

Introduction:

In Year 10 a large proportion of the IGCSE content is taught, and students start to prepare themselves for the examination requirements in Year 11. In Year 11 the final, more challenging topics of the IGCSE content are taught, and students start revision in preparation for the final exams. The Cambridge IGCSE course is designed for all pupils to gain;

- The development of their mathematical knowledge
- Confidence, by developing a feel for numbers, patterns and relationships
- An ability to consider and solve problems and present and interpret results
- Skills in communication and reasoning using mathematical concepts
- A solid foundation for further study

Our aim is to give all pupils the opportunity to develop their potential to the full, and to achieve this students are placed in sets based on the wealth of information gained from their formative and summative assessments from prior years, and the advice of their class teachers. All students will then be taught the same content using the same resources prepared by the Year 10 teaching team, the only difference being the pace of the classes appropriate to the students' requirements. The exception to this is the pupils we feel would benefit from working towards the Core level IGCSE exam at the start of Year 11. Those students then receive more specific, personalised delivery of the course in Year 10 to prepare for the Core exam in October of Year 11. Afterwards, they will start to work towards the Extended level exam which they will take alongside the other classes in May of Year 11.

We put a high emphasis on effort, participation and questioning "why?". Mistakes are embraced and encouraged as part of the learning process, and we strive to cultivate a safe and engaging environment for all students to reach their potential. The Mathematics team has carefully planned differentiated resources to ensure that every child has the same opportunities to make progress, and that appropriate support and challenge is available in every lesson.

Content:

In Years 10 and 11 students continue to work on developing mathematical skills in all four of the key areas; Number, Geometry, Algebra, Probability and Statistics. Challenging IGCSE topics are introduced, and students start to focus on the format of examination questions and the skills required to succeed at this level.

Students will study the following in Year 10:

Number

Sequences Rates and Kinematic Graphs Set Theory & Logical Problems

Geometry

Area of Any Triangle with 1/2absinC Chords and Area of Segments Surface Area and Volume of 3D Solids Similarity Angle Properties Symmetry in 2D and 3D Circle Theorems Constructions and Nets

Algebra

Laws of Indices Factorising Expressions Solving Quadratic Equations (Factorising, Formula, Completing the Square) Solving Problems using Quadratic Equations Non Linear Simultaneous Equations Straight Line Graphs and Coordinate Geometry Graphs of Quadratic, Cubic, Exponential and Reciprocal Functions Tangents to Curves Graphical Solutions of Equations Inequalities Graphs of Inequalities

Probability and Statistics

Probability with Tree Diagrams Probability with Venn Diagrams Conditional Probability Stem & Leaf Diagrams, Frequency Polygons & Histograms Scatter Diagrams Cumulative Frequency

Students will study the following in Year 11:

Number

Surds

Geometry

Trigonometry in Non Right Angled Triangles Vectors and Vector Geometry

Algebra

Algebraic Fractions Laws of Indices and Exponential Equations Constructing Complex Equations to Problem Solve Rearrange More Complex Formulae Direct and Inverse Proportion in Algebraic Terms Graphs of Trigonometric Functions Functions and Function Notation Derived Functions

Probability and Statistics

Probability to Problem Solve

Skills:

Students are examined on AO1 and AO2 skills in the Mathematics IGCSE. AO1 marks are rewarded for demonstrating knowledge and understanding of mathematical techniques, AO2 marks are rewarded for 2 analysing, interpreting and communicating their knowledge mathematically

A full breakdown of all the skills taught within the IGCSE syllabus can be found below: <u>https://www.cambridgeinternational.org/Images/663105-2025-2027-syllabus.pdf</u>

Homework:

Homework is set on a weekly basis on the SPARX platform which will consist of 60% of the current topic being studied in class, and 40% of consolidation of previous topics and topics which the individual student has underperformed on in past homework. SPARX homework is personalised to challenge each child at the appropriate level. We encourage pupils to complete their homework independently so that their performance can be used for them to self assess their own progress on a topic and hence inform their revision requirements before a formal test. If a student finds they are unable to attempt a question they should watch the video attached to the question and try another question which will be generated for them. Students are expected to write down all of their working during homework, and they will need to write down the bookwork code for each question, failure to do so will result in failure of a bookwork check.

Assessment:

Pupils receive five, forty minute, periods a week for Mathematics. Formative assessment is ongoing within the classroom every lesson, and is also informed by attainment on homework tasks.

In Year 10 pupils will be formally tested in class approximately once per half term. All assessments will test material cumulatively to help students to build their knowledge and memory of the content in line with findings from recent educational research.

In Year 11 pupils will also be assessed through fortnightly mini tests. These will test material cumulatively to help students to build their knowledge and memory of the content in line with findings from recent educational research. Students should be using their mini test attainment to help them identify areas requiring further revision and therefore start the revision process early in the year to avoid last minute

cramming. Students will be formally tested via mock exams in preparation for the final summative external exams in May. There are two Extended Level exams; Paper 2 (non calculator, 2 hours) and Paper 4 (calculator, 2 hours).

Resources and Materials:

In addition to the online Sparx platform for homework, lessons students will have access to the full IGCSE textbook published by Oxford University Press, specifically for the Cambridge IGCSE syllabus, via the online Kerboodle platform.

Revision material, extra exercises and links for all topics are made available via Google Classroom throughout the year.

In lessons, resources include use of the course textbook, Google Classroom, printed handouts and a wealth of activities and tasks created by the Mathematics team. Extension tasks, along with the departmental Monthly Challenges, are always available and can be collected by the pupils to use for enrichment or revision purposes.