GCSE MATHS

AQA

Your guide to
GCSE Mathematics 4360

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Version 2 May 2011

The BIG changes in maths

What's changed and why

GCSE Mathematics, for first teaching from September 2010, includes:

- 50% applying mathematics and problem solving
- the introduction of functional elements of mathematics.

The big changes in maths stem from the recommendations in the Smith report *Making Mathematics Count* (2004). This need for change was reinforced by the Ofsted report *Mathematics: understanding the score* (2008).

Positive changes

As part of reforms in the Key Stage 4 Programme of Study, the changes provide a challenging and exciting opportunity to teach maths the way you've always wanted to. Less about 'teaching to the test', the new specification includes a greater emphasis on process skills and problem solving, meaning:

- you can teach maths in the way that's right and relevant for your students
- our revised qualifications are focused on the demands of the modern world and are designed to appeal to all levels of ability
- process skills and problem solving are at the forefront of this new specification
- you have more flexibility than ever to engage learners.

For more information about changes in maths, visit **aqa.org.uk/mathszone**

AQA's pilot experience

We carried out GCSE Mathematics and Functional Mathematics pilots in over 300 schools, with over 40,000 students. These pilots provided us with unique insights into the radical changes to the way the subject is taught. We used this knowledge and experience to produce question papers and resources which make sure that you and your students get the most out of the changes.

Did you know that students on the AQA GCSE Maths pilot performed better than other GCSE Maths students?

We compared the performance on common questions of students who sat the AQA June 2009 GCSE Maths, and students who sat the GCSE Maths pilot.

The students involved in the maths pilot performed **32% better** when answering the types of questions that now make up 45-55% of the GCSE. This compares to a 1% difference achieved by the same students for all other questions common to both exams, which suggests that the two cohorts were of a similar level of ability.

So why did they perform 32% better on questions assessing the new AO2 and AO3?

Teachers involved in the pilot told us how they made changes to their schemes of work and how they prepared students. Could these changes to the way that maths is taught be the reason for the better performance?

New pilot-approved resources

Now all teachers and students can benefit from the success of our pilots. We've used the knowledge and experience gained from the pilots, as well as extensive research, so you can be sure that AQA's support package will deliver exactly what you need.

These new resources include *AQA All About Maths* – a free, online, interactive resource, exclusively for AQA GCSE Maths teachers. You can take a look at *AQA All About Maths* at **aqamaths.aqa.org.uk**
In order to gain full access please sign up to teach at **aqa.org.uk/signupmaths**

Designed and developed by teachers for teachers, *AQA All About Maths* combines guidance to the specification with a range of support materials and resources that will help you teach effectively, including:

- fully interactive route maps – flexible pathways through each unit and topic within the specification
- a 'library' of past exam questions, answers and examiner guidance
- access to Exampro – create your own mock exam papers in minutes, includes over 700 relevant questions.
- teaching resources – including lesson plans, interactive teaching aids, ideas for starters and homework sheets, all designed to save you time and help you get ready for the new specification
- a personal storage area where you can combine AQA resources with your own, additional materials
- the Pilot Experience – the work done and the lessons learned from the pilot. Pilot exam questions are integrated into the library and resources used by pilot teachers are built into the scheme of work.

"AQA seemed to be the only board with a clear vision and structure for the Functional Maths pilot"

"Our pupils have very much enjoyed it and have been more motivated"

"The pilot has been a positive experience…I have really enjoyed the process"

For more information about GCSE Maths and resources, visit **aqa.org.uk/mathszone**

Specification overview

The specification, specimen question papers and mark schemes are available online at **aqa.org.uk/mathszone**

AQA's GCSE Mathematics:

- builds on Key Stage 3 Maths
- reflects the revised Programme of Study for Key Stage 4.

The main focus, however, comes from your needs. Teachers have told us of the importance of sound technique in working with numbers and understanding fractions, decimals, percentage and basic ratio.

These basic features are applied across all three units, giving learners opportunities to apply essential skills in a variety of ways, including everyday contexts, statistical problems and more abstract, mathematical scenarios.

All units address all three **assessment objectives**

AO1 recall and use their knowledge of the prescribed content

AO2 select and apply mathematical methods in a range of contexts

AO3 interpret and analyse problems and generate strategies to solve them.

A simple and straightforward specification:

- flexible, so you can deliver a **modular** course (students sit exams at different times during the course) or a **linear** course (students sit all three exams at the end of the course)
- designed so the units can be taken in any order
- the three exams are available in November, March and June.

AQA's GCSE Mathematics is the best choice because:

- you want clear and useful resources, so your time is spent on teaching not on preparation
- you want detailed analysis of your results, for free, with AQA's *Enhanced Results Analysis*
- you want your students to achieve the best grades they can
- you want your students to be interested in and motivated by maths
- you can trust AQA, not just because of our pilot experience, but because we currently have the most popular modular Maths specification.

Our GCSE Mathematics specification means that your students will have a real understanding of maths.

Unit 1 Statistics and Number

Written exam (calculator)
Available in November, March and June
1 hour 54 marks 26.7%

Content includes:

- The data handling cycle
- Data collection
- Data presentation and analysis
- Data interpretation
- Probability

Some appropriate aspects of number will also be tested in this unit and these are clearly defined in the specification.

60% of the marks in this unit will focus on Assessment Objectives 2 and 3.

Questions may be set that take learners through the data handling cycle.

Time series and moving averages will **not** be tested in this specification.

See the specimen question papers and mark schemes at **aqa.org.uk/mathszone**

Unit 2 Number and Algebra

Written exam (no calculator)
Available in November, March and June
1 hour 15 mins 66 marks 33.3%

Content includes:

- Working with numbers and the number system
- Fractions, decimals and percentages
- Ratio and proportion
- Expressions and equations
- Sequences and linear functions

This unit concentrates on those number topics which are better tested without a calculator and aspects of algebra, such as manipulation of expressions and solution of simple equations where a calculator is not required.

The content of the unit is clearly defined in the specification. 40% of the marks in this unit will focus on Assessment Objectives 2 and 3.

Representing numbers in standard index form will **not** be tested within the Foundation tier of this specification.

See the specimen question papers and mark schemes at **aqa.org.uk/mathszone**

Unit 3 Geometry and Algebra

Written exam (calculator)
Available in November, March and June
1 hour 30 mins 80 marks 40%

Content includes:

- Properties of angles and shapes
- Geometrical reasoning and calculation
- Measures and construction
- Mensuration
- Graphical methods
- Solving problems with algebra

The algebra in this unit focuses on those areas where a calculator is required, such as solving equations by trial and improvement or the quadratic formula, and graphical methods such as solving equations by graph and transforming functions.

There will also be questions which make connections across algebra and geometry and which encourage algebraic problem solving strategies.

50% of the marks in this unit will focus on Assessment Objectives 2 and 3.

See the specimen question papers and mark schemes at **aqa.org.uk/mathszone**

For more detailed information, see the GCSE Mathematics specification and specimen question papers online at **aqa.org.uk/mathszone**

Our GCSE Mathematics specification means that your students will gain a real understanding of maths, not just the ability to recall information.

Sign up to teach

Sign up to teach* GCSE Mathematics and you'll receive access to lots of helpful teaching resources. You can sign up online at **aqa.org.uk/signupmaths**

Free resources in *AQA All About Maths*, aqamaths.aqa.org.uk
Interactive Route Maps to create your own schemes of work
Assessment guidance: specifications broken down into teaching topics, with a recommended **teaching order** and **suggested teaching time**
Past question papers, practice question papers and mark schemes
Mock Exams Analyser to analyse student performance when using past papers as mock exams
Free access to ***Exampro*** to create your own practice question papers in minutes, from a library of hundreds of past questions, model answers, mark schemes and examiners' comments
Lesson plans and other new and **innovative supporting resources**, including **homework sheets** and PowerPoints
Personal storage area for adding, organising and adapting resources
Discussion page: forum for all AQA Maths teachers to share problems, ideas and knowledge

Services (all FREE)	**How to access the services**
Regional Maths Advisers	Sign up to teach online at **aqa.org.uk/signupmaths** and we'll provide you with contact details for your Maths Adviser
Ask AQA, a bank of questions and answers, plus the facility to ask your own questions	**aqa.org.uk/askaqa**
Enhanced Results Analysis – free, online analysis of your results	To start using *Enhanced Results Analysis* or to see a demo, visit **aqa.org.uk/era**
Monthly e-mail updates to keep you up-to-date with developments	Sign up to teach online at **aqa.org.uk/signupmaths**
Direct contact with the AQA Maths Subject Team, by phone or e-mail (no call centres!)	e-mail: mathematicsgcse@aqa.org.uk Tel: 0161 957 3852

Nelson Thornes resources
Student textbook for each unit
Electronic resources to support textbooks
Student revision guides
Teachers' textbook for each unit
Contact: e-mail: cservices@nelsonthornes.com Tel: 01242 267287 Web: www.nelsonthornes.com/aqa2010

Training and events

We provide regular training and events. Please check our online booking system, **events.aqa.org.uk/ebooking** for dates and availability.

Book online at **events.aqa.org.uk/ebooking**	
On site support: bespoke training in your school	For information about charges and to book this service, e-mail cpdonsitesupport@aqa.org.uk
Continuing Professional Development (CPD) programme For more information on CPD please visit **aqa.org.uk/cpd**	Book online at **events.aqa.org.uk/ebooking** or e-mail cpd@aqa.org.uk

Contact us

To make sure you're up-to-date with all the changes in GCSE Mathematics and Functional Mathematics, simply visit our website **aqa.org.uk/mathszone**

If you'd like to talk to someone about maths then feel free to get in touch:

Tel: 0161 957 3852
e-mail: mathematicsgcse@aqa.org.uk
AQA website: **aqa.org.uk**

Maths website: **aqa.org.uk/maths**
GCSE Maths Resource Zone: **aqa.org.uk/mathszone**

Sign up to teach* GCSE Maths

Don't forget that to gain full access to all our support and resources, you need to sign up to teach*. Sign up online at **aqa.org.uk/signupmaths**

*Signing up to teach will enable us to provide you with support and resources. It does not replace the Entry Procedures. You still need to make entries for each student for each exam series.

Maths with AQA

We offer an exciting range of maths qualifications for all levels, including:

- Entry Level Certificates (ELC) in:
  - Mathematics
  - Adult Numeracy
  - Functional Mathematics
- Functional Mathematics (level 1 and level 2)
- GCSE Mathematics (unitised)
- GCSE Mathematics (Linear)
- AQA Level 2 Certificate in Further Mathematics (iGCSE)
- GCSE Statistics
- Linked Pair Pilot:
  - GCSE Methods in Mathematics
  - GCSE Applications of Mathematics
- AQA Certificate in Use of Mathematics
- Free-Standing Mathematics Qualifications (Foundation, Higher and Advanced levels)
- AS and A-levels:
  - Mathematics
  - Further Mathematics
  - Statistics
  - Use of Mathematics

Learn more about these qualifications and discover the best route for your students with our interactive **Maths Pathfinder** at **aqa.org.uk/mathspathfinder**

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MSD1231.11

May 2011