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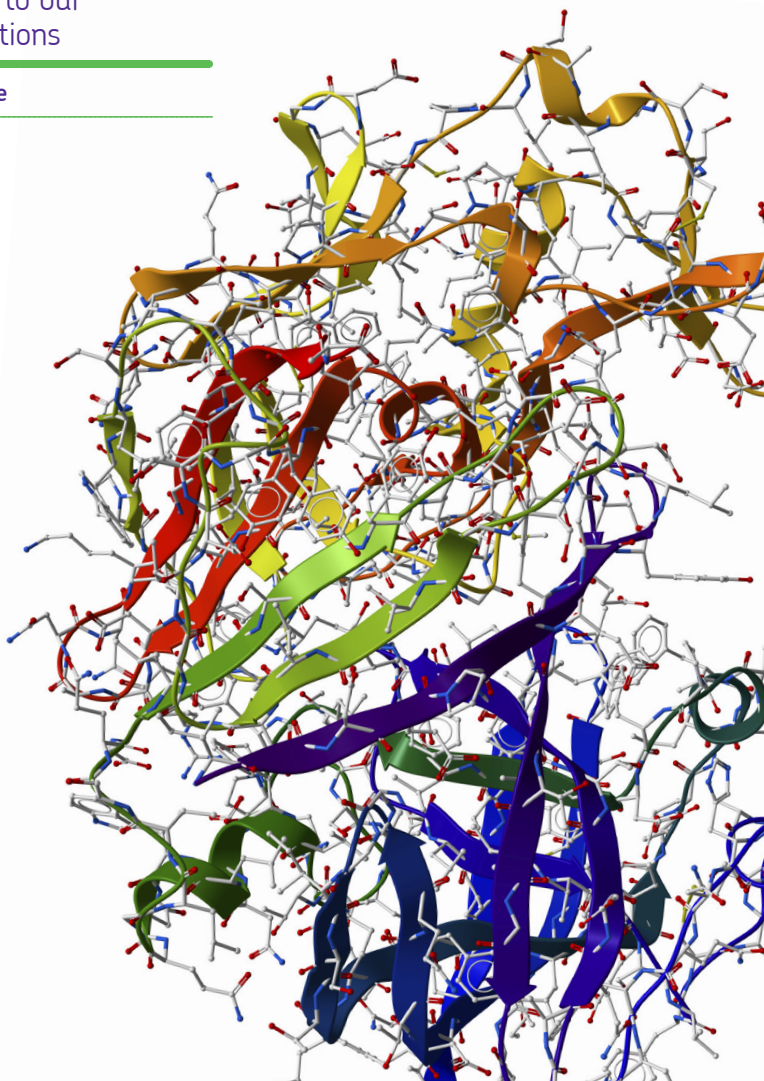
# AS AND A-LEVEL BIOLOGY

A companion guide to our  
accredited specifications

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[aqa.org.uk/biology-guide](http://aqa.org.uk/biology-guide)

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# Changes to A-level Biology

A-levels are changing, with government introducing new regulations for subject content and assessment.

The new regulations apply to all exam boards. These are the main changes for A-level Biology.

## Structure

- Changing from modular to linear assessment, with all exams at the end of the course.
- The AS becomes a stand-alone qualification, which doesn't contribute to the A-level grade.

## Exams

- New assessment objectives.
- The minimum total number of hours for exams is 3 hours for AS and 6 hours for A-level.

- 10% of the total A-level marks require the use of Level 2 (Higher tier GCSE) mathematical skills.

## Practical work

- There will be **no** internal assessment that leads to marks that contribute towards the AS or A-level grades. In other words, no coursework or controlled assessment.
- Practical work will be assessed in the written papers. 15% of the total A-level marks will be for practical knowledge and understanding.
- A separate 'endorsement' of practical work will be assessed by teachers. This will not be graded. If students pass, it will be reported on their certificate, otherwise it will not be reported.

| AS and A-level Biology: key dates   |                       |
|---|-----------------------|
| Schemes of work   | Available spring 2015 |
| Practical handbook  | Spring 2015           |
| Guidance for preparing students on the essay question                               | September 2015        |
| First teaching of new AS and A-level Biology  | September 2015        |
| Additional practice papers and mark schemes for you to use in mock exams – on e-AQA | Winter 2015           |
| First exams for new AS Biology  | Summer 2016           |
| First exams for new A-level Biology   | Summer 2017           |

# Our approach to change

## Turning new rules into classroom inspiration

As an education charity and the largest provider of qualifications in England and Wales, meeting the needs of teachers and students is central to what we do. So our approach to these changes has been to listen and learn before acting, to produce a specification that you'll want to teach.

### Listening to teachers

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We've listened to hundreds of science teachers by visiting schools and colleges, hosting workshops, sending surveys, attending conferences, not to mention reading all your emails and talking to you on the phone. We wanted to know what you need – not guess what you might want. Your views, hopes and aspirations have been crucial.

### Working with teachers

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Teachers have contributed to every aspect of our new qualifications, including the specifications, question papers and resources. Teachers have also trialled our new arrangements for practicals and tested our specimen question papers with their students.

### Building support

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While the views of teachers have been crucial, we've also worked with universities and subject associations. This ensured that our new specifications have the content, credibility and rigour to support your students into the next stage of their lives, whether at university or in employment.

### Taking to the road

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In February 2014 teachers gave us even more feedback on our draft specifications and question papers when we took two double-decker buses to 24 locations, meeting teachers from 274 schools and colleges. Again, we listened to all the feedback and refined our new specifications and question papers to ensure we hit the mark.

### Creating something better

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Now we have created specifications, question papers, resources and support that will inspire learning and help to realise potential.

Read the specifications and specimen question papers:  
[aqa.org.uk/biology-guide](http://aqa.org.uk/biology-guide)

Speak to us: call **01483 477 756** or email [alevelscience@aqa.org.uk](mailto:alevelscience@aqa.org.uk)

See how we're supporting teachers through the changes to A-levels at:  
[aqa.org.uk/changes-to-exams](http://aqa.org.uk/changes-to-exams)

# AS and A-level Biology

## A great choice

Our new specification will help nurture a passion for biology, lay the foundations for further study and careers in biological sciences and medicine, and give you the freedom to teach in the way that works best for your students, whatever their ability.

### Familiar content

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The core content of our new specification is largely the same, so whatever exam board you're with currently, you'll be able to use many of your existing resources.

### Context-free specification

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You select the context and applications to bring the subject to life. You'll be supported by our new teaching resources, including schemes of work.

### Teach AS and A-level together

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While the AS is a stand-alone qualification, the content is identical to and co-teachable with the first year of the A-level. This straightforward approach will help your planning, timetabling and resourcing.

### Practical at the heart of biology

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Practical work is at the heart of good science teaching. The new regulations mean the end for coursework and you'll have more choice about your practical activities.

### Straightforward exams with no surprises

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We've tried out our specimen question papers with students to ensure that they're clear, accessible and suitable for all abilities. Students will have a choice of two essay questions, giving them the chance to show their knowledge across the subject.

### Great progression – from GCSE to HE

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We've developed our AS and A-level with the GCSE in mind to ensure seamless progression between qualifications, with continuity of content and question type. We've also worked with universities to ensure that your students will develop the skills and knowledge that universities want to see.

### Managing maths

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10% of marks in biology exams will be for mathematical skills at higher tier GCSE level. We'll help you with teaching guidance for maths and relevant past exam questions.

### Great resources and support

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We've developed new resources which link directly to the specification, including practice question papers, exemplar student answers, schemes of work and comparisons with current specifications to make the changes as simple as possible.

“ Our relevant, up-to-date specification will suit a variety of interests and abilities

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**Matthew Bennett** is Qualifications Manager for our AS and A-level sciences. Matthew has a successful career as a science teacher, head of department and principal examiner behind him. Now he has put this experience to great use in managing the development of our new specifications.

“Many of the changes to biology and the other sciences have been demanded by government, but we’ve taken the chance to review our specification and work with teachers, universities and others to develop a new specification that will inspire and motivate students. We’ve produced relevant, up-to-date and comprehensive specifications that will suit a variety of interests and abilities.

Much of the content will be familiar to any biology teacher, but some may wonder what impact the changes to practical assessment will have. I can reassure them that practical work is at the heart of all our new science specifications. The skills and knowledge students learn will stand them in good stead in their future scientific careers and at university.

One thing we’ve insisted on is to make sure that we have the resources and



Matthew Bennett, Qualifications Manager

support in place to help teachers deliver our new specification from the start. So I’m delighted that we’re working with three publishers to develop high-quality textbooks and digital materials. We will also host face-to-face and online events and provide free resources directly related to the new specification. And we’ll only be a phone call or email away to provide more support.

The whole process we’ve been through to get to where we are has been very positive and I’m particularly proud that we’ve involved so many teachers in the development of this specification and the question papers. For example, in our early specimen question papers we included a multiple choice section. But teachers told us that this was too much of a change for biology and not suitable for a lot of their students. So we removed this section. We’ve listened and made improvements, without introducing too much change, so I’m confident that our new specification will be the basis for great teaching and learning in this important subject.”

# Practice makes perfect

## Changes to practicals in biology

Our new specification includes a fresh approach to practical work, increasing choice, removing the constraints of tasks that are set by exam boards and putting purposeful practical work at the heart of teaching.

### 1 No coursework

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Coursework is being removed, so coursework practicals will no longer contribute towards the final AS or A-level grade.

### 2 More practicals

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Students will do at least 12 practical activities across the two-year A-level.

- Students will have more opportunities to learn and use practical skills to link theory with practice, deepening their knowledge and understanding.
- Teachers will have the freedom to integrate practicals into day to day teaching. You'll have a wider variety of practical activities and you won't have to prepare new practicals every year.
- We have a balanced approach. We'll tell you which practicals to do, so you'll be confident you're doing the right thing. But you'll have more flexibility than you do now.

### 3 Exams will test practical knowledge and understanding

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Students will be asked to apply the knowledge and understanding they learn from these practicals in their written exams. Practical-based questions will form about 15% of the total assessment. We've put most of these questions in one section of paper 3 of the A-level, so that students know what to expect and can prepare.

### 4 Teachers will monitor students' practical performance

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We've collaborated with CLEAPSS on the practical competencies that will be assessed in the practical endorsement. You will monitor your students' practical work in lessons and decide, at the end of the course, whether they pass. If they pass, it will be recorded on their certificate alongside their final grade.

### 5 We're here to help

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We'll provide support, including highlighting opportunities for developing practical skills throughout the specification, a *Practical handbook* to help you deliver practicals, and guidance to help students document their practicals.

# Biology: AS and A-level subject content

You can see the detailed subject content in the draft AS and A-level specifications at: [aqa.org.uk/biology-guide](http://aqa.org.uk/biology-guide)

## Practical

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We will provide a list of practical activities that students must carry out. Exam questions will be based on these practicals. We will also signpost further opportunities for practicals throughout the specification.

## AS and first year of A-level

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1. Biological molecules
2. Cells
3. Organisms exchange substances with their environment
4. Genetic information, variation and relationships between organisms

## Second year of A-level

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5. Energy transfers in and between organisms
6. Organisms respond to changes in their internal and external environments
7. Genetics, populations, evolution and ecosystems
8. The control of gene expression

## Changes from the current AQA specification

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The content will be very familiar to you, but we have made some changes based on teachers' feedback. For example, we have:

- reorganised some topics, such as carbohydrates, cells, DNA and protein synthesis
- added ADH and control of blood water potential
- updated the control of gene expression and genetic engineering
- removed cell differentiation, human populations, carbon cycle and control of mammalian oestrus.

Overall we've removed topics that are adequately covered at GCSE to ensure progression.

# A-level Biology exams

| Paper 1   | + | Paper 2  | + | Paper 3  |
|---|---|--|---|--|
| <b>Content</b> <ul style="list-style-type: none"><li>Any content from topics 1 - 4, including relevant practical skills</li></ul>                                     |   | <b>Content</b> <ul style="list-style-type: none"><li>Any content from topics 5 - 8, including relevant practical skills</li></ul>                                |   | <b>Content</b> <ul style="list-style-type: none"><li>Any content from topics 1 - 8, including relevant practical skills</li></ul>  |
| <b>Assessment</b> <ul style="list-style-type: none"><li>Written exam: 2 hours</li><li>91 marks</li><li>35% of A-level</li></ul>                                       |   | <b>Assessment</b> <ul style="list-style-type: none"><li>Written exam: 2 hours</li><li>91 marks</li><li>35% of A-level</li></ul>                                  |   | <b>Assessment</b> <ul style="list-style-type: none"><li>Written exam: 2 hours</li><li>78 marks</li><li>30% of A-level</li></ul>  |
| <b>Questions</b> <ul style="list-style-type: none"><li>76 marks: a mixture of short and long answer questions</li><li>15 marks: extended response questions</li></ul> |   | <b>Questions</b> <ul style="list-style-type: none"><li>76 marks: a mixture of short and long answer questions</li><li>15 marks: comprehension question</li></ul> |   | <b>Questions</b> <ul style="list-style-type: none"><li>38 marks: structured questions, including practical techniques</li><li>15 marks: critical analysis of given experimental data</li><li>25 marks: one essay from a choice of two titles</li></ul> |

These are the only exams that contribute to the A-level grade. The AS is a separate qualification.



# AS Biology exams

| Paper 1  | + | Paper 2   |
|--|---|---|
| <b>Content</b> <ul style="list-style-type: none"><li>Any content from topics 1 - 4, including relevant practical skills</li></ul>          |   | <b>Content</b> <ul style="list-style-type: none"><li>Any content from topics 1 - 4, including relevant practical skills</li></ul>               |
| <b>Assessment</b> <ul style="list-style-type: none"><li>Written exam: 1 hour 30 minutes</li><li>75 marks</li><li>50% of AS</li></ul>       |   | <b>Assessment</b> <ul style="list-style-type: none"><li>Written exam: 1 hour 30 minutes</li><li>75 marks</li><li>50% of AS</li></ul>            |
| <b>Questions</b> <ul style="list-style-type: none"><li>65 marks: short answer questions</li><li>10 marks: comprehension question</li></ul> |   | <b>Questions</b> <ul style="list-style-type: none"><li>65 marks: short answer questions</li><li>10 marks: extended response questions</li></ul> |

Don't forget the AS content is identical to the first year of A-level, so you can teach them together in the same class.

The AS papers include all types of questions that are in the A-level, but at a lower level, helping students to progress towards the more challenging A-level questions.

## Find out more

See our specimen question papers and mark schemes at [aqa.org.uk/biology-guide](http://aqa.org.uk/biology-guide)

# The results your students deserve

## Assessment you can trust

After your students have taken their exams, you need to be confident that their work is marked fairly, consistently and reliably. That's our priority too.

### Clear question papers

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Following feedback from teachers, we've designed clear and concise question papers that use a variety of question types. They are accessible for lower ability students, while giving very able students the chance to show their breadth and depth of knowledge. We've followed guidance from the Association for Science Education (ASE) on how we use scientific terminology.

### Well-structured mark schemes and exemplar answers

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Our mark schemes are designed to give you insights into what's needed to earn the best marks. We'll provide exemplar student answers and commentaries from our most senior examiners, so you can see how the mark schemes are applied in different contexts. You can also use relevant questions from past exams with Exampro at [exampro.co.uk](http://exampro.co.uk)

### Getting the marking right

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Quality of marking is at the heart of our assessment procedures and we do everything to ensure we publish

the right results first time. To achieve this we recruit high calibre examiners, train and standardise them to a high standard and monitor their marking through rigorous quality control.

### Assessment support

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You won't be left to your own devices as our new resources and direct support from our experienced Biology subject team will help you to plan, teach and assess your students and ensure they're in good shape for their exams.

### Understanding assessment

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To show exactly how we award grades and give you a better understanding of how assessment works, we've produced a short animated film called *Explaining assessment*.

- Visit [aqa.org.uk/explaining-assessment](http://aqa.org.uk/explaining-assessment) to see our *Explaining assessment* and *How a specification is created* animations
- You can analyse your students' results with Enhanced results analysis (ERA), our free online results analysis tool. Register at [aqa.org.uk/era](http://aqa.org.uk/era)

# Resources to support great teaching

We're working with teachers, examiners and publishers to develop a new suite of resources.

## Free resources

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Here's an overview of our free resources. For all our resources, visit [aqa.org.uk/biology-guide](http://aqa.org.uk/biology-guide)

- question papers and mark schemes, which give insights into the type of questions students can expect:
  - specimen question papers and mark schemes
  - additional practice question papers and mark schemes, which are only available on e-AQA so you can use them for mock exams
- exemplar student answers with examiner commentary to show how marks are awarded
- schemes of work to show different approaches to the specification
- a *Practical handbook* to help teachers deliver practical work
- help to switch from your current specification
- guidance on teaching AS and A-level together
- guidance on teaching the maths content.

## AQA approved textbooks and digital resources

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Our free resources and the fact that there isn't much change mean that you can use your existing textbooks. But if you want new resources, you'll have a choice, including:

- Exampro: an online bank of relevant past questions, great for exam preparation
- resources from three established publishers, specifically for our new specification.

## Events and training

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- We're holding free face-to-face and online events in spring and summer 2015 to help you get to grips with the new specification, ask questions and network with your peers. You can book online at: [aqa.org.uk/launchevents](http://aqa.org.uk/launchevents)
- You'll have a choice of CPD opportunities to enhance your skills and knowledge. Visit [aqa.org.uk/cpd](http://aqa.org.uk/cpd)

## Telephone and email support

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You can always talk directly to our Biology subject team by phone and email. Our knowledgeable staff will be pleased to help with any queries.

## Who's who

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**Stella Paes**  
Head of Science



**Matthew Bennett**  
Qualifications Manager

**Chris Hancock**  
Qualifications Developer



**Bill Johnston**  
Customer Support Manager



## Keep in touch

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To receive regular updates about our science subjects, register with us at [aqa.org.uk/update](http://aqa.org.uk/update)



Also see our companion guides to the new A-level Chemistry and Physics specifications at [aqa.org.uk/science](http://aqa.org.uk/science)

You will always find the most up-to-date information on our website at [aqa.org.uk/biology-guide](http://aqa.org.uk/biology-guide)

[aqa.org.uk](http://aqa.org.uk)

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