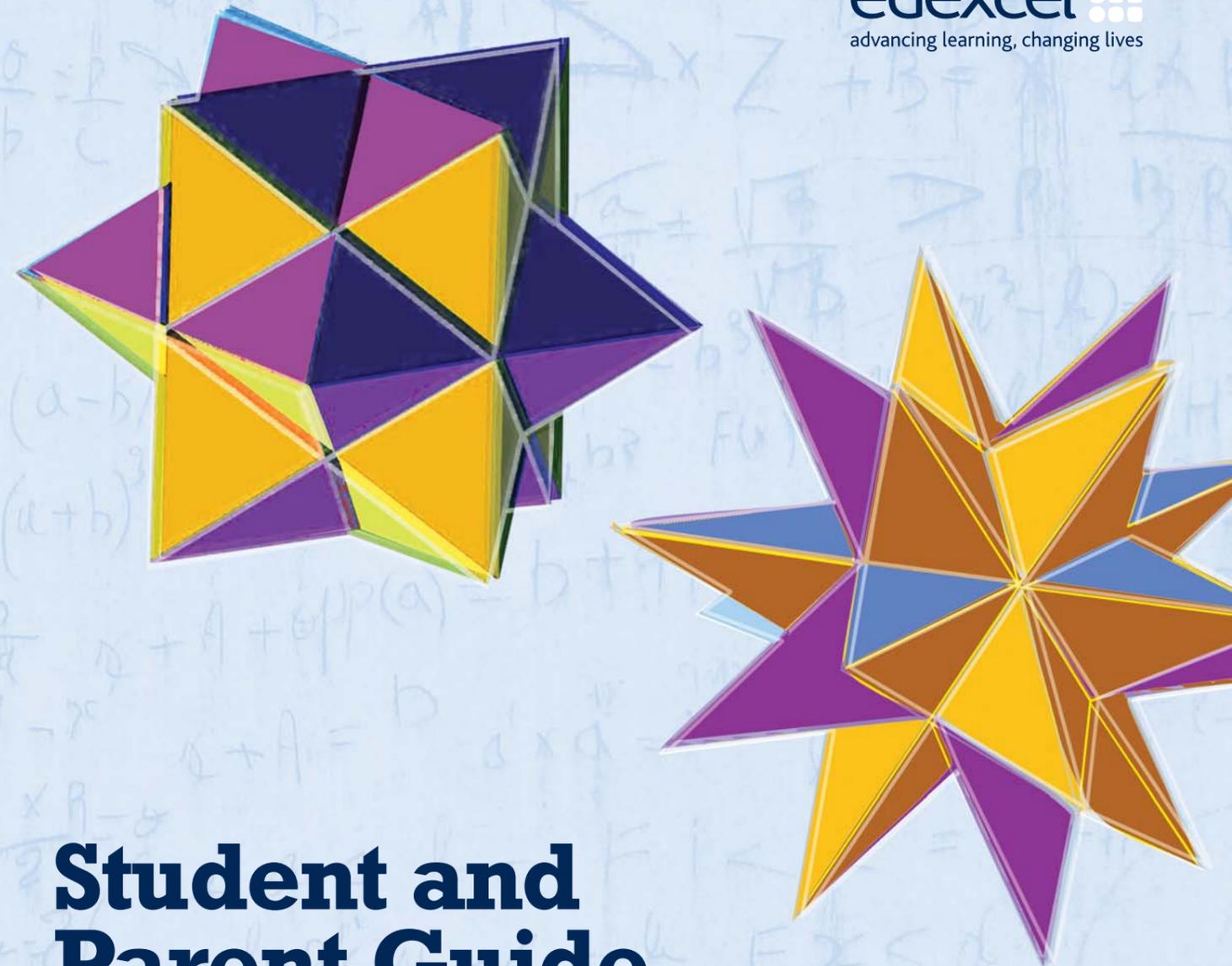


Edexcel GCSE Mathematics: The Facts

Things you might not know:

- Edexcel GCSE Mathematics exams were sat by over 400,000 students in 2009 and taught at 3,000 schools and colleges.
- Our history dates back to 1836 when the University of London was founded by royal charter.
- In 1905 the University of London introduced school examinations.
- In 1996, Edexcel was formed by a merger between the University of London (London Examinations) and the Business & Technology Education Council (BTEC).
- 'Edexcel' stands for 'educational excellence'.
- We are the UK's largest awarding body, and deliver academic and vocational qualifications in over 85 countries.
- We are approved by the Qualifications and Curriculum and Development Authority, UK.
- We are a part of Pearson Plc, the world's largest education group.
- We are continuously investing in new technologies and resources designed to support schools and teachers to deliver our qualifications and raise student attainment.
- It is our mission to advance learning and change lives.



Student and Parent Guide

Contacts

Support for candidates, former students and parents

All enquiries:

Telephone 0845 618 0440 or visit www.edexcel.com/students

We recommend that candidates and parents contact the Examinations Office at your school, college or learning institution for advice about specific issues or concerns (including questions about exam papers or queries about grades).

Our telephone lines are open between 8am and 6pm, Monday to Friday.

**A guide to GCSE Mathematics
from 2010 for students and parents**

What's new about GCSE Mathematics for 2010

From September 2010, schools and colleges will be teaching new GCSE Mathematics specifications. First awards (the first time grades and certificates will be awarded) will be in August 2012, around the same time that the Olympic games take place in London.

GCSE Mathematics has changed to assess the new Key Stage 4 programme of study which schools and colleges are required to teach. The new secondary mathematics programmes of study place a renewed emphasis on problem-solving, functionality and mathematical thinking. There will be a much greater emphasis in examinations on the assessment of applying mathematics and using mathematics to solve problems, and some questions will be set in contexts that students should be expected to deal with in the real world. Students might be asked to answer questions on, for instance, decorating a room or designing a garden; or perhaps paying bills or sorting out rotas for shop staff.

Questions will also require students to be able to communicate the mathematics they have applied (a requirement called Quality of Written Communication, QWC, which is compulsory for all GCSE examinations). This may involve, for example, giving a reason for an answer, correctly setting out a proof or accurately marking up a statistical diagram. About 5% of marks in the examination will be given over to QWC.

- The new GCSE will follow the two tiers introduced in 2006: Foundation tier, where grades G up to C may be achieved and Higher tier, where grades D up to A* are possible.
- The GCSE will be entirely assessed by written examination, which means that no coursework will be expected from any student.
- The content of our GCSE Mathematics specifications has been grouped into the topic areas of Number, Algebra, Geometry, Measures, Statistics and Probability.



Edexcel's GCSE Mathematics: Specifications A and B

Edexcel offers two GCSE Mathematics specifications – one linear and one modular.

Specification A is linear – this means that all the examinations are taken at the end of the course (usually, but not always, at the end of Year 11) and any part of the specification can be tested on any paper. No calculators are allowed for paper 1. This specification is designed to be holistic, with a clear structure, and to encourage and motivate students.

Specification A summary:

| Papers | Tier Availability | Method of Assessment | Availability | First Possible Assessment | Marks | Calculator Allowed? |
|---------|-----------------------|--------------------------|-----------------------|---------------------------|-------------------------|-----------------------------|
| 1 and 2 | Foundation and Higher | Two written examinations | November, March, June | June 2012 | 100 marks on each paper | Paper 1: No Paper 2: Yes |

Specification B is modular – this means that the examinations can be taken during the course, though Unit 3 is usually taken at the end of the course (usually, but not always, at the end of Year 11). Only the content specified for each unit is tested in the examination and students have the opportunity to re-sit units before the end of the course. No calculators are allowed for Unit 2. This specification is designed to provide manageable bite-sized units, have a clear structure, help students reach their potential, help teachers track performance and to encourage and motivate students.

Specification B summary:

| Unit | Tier Availability | Method of Assessment | Availability | First Possible Assessment | Marks | Calculator Allowed? |
|------|-----------------------|-------------------------|-----------------------|---------------------------|------------------------|---------------------|
| 1 | Foundation and Higher | One written examination | November, March, June | November 2010 | 60 marks, 30% of total | Yes |
| 2 | Foundation and Higher | One written examination | November, March, June | November 2010 | 60 marks, 30% of total | No |
| 3 | Foundation and Higher | One written examination | November, March, June | June 2012 | 80 marks, 40% of total | Yes |

The content of GCSE Mathematics Specification A

The content of our GCSE Mathematics specifications has been grouped into the topic areas of **Number, Algebra, Geometry, Measures, Statistics and Probability**. Don't worry if you don't know what all of these mean yet – you will know at the end of your two years of study.

Topics in **bold** are Higher tier only.

Number

- Four operations
- Decimals
- Percentages
- Fractions
- Equivalent fractions
- Accuracy
- Use of calculators
- Factors and multiples
- Cubes, roots and squares
- Index laws
- **Standard form**
- **Surds**
- Inverse operations
- Recurring decimals
- Ratio
- Using percentage and **repeated percentage change**
- **Compound interest**
- Reciprocals
- **Upper and lower bounds**

Algebra

- Notation
- Graphs
- Graphs of functions
- Expressions
- Factorising
- Formulae
- Rational expressions
- Sequences
- Coordinates in 2-D, **3-D**
- Straight line graphs
- **Gradients of lines**
- **Graphs of loci**
- Real life graphs
- Equations
- **Quadratic equations**
- Changing the subject of the formula
- Inequalities
- Trial and improvement
- **Simultaneous equations**
- **Graphs of functions**
- **Graphs of loci**
- Quadratic graphs
- **Direct and indirect proportion**
- **Transformation of functions**

Geometry and Measures

- Angles at a point
- Scales and units
- Angles and triangles
- Quadrilaterals
- Symmetry
- Polygons
- Parts of a circle
- Perimeter and area
- Circle theorems
- 3-D shapes
- Volume
- Scales and measures
- Compound measures
- Congruence
- Pythagoras' Theorem
- **Trigonometry**
- **Circle theorems**
- Transformations
- Constructions
- Loci
- Mensuration
- **Vectors**
- Bearings
- Scale drawings

Statistics

- Handling data cycle
- Data collection
- Data representation
- Analysing data
- Interpreting data
- **Sampling**
- **Box plots, histograms and cumulative frequency**
- **Addition and multiplication of probabilities**

Probability

- Probability measures
- Relative probability
- Mutually exclusive outcomes
- **Mutually exclusive and independent events**
- **Tree diagrams**

The content of GCSE Mathematics Specification B

The content of our GCSE Mathematics specifications has been grouped into the topic areas of **Number, Algebra, Geometry, Measures, Statistics and Probability**. Don't worry if you don't know what all of these mean yet – you will know at the end of your two years of study.

Topics in **bold** are Higher tier only.

Unit 1 contains:

Statistics

- Handling data cycle
- Data collection
- Data representation
- Analysing data
- Interpreting data
- **Sampling**
- **Box plots, histograms and cumulative frequency**
- **Addition and multiplication of probabilities**
- **Tree diagrams**

Probability

- Probability measures
- Relative probability
- Mutually exclusive outcomes
- **Mutually exclusive and independent events**
- **Tree diagrams**

Number

- Four operations
- Decimals
- Percentages
- Equivalent fractions
- **Compound interest**
- Accuracy
- Use of calculators

Algebra

- Notation
- Graphs
- **Graphs of functions**

Geometry and Measures

- Angles at a point
- Scales and units

Unit 2 contains:

Number

- The four operations
- Factors and multiples
- Cubes, roots and squares
- Index laws
- **Standard form**
- **Surds**
- Fractions, decimals and percentages
- Inverse operations
- Accuracy
- Recurring decimals
- Using percentages
- Ratio

Algebra

- Expressions
- Factorising
- Formulae
- **Rational expressions**
- Sequences
- Coordinates in 2-D, 3-D
- Straight line graphs
- **Gradients of lines**
- **Graphs of loci**
- Real life graphs

Geometry and Measures

- Angles and triangles
- Quadrilaterals
- Symmetry
- Polygons
- Parts of a circle
- Perimeter and area
- **Circle theorems**
- 3-D shapes
- Volume
- Scales and measures
- Compound measures

Unit 3 contains:

Number

- **Calculations with standard form**
- Recurring decimals
- Using percentage and **repeated percentage change**
- **Compound interest**
- Reciprocals
- **Upper and lower bounds**
- Calculator use

Algebra

- Equations
- **Quadratic equations**
- Changing the subject of the formula
- Inequalities
- Trial and improvement
- **Simultaneous equations**
- **Graphs of functions**
- **Graphs of loci**
- Quadratic graphs
- **Direct and indirect proportion**
- Transformation of functions

Geometry and Measures

- Congruence
- Pythagoras' Theorem
- **Trigonometry**
- **Circle theorems**
- Transformations
- Constructions
- Loci
- Mensuration
- **Vectors**
- Bearings
- Scale drawings

AS, A level and careers

Whether you plan to go on to work, AS and A levels or other further studies, a good understanding of maths will be useful to you. Number skills are required in all sorts of everyday situations, such as trying to work out phone bills. Thinking like a mathematician will help to improve your problem-solving and decision-making skills.

A pass in GCSE Mathematics (along with one in GCSE English) is often vital for entrance to training for any number of professions or careers. It is also very valuable as a supporting subject to many courses at GCSE, AS and A level and at degree level, especially in the sciences: for example, Biology, Physics, Chemistry, Geography, Psychology, Sociology, and medical courses.

The Institute of Mathematics and its Applications (IMA) runs an excellent website called *Maths Careers* which can be found at www.mathscareers.org.uk. It demonstrates the uses of mathematics in a number of jobs and professions in areas such as Environment, Health & Society, Business & Money, Entertainment, Science & Engineering and Sport.

If you are interested in taking Mathematics as one of your AS or A level options, you will most probably need to have gained a least a grade C at Higher Tier. AS/A level Mathematics builds on work you have met at GCSE and also involves new ideas, which you can relate to real-life situations – it is interesting but challenging.



ResultsPlus

ResultsPlus is our online tool that gives the teachers at your school or college a detailed analysis of examination results. Teachers can gain valuable insight into how each student is performing, with question-by-question information which will help teachers identify areas for improvement, so students can work towards better results. There is also an option for students to access examination results online on the day they are released at www.resultsplusdirect.co.uk



Formulate effective revision plans for exam resits

Discover strengths and weaknesses and formulate strategies to enhance teaching and give accurate individual feedback to students

Examzone

We also have a dedicated website, Examzone, where students and parents can find all the information they need to help you prepare for Edexcel exams. There's everything from exam revision tips to 'Results Doctor', along with plenty of advice on what to do after the exam and guidance on what grades and results mean, re-marking and re-sitting. There is also information on a range of support and advice websites. Visit www.edexcel.com/students

Textbooks

There is a series of textbooks published especially for the Edexcel GCSE Mathematics course – they will all be available before the course starts in September 2010. You can find out more about these at www.pearsonschoolsandcolleges.co.uk

