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Moving to the new Level 3 Cambridge Advanced National (AAQ) in Applied Science from AQA Level 3 in Applied Science

Are you currently teaching the AQA Level 3 in Applied Science (first teaching 2016)?

This guide will take a look at our Level 3 Cambridge Advanced National (AAQ) in Applied Science, show you how it compares to the AQA Level 3 in Applied Science and how you can easily move to teaching our specification.

Developed with the support of teachers, our new Level 3 Cambridge Advanced National (AAQ) in Applied Science has a number of key benefits for teachers and students:

- teacher-friendly specification based on extensive research and engagement with the teaching community.
- straightforward for teachers to deliver and accessible for students.
- structure of the qualification can be tailored to suit your needs.

The unit grade awarded is based on the **total** number of achieved criteria for the unit. The total number of achieved criteria for each unit can come from achievement of any of the criteria (Pass, Merit or Distinction). This is **not** a 'hurdles-based' approach, so students do not have to achieve all criteria for a specific grade to achieve that grade (e.g. all Pass criteria to achieve a Pass).

We have designed our new specification to help students build real and relevant skills for the future.

Your students will develop:

- real and relevant knowledge for the future
- vital knowledge and experience of the scientific method
- a line of sight to working in different science industries, including forensics, environmental careers and radiography
- an understanding of the importance of communication and collaboration in the scientific community

Our specification offers:

- Three mandatory units that contain key knowledge and skills beneficial for further study
- Two externally assessed units that that focus on key Biology, Chemistry and Physics knowledge, as well as practical skills and science in the modern society
- One mandatory non-examined assessment (NEA) unit
- Two optional skills-based NEA units

About our support

We believe in developing specifications that help you bring the subject to life and inspire your students to achieve more.

We've created teacher-friendly specifications based on extensive research and engagement with the teaching community as well as representatives from higher education. The new specifications are designed to be straightforward and accessible so that you can tailor the delivery of the course to suit your needs. We've clarified the depth and breadth required throughout, and we've made the assessment criteria clearer.

We offer a range of support services to help you at every stage, from preparation to delivery and assessment:

- **free OCR resources** to help you plan your teaching and get your students ready for assessment
- an extensive **range of free professional development courses** covering everything from getting started to hands-on assessment practice. There are also regular Q&A opportunities with moderators and examiners. To find out more, visit our professional development page.
- Active Results: our **free results analysis service** to help you review the performance of individual students or whole school
- ExamBuilder: our **free question-building platform** that helps you to build your own tests using past OCR exam questions
- **expert Subject Advisors** who are part of their subject communities and here to support you with advice, updates on resources, and information about training opportunities.
- **textbooks and teaching and learning resources from leading publishers.**

> **The need to change assignment briefs is an Ofqual requirement but with the OCR Level 3 AAQs, changes will be kept to a minimum and whilst the scenario will change, the content and equipment won't.**

To find out more about all of our support services, please visit Teach Cambridge.

At a glance specification comparison

	OCR Level 3 Cambridge Advanced National (AAQ) in Applied Science	AQA Level 3 Applied Science (first teaching September 2016)
Structure	**Extended certificate (360 GLH):** There are five units of assessment. Students must complete three mandatory and two optional units to achieve the qualification. Two mandatory externally assessed units: • Unit F180 Fundamentals of science • Unit F181 Science in society One mandatory internally assessed and externally moderated NEA: • Unit F182 Investigating science Two optional internally assessed and externally moderated NEA units from a choice of four: • Unit F183 Analytical techniques in chemistry • Unit F184 Environmental studies • Unit F185 Forensic biology • Unit F186 Medical physics **Certificate (180 GLH):** One mandatory externally assessed unit: • Unit F180 Fundamentals of science One mandatory internally assessed and externally moderated NEA Unit: • Unit F182 Investigating science	**Extended certificate (360 GLH):** There are six units of assessment. Students must complete five mandatory units and one optional unit to achieve the qualification. Three mandatory externally assessed units: • Key concepts in science • Science in the modern world • The human body Two mandatory internally assessed and externally moderated NEA: • Applied experimental techniques • Investigating Science One optional internally assessed and externally moderated NEA unit from a choice of three: • Microbiology • Medical physics • Organic chemistry **Certificate (180 GLH):** Three mandatory units This qualification is also available as Foundation Diploma, Diploma and Diploma Extended levels.

	OCR Level 3 Cambridge Advanced National (AAQ) in Applied Science	AQA Level 3 Applied Science (first teaching September 2016)
Grading	All results from each unit are awarded on the following scale: • Distinction (D) • Merit (M) • Pass (P) The unit grade awarded is based on the **total** number of achieved criteria for the unit. The total number of achieved criteria for each unit can come from achievement of any of the criteria (Pass, Merit or Distinction). This is **not** a 'hurdles-based' approach, so students do **not** have to achieve **all** criteria for a specific grade to achieve that grade (e.g. all Pass criteria to achieve a Pass). The overall qualification grades are awarded: • Distinction* (D*) • Distinction (D) • Merit (M) • Pass (P) • Unclassified (U)	All results from each unit are awarded on the following scale: • Distinction (D) • Merit (M) • Pass (P) • Near Pass (N) • Unclassified (U) Qualifications in the suite are graded using a scale of: • P to D* • PP to D*D • PPP to D*D*D*
Assessment	**Extended certificate:** F180 Exam 1 hour 30 minutes F181 Exam 1 hour 15 minutes F182 NEA F183 Optional NEA F184 Optional NEA F185 Optional NEA F186 Optional NEA **Certificate:** F180 Exam 1 hour 30 minutes F182 NEA	**Extended certificate:** Unit 1 Externally assessed (1 hour 30 minutes exam) Unit 2 Internally assessed assignment Unit 3 Externally assessed (1 hour 30 minutes exam) Unit 4 Externally assessed (1 hour 30 minutes exam) Unit 5 Internally assessed assignment Unit 6A Optional internally assessed unit Unit 6B Optional internally assessed unit Unit 6C Optional internally assessed unit **Certificate:** Unit 1 Externally assessed (1 hour 30 minutes exam) Unit 2 Internally assessed assignment Unit 3 Externally assessed (1 hour 30 minutes exam) This qualification is also available as Foundation Diploma, Diploma and Diploma Extended levels.

	OCR Level 3 Cambridge Advanced National (AAQ) in Applied Science	AQA Level 3 Applied Science (first teaching September 2016)
Administration	External assessments available twice a year, with opportunity to resit. Internal assessment with external moderation available in two assessment windows each year: January and June. The NEA assignments will be valid for 2 year(s). The dates for which they are live will be shown on the front cover. For external moderation, you must make unit entries for students before you can submit outcomes to request a visit. Students can resit the examined unit twice before they complete the qualification. Familiar administration for exam officers. See the specification for full administration information.	External assessments available twice a year, with opportunity to resit. Internal assessment with external standards verification. Centre must make arrangements for secure delivery of exams and supervised tasks. Single retake opportunity for internally assessed units. Retake can only be achieved at a pass.

Detailed comparison of units

OCR Level 3 Cambridge Advanced Nationals (AAQs) in Applied Science **Unit F180** **Fundamentals of science** **OCR-set and marked** **70 marks** **90 GLH** **1 hour 30 minutes written examination**			AQA Level 3 in Applied Science (first teaching September 2016)
Topic Area title	**Teaching content reference**	**Teaching content title**	**Comparable teaching content**
Topic Area B1: Cell structure and microscopy	1.1	Cell structure and function	Unit 1: Key concepts in science 1(a) Cell structure 1(b) Transport mechanisms
	1.2	Microscopy	Unit 1: Key concepts in science 1(a) Cell structure
Topic Area B2: Bioenergetics	2.1	Photosynthesis	Unit 1: Key concepts in science 1(f) Photosynthesis and food chain productivity
	2.2	Cellular respiration	Unit 1: Key concepts in science 1(e) Breathing and cellular respiration
Topic Area B3: Structure and function of biological molecules	3.1	Biological molecules	Unit 4: The digestive system and diet
Topic Area B4: Biodiversity and ecosystems	4.1	The distribution of organisms	Unit 1: Key concepts in science 1(f) Photosynthesis and food chain productivity
	4.2	Sampling	
Topic Area C1: Atomic structure and the Periodic Table	1.1	Atomic structure	Unit 1: Key concepts in science 2(a) Atomic structure
	1.2	The Periodic Table	Unit 1: Key concepts in science 2(b) The Periodic Table
Topic Area C2: Quantitative chemistry	2.1	Amount of substance	Unit 1: Key concepts in science 2(c) Amount of substance

F180 comparison continues on next page.

OCR Level 3 Cambridge Advanced Nationals (AAQs) in Applied Science **Unit F180** **Fundamentals of science** **OCR-set and marked** **70 marks** **90 GLH** **1 hour 30 minutes written examination**			AQA Level 3 in Applied Science (first teaching September 2016)
Topic Area title	**Teaching content reference**	**Teaching content title**	**Comparable teaching content**
Topic Area C3: Structure and bonding	3.1	Bonding	Unit 1: Key concepts in science 2(d) Bonding and structure
	3.2	Structures and properties	Unit 1: Key concepts in science 2(d) Bonding and structure
	3.3	Organic chemistry	Unit 6C: Organic chemistry Molecular structure, functional groups, and isomerism
Topic Area C4: Rates of reaction and enthalpy changes	4.1	Rates of reaction	Unit 1: Key concepts in science 2(e) Enthalpy changes
	4.2	Enthalpy changes	Unit 1: Key concepts in science 2(e) Enthalpy changes
Topic Area P1: Electricity	1.1	Circuits	Unit 1: Key concepts in science 3(b) Electricity and circuits
Topic Area P2: Motion	2.1	Energy	Unit 1: Key concepts in science 3(a) Useful energy and efficiency 3(c) Dynamics
Topic Area P3: Medical physics	3.1	X-rays and ultrasound	Unit 6B: Medical physics Imaging methods
	3.2	Radioactivity	Unit 6B: Medical physics Radiotherapy techniques and the use of radioactive tracers Working with radioisotopes in the laboratory

OCR Level 3 Cambridge Advanced Nationals (AAQs) in Applied Science **Unit F181** **Science in society** **OCR-set and marked** **50 marks** **60 GLH** **1 hour 15 minutes written examination**			AQA Level 3 in Applied Science (first teaching September 2016)
Topic Area title	**Teaching content reference**	**Teaching content title**	**Comparable teaching content**
Topic Area 1: What scientists do	1.1	The skills of scientists	Unit 3: Science in the modern world The roles and responsibilities that science personnel carry out in the science industry
	1.2	The Scientific Method	
	1.3	The Scientific Community	Unit 3: Science in the modern world Topical scientific issues obtained from a variety of media sources
	1.4	The role of scientists	Unit 3: Science in the modern world The roles and responsibilities that science personnel carry out in the science industry
Topic Area 2: Handling scientific data	2.1	Types of scientific data	
	2.2	Collecting scientific data	Unit 5: Investigating science Carry out the investigation and record results
	2.3	Storage and presentation of scientific data	Unit 3: Science in the modern world Topical scientific issues obtained from a variety of media sources Unit 5: Investigating science Analyse results, draw conclusions and evaluate the investigation
	2.4	Interpreting data	Unit 5: Investigating science Analyse results, draw conclusions and evaluate the investigation

F181 comparison continues on next page.

OCR Level 3 Cambridge Advanced Nationals (AAQs) in Applied Science **Unit F181** **Science in society** **OCR-set and marked** **50 marks** **60 GLH** **1 hour 15 minutes written examination**			AQA Level 3 in Applied Science (first teaching September 2016)
Topic Area title	**Teaching content reference**	**Teaching content title**	**Comparable teaching content**
Topic Area 3: Scientific developments	3.1	Hypothesis, theory and law	
	3.2	Using new technologies in science	Unit 3: Science in the modern world Topical scientific issues obtained from a variety of media sources The ethical, moral, commercial, environmental, political and social issues involved in scientific advances, and how these are represented in the media
	3.3	Implications and limitations of scientific developments	Unit 3: Science in the modern world Topical scientific issues obtained from a variety of media sources
Topic Area 4: Communicating science	4.1	Methods of communication	Unit 3: Science in the modern world The public perception of science and the influence that the media have
	4.2	Plagiarism	Unit 3: Science in the modern world The public perception of science and the influence that the media have
	4.3	Using science to inform decision making	Unit 3: Science in the modern world The ethical, moral, commercial, environmental, political and social issues involved in scientific advances, and how these are represented in the media
	4.4	Problems with communicating science	Unit 3: Science in the modern world The public perception of science and the influence that the media have

OCR Level 3 Cambridge Advanced Nationals (AAQs) in Applied Science **Unit F182** **Investigating science** **Centre-assessed and OCR-moderated** **28 marks** **90 GLH**			AQA Level 3 in Applied Science (first teaching September 2016)
Topic Area title	**Teaching content reference**	**Teaching content title**	**Comparable teaching content**
Topic Area 1: Planning a scientific investigation	1.1	Researching the topic	Unit 5: Investigating science Prepare for a scientific investigation
	1.2	Designing a scientific investigation	Unit 5: Investigating science Prepare for a scientific investigation
	1.3	Conducting preliminary experiments	Unit 5: Investigating science PO1 Prepare for a scientific investigation
Topic Area 2: Performing a scientific investigation	2.1	Practical skills and apparatus	Unit 5: Investigating science Carry out the investigation and record results
	2.2	Recording data from experiments	Unit 5: Investigating science Carry out the investigation and record results
Topic Area 3: Analysing and communicating results	3.1	Analysing data	Unit 5: Investigating science Analyse results, draw conclusions and evaluate the investigation
	3.2	Writing conclusions	Unit 5: Investigating science Analyse results, draw conclusions and evaluate the investigation
	3.3	Communicating results	Unit 5: Investigating science Present the findings of the investigation to a suitable audience
Topic Area 4: Evaluating a scientific investigation	4.1	Evaluating the investigation	Unit 5: Investigating science Analyse results, draw conclusions and evaluate the investigation

OCR Level 3 Cambridge Advanced Nationals (AAQs) in Applied Science **Unit F183** **Analytical techniques in chemistry** **Centre-assessed and OCR-moderated** **22 marks** **60 GLH**			AQA Level 3 in Applied Science (first teaching September 2016)
Topic Area title	**Teaching content reference**	**Teaching content title**	**Comparable teaching content**
Topic Area 1: Techniques to categorise and separate chemical substances	1.1	Chemical substances and their properties	Unit 1: Key concepts in science 2(d) Bonding and structure
	1.2	Separating chemical substances	Unit 6C: Organic chemistry Preparing organic compounds
Topic Area 2: Quantitative and qualitative analytical techniques to quantify and identify substances	2.1	Quantitative analysis	Unit 2: Applied experimental techniques 2(a) Volumetric analysis 2(b) Colorimetric analysis
	2.2	Qualitative analysis	Unit 2: Applied experimental techniques 2(b) Colorimetric analysis Unit 6C: Organic chemistry Molecular structure, functional groups and isomerism
Topic Area 3: The principles of spectroscopic techniques and interpreting spectra for chemical substances	3.1	Spectroscopic techniques	Unit 6B: Medical physics Imaging methods

OCR Level 3 Cambridge Advanced Nationals (AAQs) in Applied Science **Unit F184** **Environmental studies** **Centre-assessed and OCR-moderated** **22 marks** **60 GLH**			AQA Level 3 in Applied Science (first teaching September 2016)
Topic Area title	**Teaching content reference**	**Teaching content title**	**Comparable teaching content**
Topic Area 1: Ecosystems and diversity	1.1	Ecosystems	Unit 1: Key concepts in science 1(f) Photosynthesis and food chain productivity
	1.2	Biodiversity	Unit 1: Key concepts in science 1(f) Photosynthesis and food chain productivity
	1.3	Importance of conserving ecosystems and maintaining biodiversity	
	1.4	Understanding case studies	
Topic Area 2: Impact of human activity and natural events	2.1	Impact of human activities	Unit 1: Key concepts in science 3(a) Useful energy and efficiency
	2.2	Impact of natural events	
Topic Area 3: Waste management	3.1	Dealing with domestic waste	
	3.2	Dealing with industrial waste	
Topic Area 4: Environmental management and conservation	4.1	Environmental surveying	
	4.2	Environmental management	
	4.3	Conservation strategies	

F184 comparison continues on next page.

OCR Level 3 Cambridge Advanced Nationals (AAQs) in Applied Science **Unit F184** **Environmental studies** **Centre-assessed and OCR-moderated** **22 marks** **60 GLH**			AQA Level 3 in Applied Science (first teaching September 2016)
Topic Area title	**Teaching content reference**	**Teaching content title**	**Comparable teaching content**
Topic Area 5: Fieldwork	5.1	Location analysis	
	5.2	Suitability of the environment	
	5.3	Sampling techniques	
	5.4	Risk assessment	Unit 2: Applied experimental techniques PO4 Understand safety procedure and risk assessment when undertaking scientific practical work Unit 5: Investigating science Carry out the investigation and record results Unit 6A: Microbiology Use aseptic techniques to safely cultivate microorganisms (risk assessment) Unit 6C: Organic chemistry Prepare organic compounds (risk assessment)
	5.5	Data processing and analysis	Unit 5: Investigating science Analyse results, draw conclusions and evaluate the investigation

OCR Level 3 Cambridge Advanced Nationals (AAQs) in Applied Science **Unit F185** **Forensic biology** **Centre-assessed and OCR-moderated** **22 marks** **60 GLH**			AQA Level 3 in Applied Science (first teaching September 2016)
Topic Area title	**Teaching content reference**	**Teaching content title**	**Comparable teaching content**
Topic Area 1: Forensic biology disciplines and evidence	1.1	The nature and origins of forensic evidence	
	1.2	Forensic biology disciplines	Unit 6A: Microbiology The main groups of microorganisms in terms of their structure and function
	1.3	Types of evidence in forensic biology	
Topic Area 2: Cells, tissues and organs in forensic biology	2.1	Microscopy in forensic biology	Unit 1: Key concepts in science 1(a) Cell structure Unit 6A: Microbiology The main groups of microorganisms in terms of their structure and function
	2.2	Observing biological evidence	Unit 1: Key concepts in science 1(a) Cell structure Unit 6A: Microbiology The main groups of microorganisms in terms of their structure and function
	2.3	Microbiology in forensic science	Unit 6A: Microbiology Using aseptic techniques to safely cultivate microorganisms. Using practical techniques to investigate factors that affect the growth of microorganisms.
Topic Area 3: Investigation and evidence collection	3.1	Scene investigation and preservation of site	
	3.2	Collection of evidence	

F185 comparison continues on next page.

OCR Level 3 Cambridge Advanced Nationals (AAQs) in Applied Science **Unit F185** **Forensic biology** **Centre-assessed and OCR-moderated** **22 marks** **60 GLH**			AQA Level 3 in Applied Science (first teaching September 2016)
Topic Area title	**Teaching content reference**	**Teaching content title**	**Comparable teaching content**
Topic Area 4: Analytical techniques and evidence interpretation	4.1	Observational analytical techniques	
	4.2	Microbiological analytical techniques	Unit 1: Key concepts in science 1(a) Cell structure Unit 6A: Microbiology The main groups of microorganisms in terms of their structure and function Using aseptic techniques to safely cultivate microorganisms.
	4.3	Reviewing evidence	

OCR Level 3 Cambridge Advanced Nationals (AAQs) in Applied Science **Unit F186** **Medical physics** **Centre-assessed and OCR-moderated** **22 marks** **60 GLH**			AQA Level 3 in Applied Science (first teaching September 2016)
Topic Area title	**Teaching content reference**	**Teaching content title**	**Comparable teaching content**
Topic Area 1: Application of non-ionising diagnosis techniques	1.1	Magnetic Resonance Imaging (MRI)	Unit 6B: Medical physics Imaging methods
	1.2	Diagnostic ultrasound	Unit 6B: Medical physics Imaging methods
	1.3	Endoscopy	Unit 6B: Medical physics The medical uses of optical fibres and lasers
	1.4	Electrocardiogram (ECG)	Unit 1: Key concepts in science 1(c) The heart
Topic Area 2: Application of ionising diagnosis techniques	2.1	X-ray imaging	Unit 6B: Medical physics Imaging methods
	2.2	Radionuclides	Unit 6B: Medical physics Radiotherapy techniques and the use of radioactive tracers
Topic Area 3: Application of ionising therapy techniques	3.1	Treatment with external source	Unit 6B: Medical physics Radiotherapy techniques and the use of radioactive tracers
	3.2	Treatment with internal source	Unit 6B: Medical physics Radiotherapy techniques and the use of radioactive tracers
Topic Area 4: Application of non-ionising therapy techniques	4.1	Lasers	Unit 6B: Medical physics The medical uses of optical fibres and lasers
	4.2	Photodynamic therapy (PDT)	Unit 6B: Medical physics The medical uses of optical fibres and lasers
	4.3	Artificial cardiac devices	Unit 1: Key concepts in science 1(c) The heart
	4.4	Ultrasound therapies	
Topic Area 5: Planning for diagnosis and therapy	5.1	Diagnosis plan	
	5.2	Therapy plan	

Next steps

If you are an OCR-approved centre, all you need to do is download the specification and start teaching. Your exams officer can complete an intention to teach form which enables us to provide appropriate support. When you're ready to enter your students, you just need to speak to your exams officer.

1. Get to know the specification, sample assessment materials and teaching resources on our Cambridge Advanced National (AAQ) in Applied Science website.
2. Sign up to receive subject updates by email.
3. Sign up to attend a training event or take part in a webinars on specific topics running throughout the year and our Q&A webinar sessions every half term.

To find out more about all of our support services, please visit Teach Cambridge.

Need to get in touch?

If you ever have any questions about OCR qualifications or services (including administration, logistics and teaching) please feel free to get in touch with our customer support centre.

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