

An introduction to the changes to Cambridge O Level Sciences syllabuses

Video transcript

Carolyn Tiller:

Hello and welcome everyone to this introduction to the changes to Cambridge O Level Science syllabuses.

My name is Carolyn Tiller and I am the Deputy Director of our Qualifications Development team. Presenting with me today is Ali Melville-Cline, who's the Head of our Maths and Science portfolio in Qualifications Development and Tabinda Mazhur, who's our Professional Development Manager in Pakistan.

One question we're often asked is why do we develop our syllabuses? We develop our syllabuses regularly to make sure they continue to meet the needs of learners, schools and higher education institutions around the world and reflect current thinking. This slide gives you a number of reasons why we are revising our syllabuses on a regular basis.

It's important to say that your feedback makes a difference as part of our redevelopment process. We use multiple ways of consulting with our teachers directly and through online questionnaires.

For Cambridge O Level, we've talked directly to a small number of teachers and invited some more to review our materials. We capture feedback from training events and talk to our representatives in ministries of education in particular countries.

We also gather feedback from universities. Sometimes when we've made a big change, we set up a small-scale trial to check that the items we've changed or the mark schemes work well. Teacher feedback in particular helps us to understand what are the important considerations in making changes to a syllabus, what are the strengths of the current course and what are the challenges that they might be facing when teaching the syllabus in the classroom.

Teachers therefore, give us unique insights in how the curriculum works for both them and their students. This enables us to focus on the areas which can make most difference for students learning for the future.

Tabinda Mazhur:

How have we gathered feedback this time?

We carried out an online consultation which went to all Cambridge O Level schools. In addition, we took time to directly speak to teachers by phone. We asked teachers what they found challenging about the syllabus and how they found progression worked from Cambridge O Level to

Cambridge International AS & A Level. Teachers told us the positives of the existing syllabuses and the things they thought could change. We then did our own internal work with specialists. We revised the syllabus documents and the specimen papers. Then we went back to group consultation with teachers which were held as virtual meetings. We received further feedback from you and we were able to make some further changes, smaller ones to reflect teachers' comments. So, as you can see we have based the changes on a lot of feedback from teachers.

Ali Melville-Cline:

So, what do we do with all of this feedback?

All of it is reviewed, and all of it is confidential. Survey data is compiled into a report, and that report will include quantitative data that tells us how many people hold a particular viewpoint. Qualitative data will give us more detailed information about teachers' experiences in their schools using these qualifications.

It shows us what's working really well for our teachers and also what can we change? What can we improve? It helps us make decisions about what changes will work well for our teachers and students for the syllabuses and assessments. It also provides us where people have given us permission with the contact details of people who can be engaged in further feedback work, either through online forums, through panel discussions and future workshops. If we need to gather more information about a particular qualification.

These are some of the examples of how Cambridge O Level teachers' feedback through this redevelopment have really made a difference and you'll see, these are some of the detailed qualitative feedback that we've received. One of the key things that we've looked at is making sure that in the learning outcomes in the syllabuses themselves the breadth and depth of what needs to be taught is really clear.

One of the key changes for Cambridge O Level Physics is about the introduction to space physics and teachers are really positive about this change and it was great to hear their feedback on it.

Another piece where we're going to be providing some more support is around the introduction of planning questions in our alternative to practical and our practical examinations, and there will be sample papers that include information about how these questions will work.

These new specimen papers will be published in September 2020, and we're also going to be publishing some additional practice questions for our new space physics topic. A really important piece of feedback was about the duration of Paper 1, the multiple-choice paper. Teachers were really clear that they wanted this paper to stay at 60 minutes (one hour), and so this feedback we took very seriously and it helped us make the decision to keep the paper duration the same.

For chemistry, we got some feedback about the use of quantitative analysis information in the papers themselves, and so we've made the change that we're going to be offering this information in both Paper 3 and in Paper 4. This helps students have less to memorise for their assessments. It also means that the two alternative routes are much more comparable and fair.

Now we'll talk about the main changes that are going to be taking place to the Cambridge O Level Sciences. Joining me are two of our colleagues from the Assessment division who set, mark and run the live assessment series for sciences. They are Hannah Francis who manages the biology and chemistry teams, and Giota Petkaki, who manages the physics and general science teams.

Giota Petkaki:

Hello everyone. I am going to talk a little bit about the headlines for Cambridge O Level Sciences. We have reviewed biology, chemistry and physics, and updated those for first examination from June 2023. As ever, we are keeping pace with educational developments and trends. We continue to place emphasis on broad and balanced study across a wide range of the subject area for all the three sciences. The new syllabuses and specimen question papers and mark schemes will be published shortly in September 2020.

Across the three sciences we have reviewed the syllabus content and brought it up to date and considered the clarity, breadth and depth of this content. We have worked hard on improving the progression from Cambridge Primary Lower Secondary to Cambridge O Level and Cambridge International AS & Level.

We have made the assessment model consistent across the three sciences so students have the same assessment experience for all the science examinations. To ensure that all the students have the same opportunities in the assessment, we have removed any optional questions from the theory paper, which is Paper Two. This will also help reduce any reading load in the examination.

Planning questions will now be available in all three sciences, in each of the practical papers and the alternative to practical. The syllabus will include more information on practical investigative skills on the mathematical requirements of the syllabuses and guidance on data presentation skills in order to support the students' understanding and help them to develop skills further. More support will be available earlier for teachers.

Now let's talk briefly about what is staying the same. The assessment model, the style of the papers and the approach in the assessment remain the same. There are no changes to the style of the assessment or types of questions, so we're still having multiple-choice questions, structured theory papers, practical assessment, and alternative to practical. We have reviewed the subject content, as I already said, and most of the topics and learning objectives are substantially the same in terms of scientific ideas.

We have now updated how they are structured and articulated and we have worked to make the content clearer to teach and to help make connections through the different parts of the syllabus. There is some new content, for example there is space science included in Cambridge O Level Physics. We would like to stress that the demand of the assessment remains the same. We have very slightly changed the assessment objectives. Mainly, we have made a minor amends in the wording of the assessment objectives. We have made some small changes to the assessment objective weighting to rebalance the papers. However, these changes will not affect the demand or difficulty of the assessments.

Hannah Francis:

Hello. Most of our students take all three Cambridge O Levels in science. As you can see, we have made the assessment model for each consistent so students know what to expect in the exams and to ensure a consistent assessment experience.

So how will this affect teaching? This is the first substantial change to these syllabuses for a long time. We have updated the order of topics and topics structure so schemes of work will need to be reviewed and updated. There's more detail in the extent of content to help you know when to start and when to finish. A lot of topics are not changing, but you will need to be ready to deliver new areas of study. For example, space and different types of items such as planning. Please be

reassured that the body of knowledge is the same and the improvements are about enhancing the students' experience.

Ali Melville-Cline:

Now I'm going to talk to David Harrison, the Development Manager from our Teaching and Learning division, about support for our Cambridge O Level syllabuses. David, what support is going to be available and when?

David Harrison:

Thank you. My name is David Harrison and I'm managing the development of all the teaching and learning resources supporting the new syllabuses. There'll be a comprehensive support package produced which will help teachers deliver an engaging and thorough teaching programme for their learners.

The scheme of work provides a medium-term teaching plan from which detailed lesson plans can be produced. It covers all learning objectives in the syllabus with suggested activities and links to additional resources. New for this edition of the scheme of work are extension activities that are designed to stretch the most able learners and prepare them for Cambridge International AS & A Level study.

Additionally, links to relevant Resource Plus video experiments and teaching packs are included throughout the scheme of work and I'll talk about these in a little while. The scheme of work will be available to download from the School Support Hub in July 2020. Guides for both teachers and learners will also be available to download in July 2020. The Teacher Guide provides extra support for teachers delivering the course. In particular, it shows how English language learning activities can be integrated into a programme of science teaching, which should better prepare learners for their exams and further study.

The Learner Guide gives learners a basic introduction to the syllabus in a very accessible manner. The guide covers information such as what they will study and how they will be examined. It also contains a revision checklist that learners can use to check their understanding and prepare for their exams. For this new syllabus, Cambridge has produced an additional premium resource that hasn't been available for Cambridge O Level Sciences in the past; it's called Resource Plus. Resource Plus is already available to use from the School Support Hub. Resource Plus contains hundreds of specially commissioned experiment videos and associated teaching packs. These contain detailed lesson plans and worksheets designed to encourage the development of practical science skills, and prepare learners for the practical papers, Cambridge International AS & A Level Sciences and higher education study. Even when teachers and their learners don't have access to a lab, Resource Plus can be used to support skills development, so log in and start using Resource Plus today.

After the Specimen Papers are produced in September 2020, the set of Specimen Paper Answers will also be produced. They'll provide example answers for each of the Specimen Paper questions, along with examiner commentaries on the answers and marks. Teachers can use the answers, commentaries and marks to gain a better understanding of the standard required in examinations so that learners can be better prepared when they sit their first exams. Our publishing partner, Hodder, will be publishing endorsed resources for the syllabuses in March 2021. Further details about the textbooks can be found on our public website or look at the publisher's website.

The last resource to publish from Cambridge's standard support package will be the Example Candidate Responses after the first exams are sat in the summer of 2023. Example Candidate



Responses each contain actual student answers to exam questions with a commentary provided by the examiner and a marks breakdown. Cambridge aims to have these available to download from the School Support Hub by the following January 2024, so look out for these documents when they publish. So that summarises the support Cambridge will be providing for the new syllabuses. Don't forget to look around the School Support Hub for many other resources available to use in teaching and learning. Also, why not take part in the teacher forums, also found on the School Support Hub, or even consider entering a team for the science competition? Good luck.

Ali Melville-Cline:

We hope that this gives you a good overview of the changes across the sciences and how your feedback has helped shape our syllabuses. To learn about specific changes within each science, please see the next video. Thank you.