloric acid because it is inexpensive and widely available. However, the question paper may specify
1 mol dm-3 propanoic acid which better suits the context of the exam question.

Do you supply chemicals and materials for practical exams?

For some syllabuses, the confidential instructions list any chemicals and materials that we supply. You must check the despatch list against the list in the confidential instructions as soon as they arrive and let us know about any discrepancies immediately. Open the packets containing perishable materials (for example, enzymes) as soon as they arrive and keep them in a refrigerator that is not accessible to unauthorised people.

The Head of Centre, along with the supervisor, is responsible for the safe and confidential handling of all materials until they are used in the exam. No information about these materials must reach candidates.

Who supplies microscope slides for Biology practical exams?

We supply microscope slides at a ratio of one slide per two candidates. When you receive the slides, open them immediately and check:

- no slides are broken
- you have been sent the correct number of slides.

If any slides are broken or missing, or you do not have enough for the exam, contact us immediately.

We may be able to provide digital images of the slides that can be printed for each candidate and used in the exam. Before we do this, you must have made every effort to obtain the slides and have contacted us in advance of the exam.

After you have checked them, the slides must be stored securely with the relevant question papers until the day of the exam. The slides are confidential and must not be viewed with a microscope by anybody at your centre. After the exam, you must return all microscope slides to us, or purchase them using the form enclosed with the slides.

Where do I find chemicals and materials?

If possible, source chemicals and materials locally or in-country. If this is not possible, the following suppliers will ship internationally. You must allow enough time for international delivery and customs clearance.

Chemicals:

- Sigma-aldrich

Chemicals and equipment:

- VWR International
- Timstar
- Findel International Education Resources
- Fisher scientific

Electronics:

- RS components

What if I can’t find some chemicals or materials?

If you cannot get some of the chemicals or materials you need from local, in-country or international sources, email us and tell us the syllabus, component, and details of the chemicals or materials: info@cambridgeinternational.org.

We will suggest alternative chemicals or materials that candidates can use. These may be items you already keep in your centre, or which you can find locally. The supervisor’s report should clearly record any alternative chemicals or materials that have been agreed with us before the exam.

It is the centre’s responsibility to source chemicals and materials for practical exams and failure to do so may mean we will refuse entries for that syllabus in the future.

How do I manage the practical exam?

Seating arrangements

When seated in a practical exam, the minimum distance in all directions from the centre of one candidate's chair to the centre of another's should be 1.25 metres. We recognise that in some science laboratories this minimum distance may not be possible. Where it is not, candidates must be spaced sufficiently far apart to prevent them seeing, intentionally or otherwise, the work of others.

Large numbers of candidates

If more candidates are entered for a practical exam than can be accommodated at one time, you may divide candidates into two groups, or more, if necessary. All groups must take the exam on the same day, with the minimum delay between sittings.
You must apply for our permission to hold additional sittings. Submit your request using Preparation – Form 8. Send it to info@cambridgeinternational.org with 'Additional Sittings – Compliance' in the subject line at least four weeks before the date of the affected exam. You do not need to list all candidates affected; however, you must make accurate seating plans and attendance registers for each sitting, and attach these to the supervisor's report. In addition, you must keep a copy of the forms until the end of the enquiries about results period.
You must make arrangements to keep the groups apart until all candidates have taken the exam. Candidates waiting to take the exam must gain no knowledge of its contents. Security of the exam must be maintained at all times and you may need to conduct periods of Full Centre Supervision. See the 'Key Times and Full Centre Supervision' section of the Cambridge Handbook.

Use all available laboratories

Not all candidates taking an exam have to be in the same laboratory. As long as suitable equipment and safety apparatus is available, you can seat candidates in all available laboratories. Each laboratory should have a seating plan and a completed supervisor's report, produced using the same apparatus and chemicals as the candidates are using in their exam. Each laboratory must have one invigilator per 20 candidates, and a supervisor. The supervisor is normally a teacher of the subject or a technician. They are responsible for conducting the experiment out of sight of the candidates as specified in the confidential instructions, and completing the supervisor's report.

Divide candidates between both versions of the Advanced Practical Skills paper

In some exam series, two versions of the Advanced Practical Skills paper (paper 3) are available:

- Cambridge International AS & A Level Biology (9700)
- Cambridge International AS & A Level Chemistry (9701)
- Cambridge International AS & A Level Physics (9702).

The papers are called Advanced Practical Skills 1 and Advanced Practical Skills 2. They contain different questions, but assess the same skills. Each candidate should take one of the papers.
You can divide candidates so that some are entered for Advanced Practical Skills 1 and the others for Advanced Practical Skills 2. Each of the papers are timetabled on a different day so this will give you more flexibility when planning your exams timetable, particularly if you have a large group of candidates and limited laboratory space.

Examples

The examples below show how you might manage the number of candidates in practical exams. These are examples only. You must know your Key Times, and use these when planning your timetable. You may need to organise periods of Full Centre Supervision. See the 'Key Times and Full Centre Supervision' section of the Cambridge Handbook.

Example 1:

A centre has 30 candidates taking Cambridge International AS Level Chemistry (9701/33). The centre has two laboratories, each with a capacity of 20:

- If you would like to use one laboratory: divide your candidates into two groups of 15. Each group takes the exam at a different time.
- If you would like to use two laboratories: divide the candidates into two groups of 15. Both groups take the exam at the same time.

Example 2:

A centre has 120 students taking Cambridge International AS Level Chemistry (9701/33). The centre has three laboratories, each with a capacity of 20:

- Divide your candidates into six groups of 20, two groups per laboratory. Each group within a laboratory takes the exam at a different time. All laboratories can be in use at the same time.

Example 3:

A centre has 300 students taking Cambridge International AS Level Chemistry (9701). The centre has six laboratories, each with a capacity of 20:

- Enter 200 candidates for Cambridge International AS Level Chemistry (9701/33) (Advanced Practical Skills 1) and 100 candidates for Cambridge International AS Level Chemistry (9701/34) (Advanced Practical Skills 2). These will be timetabled on different days.
- For candidates taking 9701/33, use five laboratories and divide candidates into ten groups of twenty. Allocate two groups of candidates per laboratory (e.g. group 1 and group 2). Within each laboratory, group 1 and group 2 take the exam at a different time e.g. 10am and 1pm. You can use the same start times in all five laboratories.
- The candidates taking 9701/34 will take their exam on a different day. Use five laboratories and divide the candidates into five groups of twenty. All groups take the exam at the same time.

You must follow our Key Time and Full Centre Supervision regulations when planning your exam timetable.