

CAMBRIDGE

Cambridge
IGCSE

SECONDARY 2

Mathematics

Cambridge IGCSE



UNIVERSITY *of* CAMBRIDGE
International Examinations

About CIE

CIE – University of Cambridge International Examinations – is the world's largest provider of international qualifications for 14 – 19 year olds. Over 1.5 million students, in 160 countries, enter for CIE examinations every year. CIE is part of Cambridge Assessment, a not-for-profit department of the University of Cambridge.

A photograph of students in a computer lab. In the foreground, a young woman with long dark hair is smiling and looking at a computer monitor. Behind her, other students are also working at computers. The scene is brightly lit, suggesting a modern educational environment.

Cambridge IGCSE is the world's most popular international qualification for 14 – 19 year olds.



Cambridge IGCSE

Cambridge IGCSE (International General Certificate of Secondary Education) is the world's most popular international qualification for 14 – 16 year olds. Developed in 1985, and based on best practice in the UK, Cambridge IGCSE is available in over 70 subjects. It equips students not only with knowledge of specific subjects, but also with problem solving and critical thinking skills, and an ability to work independently and as part of a team.

Recognition

Cambridge IGCSE is internationally recognised by universities in the UK and overseas as equivalent grade-for-grade to UK GCSE – learn more at www.cie.org.uk/recognition. Cambridge IGCSE is an excellent preparation for both A/AS Level and the International Baccalaureate Diploma.

The standard is benchmarked to UK GCSE. CIE runs regular comparability checks through the Cambridge Assessment Research Division and shares examiners with its sister organisation OCR to make sure standards are the same.

International reach

Cambridge IGCSE is taken in 127 countries and suits both national and international teaching contexts. The syllabuses use international examples and avoid terminology only used in the UK. Non-native speakers of English are treated fairly.

Cambridge IGCSE in the UK

Cambridge IGCSE Mathematics is accredited and funded for schools in the state sector.

**Cambridge IGCSE
Mathematics enables
students to gain skills
that will be used every
day and last a lifetime.**

Cambridge IGCSE Mathematics

Cambridge IGCSE Mathematics enables students to gain skills that will be used every day and last a lifetime. It gives students an excellent preparation for further study.

Students not only gain confidence about the knowledge they have acquired, but also gain satisfaction and enjoyment in both their learning and use of mathematics.

Cambridge IGCSE Mathematics provides an excellent foundation for:

- Students who want to continue their studies at AS and A Level and beyond
- Students who need mathematics to complement other subjects
- Students who need a final qualification in mathematics.

With or without coursework

Students can be assessed by written papers only, or by written papers and coursework.

A tiered approach

Students follow a Core curriculum. Teachers can also stretch their students with an Extended curriculum. Students can change level during the course according to their progress.

Core curriculum students are eligible for grades C to G. Extended curriculum students are eligible for grades A* to E.

Syllabus content

Number
Number, set notation and language
Different types of number
Use of an electronic calculator
Vulgar and decimal fractions and percentages
Ordering
Standard form
The four rules
Estimation
Measures
Ratio, proportion, rate
Personal and household finance

Algebra, functions and graphs
Graphs in practical situations
Algebraic representation, formulae and manipulation
Indices
Solutions of equations and inequalities
Graphs of functions
Vectors in two dimensions
Linear programming *
Matrices *
Functions *

Many topics are covered in greater depth at Extended level.

* Topic only covered at Extended level.

Space
Geometrical terms and relationships
Geometrical constructions
Symmetry
Angle properties
Locus
Mensuration
Trigonometry
Transformations

Statistics and probability
Statistics
Probability

Assessment

Cambridge IGCSE Mathematics (without coursework)

Title	Duration	Weighting
Paper 1 (Core tier)	1 hour	35%
Paper 2 (Extended tier)	1 hour 30 minutes	
Paper 3 (Core tier)	2 hours	65%
Paper 4 (Extended tier)	2 hours 30 minutes	

Cambridge IGCSE Mathematics (with coursework)

Title	Duration	Weighting
Paper 1 (Core tier)	1 hour	30%
Paper 2 (Extended tier)	1 hour 30 minutes	
Paper 3 (Core tier)	2 hours	50%
Paper 4 (Extended tier)	2 hours 30 minutes	
Coursework (Core and Foundation tier)	–	20%

Cambridge IGCSE International Mathematics

The introduction of Cambridge IGCSE International Mathematics offers schools even more choice when it comes to selecting a mathematics course that is right for their students.

Cambridge IGCSE International Mathematics has been designed in response to requests from international schools for a course that focuses more on investigations and modelling, and which better utilises the powerful technology of graphical calculators.

The course integrates well with the approach to teaching of mathematics in IB schools and is divided into a core tier and an extended tier.

Cambridge IGCSE International Mathematics has been submitted for accreditation and funding in the UK state sector.

Syllabus content

Number	Mensuration
Algebra	Coordinate Geometry
Functions	Trigonometry
Graphical calculator work	Sets
Geometry	Probability
Transformations	Statistics

Assessment

Cambridge IGCSE International Mathematics is available in two tiers: Core and Extended. Core curriculum students are eligible for grades C to G. Extended curriculum students are eligible for grades A* to E.

Title	Duration	Weighting	Assessment
Paper 1 (Core Tier)	45m	25%	Short answer questions, no calculators permitted.
Paper 2 (Extended Tier)	45m	20%	
Paper 3 (Core Tier)	1h 45m	60%	Medium to long response questions. A graphics calculator is required.
Paper 4 (Extended Tier)	2h 15m	60%	
Paper 5 (Core Tier)	1h	15%	One investigation question. A graphics calculator is required.
Paper 6 (Extended Tier)	1h 30m	20%	One investigation question and one modelling question.

Cambridge IGCSE Additional Mathematics

Cambridge IGCSE Additional Mathematics is for students who want to develop and stretch themselves in mathematics – typically students likely to achieve grade A*, A or B in Cambridge IGCSE Mathematics or equivalent.

It enables students to extend the mathematical skills, knowledge and understanding developed in the Cambridge IGCSE Mathematics course and use skills in the context of more advanced techniques.

Syllabus content focuses on Pure Mathematics, which gives students an excellent foundation for mathematics at A/AS Level, the IB Diploma and beyond. Knowledge of content in Cambridge IGCSE Mathematics (or equivalent) is assumed.

Syllabus content

Set language and notation
Circular measure
Functions
Trigonometry
Quadratic functions
Permutations and combinations
Indices and surds
Binomial expansions
Factors of polynomials
Vectors in two dimensions
Simultaneous equations
Matrices
Logarithmic and exponential functions
Differentiation and integration
Straight line graphs

Assessment

Title	Duration	Weighting
Paper 1	2 hours	50%
Paper 2	2 hours	50%

Both papers cover the whole syllabus. Available at Extended level only, at grades A* to E. No coursework required.

What curriculum pathways are possible with Cambridge IGCSE mathematics?

Pathway	Age 11 – 14	Age 14 – 15	Age 15 – 16	Post 16
Cambridge International Curriculum				
A	Cambridge Lower Secondary Programme or Cambridge Checkpoint	IGCSE Mathematics IGCSE International Mathematics		A Level Mathematics
B	Cambridge Lower Secondary Programme or Cambridge Checkpoint	IGCSE Mathematics IGCSE International Mathematics		No further mathematics study
C	Cambridge Lower Secondary Programme or Cambridge Checkpoint	IGCSE Mathematics IGCSE International Mathematics	IGCSE Additional Mathematics	A Level Mathematics and A Level Further Mathematics
D	Cambridge Lower Secondary Programme or Cambridge Checkpoint	IGCSE Mathematics IGCSE International Mathematics	No further mathematics study	No further mathematics study
E	Cambridge Lower Secondary Programme or Cambridge Checkpoint	IGCSE Mathematics IGCSE International Mathematics		Cambridge Pre-U in Mathematics
Other international and national programmes				
F	UK KS3	IGCSE Mathematics, IGCSE International Mathematics and IGCSE Additional Mathematics in parallel		A/AS Level or Cambridge Pre-U Mathematics
G	UK KS3	IGCSE Mathematics IGCSE International Mathematics		A/AS Level or Cambridge Pre-U Mathematics and Further Mathematics
H	IB Middle Years Programme	IB Middle Years Programme, culminating in IGCSE Mathematics or IGCSE International Mathematics		IB Diploma
I	India: local curriculum	IGCSE Mathematics		Local curriculum + 2 qualifications in mathematics
J	USA: local curriculum	IGCSE Mathematics		US Advanced Placement tests
K	New Zealand: local curriculum	IGCSE Mathematics, IGCSE Additional Mathematics		AS Level Higher Mathematics, AS/A Level Mathematics and A Level Further Mathematics

Standards

Standards are of great interest and keenly debated among teachers, parents, government bodies and many other interested parties. Cambridge IGCSE is benchmarked to UK GCSE and recognised by universities in the UK and worldwide as equivalent grade-for-grade to UK GCSE.

You may find it useful to refer to question papers, mark schemes, examiner reports and exemplar student answers at particular grades – all available on the Cambridge Teacher Support website.

Support for Teachers and Centres

CIE offers access to world-class support services, designed to help teachers deliver engaging, effective courses. CIE also helps teachers develop as professionals.

Teacher Resources

- **Textbooks and resources**
A wide range of textbooks is available for Cambridge IGCSE Mathematics – a full resource list is in the syllabus at www.cie.org.uk. It includes materials relevant to both classroom teaching and professional development.
- **Teacher Support website**
Registered CIE Centres can access all the materials they need to teach CIE syllabuses, including past question papers, mark schemes, examiners' reports, schemes of work (lesson plans) and online progress tests.
- **www.learncie.org.uk**
Access to thousands of pages of up-to-date resources, written by teachers and ready for classroom use. The learnCIE Teacher Test Centre enables teachers to create tests for students to take online, or as homework.

- **www.cambridgestudents.org.uk**
Information and reference materials for students following Cambridge international courses, designed to complement classroom teaching.

Training

CIE offers regular face-to-face training on Cambridge IGCSE Mathematics, giving teachers the knowledge and skills they need to help students perform well in examinations. Online training is also available, increasing access for teachers who have limited time or who are a long way from training events.

Expert advice

You can send us queries about any element of Cambridge IGCSEs in Mathematics. Our subject experts will advise you further.

Easy to administer

CIE offers simple, fast, efficient and friendly administration. Centres receive comprehensive assistance from CIE's Customer Support team and local representatives. Administration and results can be handled online. CIE aims to respond in full to all queries within two working days.



Learn more!

Learn more about Cambridge IGCSE Mathematics, Additional Mathematics, International Mathematics, or about becoming a CIE Centre.

Visit our website at www.cie.org.uk
Contact us at international@cie.org.uk, or
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