A Level (including AS Level) Biology (9700)
Frequently Asked Questions

Can my candidates take a dictionary / calculator into the examination?

Calculators can be used in all science papers and students should take a calculator, ruler, pencil, protractor and set of compasses into all science exams. Dictionaries are not allowed.

What can I do to ensure that I focus my teaching on the key areas of the syllabus, and where can I get advice on how to improve my teaching and the learning of my candidates?

Make sure you have the correct syllabus. This should always be the syllabus for the year in which the candidates are taking the examination (see below). You are strongly recommended to make use of the specimen papers and mark schemes, and the past examination papers and mark schemes for AS and A Level Biology (9700), available from the publications department at CIE and at the Teacher Support Site. These enable you to set realistic tests, and mark them to an appropriate standard. You should also make extensive use of the Report on the Examination. This gives a wealth of advice on teaching and highlights specific points on which candidates have most difficulty, allowing you to concentrate on these areas. You must make the most of such opportunities for In Service Training as may be available in your region. A potentially valuable source of advice and ideas comes from joining the Cie-Biology Discussion List. This is an electronic e-mail based discussion group for Biological Science teachers worldwide. Through this you can ask specific questions about teaching and learning in Biology A Level, and receive a variety of advice and guidance from your colleagues. The discussion is moderated and augmented by input from CIE officers / subject specialists. Subscription details can be found at Teacher Support/discussion groups.

My candidates did OK last session but where can I get some specific feedback on their performance, and an indication of where they were losing marks unnecessarily?

It is possible to request a detailed breakdown of your candidate's performances by asking for an Individual Candidate Report, when a senior examiner will remark the script of each candidate for whom you request this service, and write a report on how the candidate performed in each question. Alternatively, you could ask for a Group Report on a selected group of your candidates. Both of these services will cost you money. They are only worth asking for if you are just beginning to teach at this level and feel very uncertain about the standards expected, or if you see a serious mismatch between what you thought your candidates would do and the actual grades that they got.

What equipment should I provide for the practical exam and for general teaching?

Some useful information is given in Cambridge International Examination's booklet '*Planning for Practical Science in Secondary Schools*', (New Edition June 2002) available free from our publications department, although this booklet is geared primarily at courses for the 11 – 16 age group. The 2004 Biology AS and A Level 9700 Syllabus contains an extensive list of apparatus and materials in a 3- page section entitled 'Laboratory Equipment'.

What help and advice can you give me about health and safety in the laboratory?

The most important point of first contact is with the organisation responsible for health and safety in schools locally, which must be consulted if you are in any doubt and will advise on any local legal requirements. In addition, there are several useful guides available and many are listed in the booklet 'Planning Science in Secondary Schools'. Most school laboratory suppliers' catalogues have details of safety requirements, and an on-line resource is located at www.labsafety.org. Apart from the over-riding need to ensure the health and safety of all staff and students involved in the study of A Level Biology, one of the stated aims of the syllabus is 'develop abilities and skills that encourage efficient and safe practice'.

Can I just teach through the syllabus in the order it is written?

You can, but most teachers devise their own teaching sequence and you may prefer to do this. You will need to look ahead and plan the best time of year to cover topics that are best dealt with at a particular season. For example, you may prefer to teach section N, Energetics, during a time of year when you can most easily find and use actively growing plant material for practical work on photosynthesis. Remember that topics where you will want to do a lot of practical work, such as C, Enzymes, are likely to take longer than those in which little practical work is possible.

Which is the correct textbook for the course?

We don't require Centres to use any one particular textbook for our courses, and we would hope that wherever possible teachers would make use of a variety of different resources, drawing from the best parts of each. Students at this level should be encouraged to read widely, in order to increase their understanding of the topics covered in the syllabus and the links between them. They will often find that, if they do not fully understand an explanation in one textbook, they fare better with a different book. The Resource List given in the 2004 syllabus (page 30) is recently updated, and identifies with an asterisk the textbooks most useful when choice and availability are limited, and which are most suitable for use as a main text by students. You could evaluate copies of some of these, and decide which has a style and content most appropriate to your students.

Where can I find up-to-date information about terminology in those areas of biology, such as genetics and water potential, where different books seem to vary?

The Institute of Biology publishes an excellent booklet entitled *Biological Nomenclature – Standard terms and expressions used in the teaching of Biology*. This is now in its third edition. Cambridge International Examinations follow the recommendations in this booklet when setting examination papers. You will find it an essential reference. It contains, for example: information on the up-to-date usage of water potential terminology; description and explanation of the use of the chi-squared and tests; guidance on best practice in recording results and graph construction; advice on how to represent genetic crosses. It can be obtained directly from the Institute of Biology, 20 Queensberry Place, London, SW7 2DZ, England. Alternatively, you can order a copy from the Institute of Biology's website at www.iob.org.

I would like to be able to do some simple practical work related to biotechnology, but I have no experience of this. Where can I find out what to do, and where can I get materials?

The best starting point is the web site of the National Centre for Biotechnology Education, based at Reading University, at www.ncbe.rdg.ac.uk. The site is updated regularly, and includes free, downloadable protocols for many different practical investigations that students can carry out. You can also obtain materials from the NCBE.

How many significant figures should my students give in their answers?

They should use, as a general rule, as many significant figures as given in the data. It is usual to work to 2 or 3 significant figures depending on how accurate the data allows. See also Pages 8 and 9 in *Biological Nomenclature - Standard terms and expressions used in the teaching of Biology*.

Is there an option available which doesn't involve any assessment of practical skills?

No. Practical skills are as much an integral part of Biology as any other science. This reflects the importance of practical experimentation and investigation as the means by which Biologists have developed our knowledge of organisms and their physiology, biochemistry and interaction. In preparing your candidates for the assessment of practical skills, and in giving them an appropriate experience of Biology at A Level, you are expected to provide a range of practical work for them to do, so that they can develop the skills necessary for success. A Biology qualification without a practical component would be a second-rate assessment of the subject, and CIE aims to provide valid qualifications acceptable in all areas of the world.

I am in the middle of setting up the practical examination, and I need to look at the question. Am I allowed to look at a copy of the question paper?

No. You should prepare the examination using the Confidential Instructions, which are issued to Centres in confidence well in advance of the examination. These instructions tell you all you need to know about the apparatus requirements, how the apparatus is to be arranged, and what it will be used for. If you have a problem which cannot be resolved using the Confidential Instructions, please telephone our Customer services line on +44 1223 553554 or e-mail International@ucles.org.uk.

I haven't got the exact equipment specified in the Confidential Instructions, but I do have something similar. Am I allowed to adapt the experiment at all?

Yes, you are allowed to make minor adaptations to the apparatus, providing that the apparatus still works as specified in the Confidential Instructions. You do not need to seek our approval for these minor adaptations. However, you must report the adaptations in detail to the examiners, by completing the Supervisor's Report form on the back of the Confidential Instructions, which should be enclosed with the candidates' completed scripts. More substantial adaptations, which require changes to the experiment or which cause the apparatus to work in a different way from that described in the Confidential Instructions, are not allowed.