edexcel
advancing learning, changing lives

GCSE
Mathematics

Guide to GCSE Mathematics 2010

Edexcel GCSE Mathematics A (Linear) – 1MA0
Edexcel GCSE Mathematics B (Modular) – 2MB01

A PEARSON COMPANY

About this guide

This guide has been produced for all centres who will be delivering the new Edexcel GCSE Mathematics specifications from September 2010 onwards.

This guide:

- summarises the main changes to GCSE Mathematics from 1380 to 1MA0 and 2381 to 2MB01
- looks briefly at the impact of these changes on teaching and learning
- suggests ways you may want to review your teaching strategies to deal with the changes
- looks at the accredited linear and modular specifications
- explains resit and terminal rules for the modular specification
- looks at some possible delivery models for the modular specification
- takes you through all the materials and resources in place to support you

Please be aware that the government will be phasing out modular GCSEs so that all two-year GCSE courses starting in September 2012 will be linear. This means that some of the information within this guide is subject to change. Please visit the Edexcel website or sign up to the mathematics emporium (mathsemporium@edexcel.com) to be kept up to date with any developments.

Main changes to GCSE Mathematics specifications

The main changes to the GCSE Mathematics from 1380 to 1MA0 and 2381 to 2MB01 are summarised below.

1. Minimal content changes

There are very few changes to the content. The following topics will no longer be assessed**:**

- **Dimensional analysis**
- **Moving averages**
- **Time series**

There are a few changes in content between tiers:

- **Standard form** will now only be assessed at **Higher tier**
- **Expanding two brackets** will now only be assessed at **Higher tier**
- **Vector notation** for translations is now also required **Foundation tier**
- **3-D coordinates** will now only be assessed at **Higher tier**

2. New Assessment Objectives

New Assessment Objectives are process-based, as shown are below (with the range of marks given to each AO):

AO1: **recall and use** their knowledge of the prescribed content **(45 -55%)**
AO2: **select and apply** mathematical methods in a range of contexts **(25 -35%)**
AO3: interpret and analyse **problems** and generate strategies to solve them **(15 – 25%)**

This means there will be a change in emphasis on the papers, as the majority of the questions in current papers are of the "recall and use their knowledge" (AO1) variety. For papers assessing the new specifications, there will be more questions where students will be required to select the appropriate methods (AO2) and solve mathematical problems (AO3).

3. Functional Elements

A certain percentage of marks on each paper require students to solve problems in a **real-life context** and marks for this will be allocated in the ranges shown below:

30 – 40% of marks at **Foundation** tier
20 – 30% of marks at **Higher** tier

4. Quality of Written Communication (QWC)

QWC is now a requirement for GCSE Mathematics. This is to encourage students to communicate their mathematical working, reasoning and notation appropriately. They will **not be tested on spelling, punctuation and grammar (SPAG).** QWC will account for about 5% of the total marks for the qualification. Questions (or parts of questions) testing QWC will be marked with an asterisk (*) on the paper.

Implications of the changes

All of the changes above have a number of implications on teaching and learning of mathematics at this level because they will impact the style of assessment.

There will be more emphasis on:

- problem solving
- finding an appropriate method
- showing your working
- proof and explaining your results
- using different topic areas together in a problem

Therefore it is likely that there will be:

- more unstructured questions
- more problem-solving questions
- more questions set in context
- some questions where students **must** show their working to access any marks

You can see the impact of the changes by viewing some of the papers we have already set for the modular specification; they are useful even if you are following the linear course. These papers can be downloaded from the **Mathematics Emporium** website at www.edexcelmaths.com

How can we prepare students for the new assessment?

A few suggestions are given below.

- Use of Functional Mathematics questions to make students more familiar with contextualised problems.
- Use of problem solving strategies and investigations throughout KS3 and KS4.
- Use of old GCSE investigations.
- Emphasis on the importance of showing working.
- Register to take part in the UK Maths challenge at KS3 & KS4.
- Train students to split an unstructured question up into its component parts, helping them access it better.
- Ask students to explain how they know or why they choose a solution.
- Formative and summative assessments with questions that assess AO2/AO3 and functional elements.
- Plenty of examination practice using mock, practice and past papers.

The accredited specifications

We have two accredited specifications: Specification A (Linear) and Specification B (Modular).

Linear Specification A (1MA0)

The linear specification is suited to schools and colleges wishing to teach the course in a holistic way, with all the assessments taken at the end of the course.

The table below shows the structure of the linear specification.

Paper	Tier Availability	Availability	First Assessment	Weighting	Structure of Assessment	Number of Marks	Duration
1	F and H tiers	November, **March**, June	June 2012	50%	Non-calculator	100	**1 hour 45 mins**
2	F and H tiers	November, **March**, June	June 2012	50%	Calculator	100	**1 hour 45 mins**

Each paper addresses all the Assessment Objectives and functional elements in the proportions outlined at the beginning of this guide.

If you compare this structure to the legacy linear specification 1380, you will notice that most aspects are unchanged, the changes (shown in a different colour and in bold) are listed below

- The linear papers are now also available in March
- The timings have been changed to allow more time at Foundation tier

The first time that new linear papers will be available will be in June 2012. Papers will be available every November, March and June thereafter.*

* Please be aware that the availability of this specification is subject to change following recent announcements from the government and Ofqual regarding the future of GCSEs.

Modular Specification B (2MB01)*

The modular specification allows teachers in schools and colleges to teach the content in a focussed way, developing knowledge over the units which can be assessed at different points throughout the course.

Our modular course comprises of three discrete units assessing the following content areas

Unit 1: (Calculator)
Statistics and Probability, Number and Algebra, Geometry and Measures

All the Statistics & Probability will be assessed exclusively in Unit 1. There is also some Number, Algebra, Geometry and Measures content tested in Unit 1 (since the weighting of the unit has been increased). Thus Number, Algebra, Geometry and Measures is the key content which underpins the Statistics and Probability content. This is why some of this Number, Algebra, Geometry and Measures content will be tested within a Statistics and Probability context, e.g. testing percentages in a pie chart question or use of algebra within a probability question. However there will be some standalone questions testing areas of Number, Algebra, Geometry and Measures content.

Unit 2: (Non-Calculator)
Number and Algebra, Geometry and Measures

All the Number, Algebra, Geometry and Measures content in Unit 1 is repeated in Unit 2 (with exception of a few content areas that can only be assessed using a calculator). There is also additional Number and Algebra, Geometry and Measures content that builds on the content in Unit 1.

Unit 3: (Calculator)
Number and Algebra, Geometry and Measures

The content in Unit 3 builds on the content covered in Units 1 and 2.

The table below shows the structure of the modular specification.

Unit	Tier Availability	Availability	First Assessment	Weighting	Structure of Assessment	Number of Marks	Duration
1	F and H tiers	November, March, June	November 2010	30%	Calculator	60	1 hour 15 mins
2	F and H tiers	November, March, June	November 2010	30%	Non-calculator	60	1 hour 15 mins
3	F and H tiers	November, March, June	June 2012	40%	Calculator	80	F: 1 hour 30 mins H: 1 hour 45 mins

* Please be aware that the existence of this qualification (and therefore the content on p. 4-9 of this document) beyond 2013 is unknown following recent announcements from the government and Ofqual regarding the future of modular GCSEs.

Each unit addresses all Assessment Objectives and functional elements in the proportions outlined at the beginning of this guide.

There are a number of changes to this specification in comparison the legacy specification (2381), the changes are shown in a different colour and in bold for your information.

Unit 1 and Unit 2 were available for the first time in November 2010 and every November, March and June thereafter. Unit 3 will not be available until Summer 2012, when the first awards for this new specification take place.

The new modular specification enables you to mix and match tiers across the units. The number of UMS points (a UMS guidance document can be downloaded at www.edexcelmaths.com) you accumulate at the end will determine your final grade. This means you can achieve a grade B or higher even if you take Unit 3 at Foundation provided Unit 1 and/or Unit 2 are taken at Higher tier.

Terminal & Resit Rules for the modular specification

What is the terminal requirement?

- At least 40% of the assessment must be taken in the examination series in which the qualification is certificated.
- The final grade will include the assessment result(s) which satisfy this terminal requirement.

For GCSE Mathematics 2MB01, we expect most students to meet the terminal requirement in the series they are seeking certification* by:

- taking Unit 3, which comprises 40% of the total assessment;
- taking both of Units 1 and 2 which comprises 60% of the total assessment;
- taking Unit 1 or 2 along with Unit 3, which comprises 70% of the total assessment;
- taking all three Units.

Re-sit rules

- Students may re-sit each unit once (at whatever tier).
- The better result counts towards the final grade **unless** the unit is being used to meet the terminal requirement, in which case the most recent result must be used (see above).

These rules do not necessarily prevent a student having more than two attempts at a unit. There is no limit on the number of times a student can re-sit the complete qualification. Therefore, each time a student cashes-in* the qualification, he/she is entitled to re-sit the whole qualification and is therefore entitled to a further attempt and re-sit of each unit.

Unit results remain available and can be re-used after a cash-in (subject to the terminal rule being met).

If a student has more than two results for a unit, the result used in a cash-in will be the better of the two most recent attempts (unless the unit is being used to meet the terminal requirement).

Where a student has cashed in more than once, he/she will have more than one certificate for GCSE Mathematics. These cannot be counted as more than one GCSE, but the student and the school are entitled to report the best grade, even if it is not the one most recently awarded.

*Certification is often referred to as “cashing-in”

Delivery Models for the modular specification

There are a number of different delivery models that have been adopted and are working successfully in many centres across the country. Each centre has a unique set of requirements, therefore if a model works well in one centre it may not necessarily work well in another. It's most important to consider your students, and the model that will optimise their learning outcomes.

A few things to be aware of when deciding on your delivery model are that:

- The course is flexible and you can start with either Unit 1 or Unit 2 (possible because of the overlap in content)
- Unit 1 and Unit 2 can be co-taught (possible because of the overlap in content)
- Unit 3 will typically be taught at the end of the course (because Unit 3 content builds on content in Units 1 and 2), and is therefore designed to meet the terminal requirement (40% weighting).
- Unit 1 and Unit 2 account for 60% of the course, so it may well take longer that one year to teach and assess for a two year course.

Some lessons learned by schools a year into delivering the new GCSE are that:

- Embedding AO2/AO3 strategies into your teaching from the start pays off but means it takes longer to deliver the content
- Using the extent or thickness of the textbooks as a good measure for the length of each unit. On that premise it takes longer to deliver Unit 2 than it does to deliver Unit 1 and Unit 3 at Foundation (1, 3, 2 being the order from shortest to longest time to deliver). It takes longer to deliver Unit 3 than Units 1 and 2 at Higher (1, 2, 3 being the order from shortest to longest time to deliver).

Below are some popular and possible delivery models for one, two and three year courses.

ONE YEAR	Delivery Model 1	Delivery Model 2	Delivery Model 3
November		Unit 1	Unit 2
March	Units 1 and 2	Unit 2 *Resit opportunity for unit 1*	Unit 1 *Resit opportunity for Unit 2*
June	Unit 3 *Resit opportunity for Units 1 and 2* CASH-IN	Unit 3 *Resit opportunity for unit 2* CASH-IN	Unit 3 *Resit opportunity for unit 1* CASH-IN
November	*Resit opportunity of either Units 1 and 2 or Unit 3 to improve grade* CASH-IN	*Resit opportunity of either Units 1 and 2 or Unit 3 to improve grade* CASH-IN	*Resit opportunity of either Units 1 and 2 or Unit 3 to improve grade* CASH-IN

If you deliver the GCSE as a resit within an FE College, and your students have previously studied the Edexcel modular course, then you are permitted to enter them for either Units 1 and 2 or Unit 3 only to improve their overall grade. *Please be aware that mixing and matching of units between legacy and new specifications is not permitted.*

TWO YEAR	Delivery Model 1	Delivery Model 2	Delivery Model 3	Delivery Model 4
March	Unit 1	Unit 2		
June	Unit 2 Resit opportunity for Unit 1	Unit 1 Resit opportunity for Unit 2	Unit 1 and 2	Unit 2
November	Resit opportunity for Unit 2	Resit opportunity for Unit 1	Resit opportunity for Units 1 and 2	Unit 1 Resit opportunity for unit 2
March	Unit 3 for students who are ready CASH-IN	Unit 3 for students who are ready CASH-IN	Unit 3 for students who are ready CASH-IN	Resit opportunity for unit 2
June	Unit 3 for rest of cohort Resit opportunity for Unit 3 CASH-IN	Unit 3 for rest of cohort Resit opportunity for Unit 3 CASH-IN	Unit 3 for rest of cohort Resit opportunity for Unit 3 CASH-IN	Unit 3 CASH-IN
November	This session can be used as a resit opportunity for any students who want to improve their grade. This can be done by either resitting Units 1 and 2 or Unit 3 only.			

Cash-in is when you have taken all the units and satisfied the terminal requirement you must enter your cash-in code, which is 2MB01, for your students to be awarded a GCSE grade.

These delivery models are by no means exhaustive but intended to give you some ideas and insight into how other schools and colleges are delivering the modular course.

Legacy Examination Papers

Following agreement from Ofqual, the **last time** that all the Edexcel GCSE Mathematics papers for the legacy specifications 1380 (linear) and 2381 (modular) will be available will be in **March 2012** (since an overlap between papers of a legacy and successor specification is not permitted at GCSE). This is intended as an **additional re-sit opportunity** for students who have resat GCSE Mathematics in November 2011 and not achieved the grade they require, or who have perhaps entered early in November 2011 and not achieved the grade they require.

All linear examinations and all modular units will be available in this session, and grades will be awarded. This additional awarding session is being made available in order to give candidates maximum opportunity to complete their qualifications and achieve the results they require on the existing specifications before the first awards are made on the new specifications in summer 2012.

Frequently asked questions

Q: When in March will the examinations take place?

A: Probably in the first week, as modular examinations are timetabled currently (for example, 1 March in 2011).

Q: When will entries have to be made by?

A: The deadline for entries for this session will be around the end of January 2012.

Q: Can students be entered if they have not previously sat modules or linear exams?

A: Yes.

Q: Will the grades awarded count on the league tables?

A: Yes.

Q: What happens to students who fail in March 2012?

A: They will have to take the new GCSE 2010 specifications from June 2012 onwards.

Q: Can students transfer unit results from the current 2381 specification to the new specification?

A: No.

Q: I am delivering the GCSE at post-16 as a resit in one year, when should I start teaching the new specification?

A: You should start teaching the new GCSE from September 2011. If you are confident that your students can complete their resits by March 2012 then you can enter them for the legacy specification, otherwise we advise teaching the new specification for examinations in June 2012 and there onwards.

Q: Will there be an extra session for IGCSE in March 2012?

A: No.

How we are going to support you

1. All of this information and more is available via www.maths10.co.uk

2. The Mathematics Emporium

The best way to be kept informed and access all the materials is by signing up for the GCSE Mathematics Emporium mailing list. Our subject expert Graham Cumming will email you to keep you up-to-date with any developments and ensure you have support from us to help deliver the GCSE successfully. You can do this by sending your full name, centre name, centre number and email address to mathsemporium@edexcel.com.

You should also register with a chosen username and password to the website at www.edexcelmaths.com. This contains over 5,000 documents from specifications, and schemes of work to past papers and mark schemes relating to all our mathematics qualifications.

3. Support Plus

We have created a hard copy pack which contains printed copies of:

- Specifications A and B
- Sample assessment materials and mock papers
- Content exemplification (which shows you how to ensure full coverage of the specification)
- Schemes of work
- Assessment guidance booklet
- Information about resources

If you have not received this pack, then contact us at mathsemporium@edexcel.com

All these materials can be found electronically on the link below for both specifications at www.maths10.co.uk or via the emporium website.

We have produced three sets of **practice papers**, which consist of past paper questions (that are still relevant to the new GCSE) and new style questions. These are downloadable via the emporium website at www.edexcelmaths.com

There is also a **SupportPlus Online** service accessible via www.maths10.co.uk. The direct link is www.edexcelmaths.com/supportplus. Available through this service is:

- Free online **ExamWizard** (a tool which helps teachers make their own papers and assessments using a bank of questions from past papers, sample assessment materials, mock and practice papers)
- Free lesson plans via **interactive schemes of work**

4. ResultsPlus

This online exam analysis tool has been enhanced to include a mock analysis service enabling centres to set a past paper as a mock, mark it internally then upload the marks to receive the full **ResultsPlus Analysis** with skills maps. Visit www.edexcel.com/resultsplus for more information.

Unique to the GCSE Mathematics 2010, are free ResultsPlus Progress tests which are diagnostic online topic tests. Centres can place their order by calling this number **0844 576 0024**. Visit www.resultsplusprogress.com for more information.

6. Published Resources

There are over 90 print and digital resources that have already been published specifically for these specifications. A list is below:

- Foundation and Higher **Student Books** (print)
- Foundation and Higher **ActiveTeach** (digital version of the student books)
- Foundation and Higher **Teacher's Guides** (print and digital edition)
- Foundation and Higher **Practice Books** (print and digital edition)
- **A*/A Practice Book** (print and digital edition)
- **Booster C Practice Book** (print and digital edition)
- **Access (grades G/F) Practice Book** (print and digital edition)
- **Assessment Pack** (print and digital edition)
- **Revision** (print): Revision Workbooks for exam practice and Revision Guides for classroom and independent study. Available at the schools price of only £1.99!

Please visit the following website for more information
www.pearsonschools.co.uk/tryedexcelgcsemathematics

Also now available for GCSE mathematics at **post-16** there is **Edexcel GCSE Mathematics 16+,** the practical, compact one year course focusing on the essential topics for post-16 learners taking GCSE Mathematics. Consisting of the **Student Book** and the accompanying Teacher Resource Pack, learn more at:
www.pearsonschools.co.uk/edexcelgcsemaths16plus