# Creating Practice Material using ExamBuilder

## Introduction

[ExamBuilder](https://exambuilder.ocr.org.uk/marketing/Security/login) is a question-building tool which can be used for creating formative assessment material for your students.

It is a searchable database, with questions from both the current Maths and Further Maths assessments and questions from the legacy A Level Maths and Further Maths (3890, 3892, 7890 & 7892), which have been tagged to the new specification content.

Since the content of the new A Level Maths qualification was essentially fixed by the DfE (50% fixed for Further Maths), you may also find the questions for AS/A Level Mathematics B MEI (H630/H640) and AS/A Level Further Mathematics B MEI (H635/H645) useful.

Similarly, questions for the legacy MEI A Level Maths and Further Maths (3895, 3896, 7895 & 7896) which have been tagged to the new specification are also useable.

To access ExamBuilder visit the [OCR website](https://ocr.org.uk/qualifications/past-paper-finder/exambuilder/).

# Adapting Questions from Legacy Exams

## Command Words

Mathematics A has defined question command words to signal the level of mathematical justification that candidates need to show in answers.

As calculators now have increased functionality, candidates can perform a range of calculations that weren’t previously possible, especially the numerical analysis functions for calculus and solving equations. To assess understanding of techniques that can now be performed by a calculator, we might use commands like ‘determine’ or ‘**In this question you must show detailed reasoning**’ to indicate that candidates are expected to show full written solutions.

Equally, there will be questions set in the exam where candidates could make efficient use of their calculator to obtain an answer. It might be a problem solving question where most of the marks are awarded for deciding what techniques to use rather than the mechanical process of working out the answer.

When making use of legacy questions you may find it useful to change the wording of the question, for example, changing from ‘Find’ to ‘Determine’ to signal to your students that you want the technique set out rather than generating the answer from the calculator. Producing practice materials which have appropriate command words also helps your students become more familiar with the expectation of the assessment.

Unit C1 of the legacy qualification was a non-calculator exam, so questions taken from this unit, in particular, could require some modification.

A student guide to command words is provided below and further details, with examples, are given in section 2d of the [specification](https://www.ocr.org.uk/Images/308723-specification-accredited-a-level-gce-mathematics-a-h240.pdf). There is also a handy [command word poster](https://www.ocr.org.uk/Images/533968-a-level-maths-command-words-poster-a2-size.pdf) that you can display in your classroom.

## Student guide to command words

|  |  |  |
| --- | --- | --- |
| ‘Determine’  If you are asked to determine, you need to justify any results found; you can’t just state the answer, even if you can generate it from the calculator. | **‘In this question you must show detailed reasoning.’**  It’s always good practice to show workings but the **statement ‘In this question you must show detailed reasoning.’** confirms there are marks allocated for workings. | ‘Show that’  If you are asked to show that a given result is true, your response must clearly show the steps to get from the starting statement to the given answer. |
| ‘Find, Solve, Calculate’  If you are asked to find, solve or calculate, you will be awarded full marks for the correct answer without any justification. The solution could be obtained using the calculator or from a graph. | ‘Verify’  If you are asked to verify a statement is correct then you need to show the substitution into the required calculation clearly. | ‘Prove’  If you are asked to prove a mathematical statement, you will need to clearly define variables, provide a valid mathematical argument with the correct algebraic manipulation and state a concise conclusion. |
| ‘Give, State, Write down’  The instruction to give, state or write down indicates that neither working nor justification is required. Fewer marks are likely to be available for these questions. | ‘Explain’  Questions asking for explanations are looking for concise but sufficiently detailed statements. If two (or more) reasons are required then make sure you are not just writing the same thing in a different way. | Exact answers    If a question asks for an exact answer it means not in rounded form and it is unlikely that you will be able to get the answer directly from your calculator. |
| ‘Plot’  If you are asked to plot, you must mark points accurately on a graph. You may also need to join them with a curve or straight line or draw a line of best fit through them. | ‘Sketch’  A sketch does not need to be to scale but it should show the main features. This could include: turning points, asymptotes, x- and y-axes intersections and behaviour for large x. | ‘Draw’  If you are asked to draw a diagram, it should be to an appropriate accuracy for the problem, including any labels, annotations, lengths or angles as these may justify marks. |
| ‘Hence’  If the question uses the word hence, it is signalling that the next step should be based on what has gone before. | ‘Hence or otherwise’  If the question uses the phrase hence or otherwise, you can choose to use what has gone before or an alternative method which will be given full credit. | ‘You may use the result’  The phrase you may use the result is giving you information that you would not be expected to know, but which may be helpful in answering the question. |

## Level of demand

The level of demand in AS/A Level Maths and Further Maths has not changed but exams are now linear instead of modular. The unitised nature of the legacy qualifications meant that some content was only ever assessed at AS Level.

## Assessment objectives

The three assessment objectives can be summarised as:

AO1: Routine assessment of techniques (50% weighting)

AO2: Mathematical reasoning and logic (25% weighting)

AO3: Problem solving and mathematical modelling (25% weighting).

These were all assessed in the legacy qualifications, but they were not defined in exactly this way.

## Accessibility principles

The structure and look of Mathematics A papers are different to the legacy papers.

The new papers are designed to be more accessible to all candidates, ensuring the focus is on assessing candidates’ mathematics skills, not literacy skills, and that there are no unintended barriers to accessing questions. These question papers have a spacious paper layout, a clear, consistent and large typeface (Times New Roman 12 throughout and MathType for formulae) and uses clear and appropriate language.

Due to the paper differences, [ExamBuilder](https://exambuilder.ocr.org.uk/marketing/Security/login) may produce some issues with fonts and algebraic formulae, so the questions that you extract may require some formatting.

For more details on the current accessibility principles see page 4 of [Exploring our Question Papers](https://www.ocr.org.uk/Images/513716-exploring-our-question-papers-as-and-a-level-mathematics-a.pdf).

## Mark schemes and Examiner comments

Please be aware that the mark schemes for legacy question papers are not as detailed as the current user-friendly mark schemes.

[ExamBuilder](https://exambuilder.ocr.org.uk/marketing/Security/login) also holds the Examiner’s reports, so you can also extract Examiner feedback for a question which may help to inform your teaching.

## Content

Most of the legacy content is assessed in the new qualifications, although some content has moved between ‘AS’ and ‘A2’, or, between Maths and Further Maths.

Mapping documents found on the [Maths](https://www.ocr.org.uk/Images/360173-mapping-guide-legacy-as-and-a2-units-7890-to-h240.docx) and [Further Maths](https://www.ocr.org.uk/Images/461214-mapping-guide-legacy-as-and-a2-units-7892-to-h245.docx) qualification pages provide further information.

# Using ExamBuilder

[ExamBuilder](https://exambuilder.ocr.org.uk/marketing/Security/login) can be used in several different ways to support formative assessment. While not exhaustive, here are three suggestions:

## Topic tests

Questions can be selected by topic section and subsection so it is simple to create topic tests.

[ExamBuilder](https://exambuilder.ocr.org.uk/marketing/Security/login) may pull up questions where the topic forms only part of the question or where the topic has only a small part to play in answering a question about a more advanced topic. You may need to remove any questions that are covering techniques that you have not yet taught or that are not suitable for your students’ ability.

We also have a set of [check in tests](https://www.ocr.org.uk/Images/578439-complete-pack-of-h240-section-check-ins.zip) that cover the content of each section of the specification with worked solutions, but they do not have marks allocated.

## Progress tests

Several topic sections or subsections can be selected to filter questions, allowing you to create progress tests to use at different stages of the course.

Again, [ExamBuilder](https://exambuilder.ocr.org.uk/marketing/Security/login) will list all the questions that have been tagged to the selected topics so you will need to remove any questions that are covering techniques that you have not yet taught. Unfamiliar questions which could be attempted using less efficient techniques that your students already know, could be retained to add challenge. You would need to amend the [ExamBuilder](https://exambuilder.ocr.org.uk/marketing/Security/login) mark scheme and mark allocation to reflect the expected technique.

We have produced a small selection of progress tests focused on the pure content that exemplify the type of resource that you could compile.

| **Progress Test** | **Content** |
| --- | --- |
| **1** | [Algebra and trigonometry (AS/stage1)](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |
| **2** | [Coordinate geometry, differentiation, exponential and logarithms (AS/stage1)](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |
| **3** | [Algebra, binomial expansion and trigonometry (AS/stage 1)](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |
| **4** | [Algebra and functions](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |
| **5** | [Trigonometry](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |
| **6** | [Trigonometry and series](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |
| **7** | [Coordinate geometry, exponential and logarithms](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |
| **8** | [Calculus (AS/stage 1)](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |
| **9** | [Calculus](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |
| **10** | [Calculus](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |
| **11** | [Algebra, vectors, numerical methods and calculus](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |
| **12** | [Proof, numerical methods and vectors](https://interchange.ocr.org.uk/Downloads/H240_Progress_Tests.zip) |

## Practice papers

It is possible to compile a set of practice papers from [ExamBuilder](https://exambuilder.ocr.org.uk/marketing/Security/login) although it would be challenging to meet the weightings of the assessment objectives.

An example set of papers for [AS](https://interchange.ocr.org.uk/Downloads/Mathematics%20A-H230%20H240-Stage%201-AS-formative-assessment.zip?downloadId=812093) and [A Level](https://interchange.ocr.org.uk/Downloads/H240_Formative_Assessments.zip), with accompanying notes, can be found on Interchange.



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