

Sir John Cass Red Coat School Programme of Study – Key Stage 5
Subject: Mathematics

Year 12	Year 13
<p>Entry Requirements Due to the nature and complexity of the Mathematics covered, a minimum requirement at GCSE is a grade A and also grade A for Further Maths.</p> <p>Mathematics - GCSE (Resit) Students will follow the Edexcel Foundation level GCSE specification. Students have the option to re-sit in November or June. There are two examinations each one and a half hours in length. The first is a non-calculator exam, and for the second a calculator is allowed.</p>	
<p>Topics Covered/ Areas of Focus:</p> <p>A 1-year AS Mathematics course will require 3 modules [C1, C2, S1]</p> <p>Core Maths (C1,C2)</p> <ul style="list-style-type: none"> Core Maths is generally regarded as the main tool of mathematics looking at using algebraic methods, solving equations, graphs of functions, series, differentiation and integration methods. <p>Statistics (S1)</p> <ul style="list-style-type: none"> Statistics looks at data that is collected from surveys and models the data to fit various mathematical models to help answer questions such as What are the chances of an accident occurring on a certain stretch of road? <p>A 1-year A Level Further Mathematics course will require 6 modules [D1,D2,FP1]</p> <p>In year 12 AS Level Further Maths is designed to be taken alongside AS level Maths. It may also be taken in year 13 alongside A2 Math as a new AS Level subject.</p> <p>Three additional units, Further Pure Math and 2 Decision Math, are taken as additional units for the AS Level Further Math.</p>	<p>Topics Covered/ Areas of Focus:</p> <ul style="list-style-type: none"> A 2-year A Level Mathematics course will require 6 modules [C1, C2, C3, C4, S1, M1] A 2-year A Level Further Mathematics course will require 6 modules [FP2,FP3,M2] <p>Students who progress to Year 13 will be equipped with the understanding of modules C1 C2 and S1.</p> <p>These students are expected to have understood the use of algebraic methods and solving complex equations. These include factorising polynomials, solving quadratic simultaneous equations and involving them in advanced calculus topics like differentiation and integration.</p> <p>Mechanics (M1,M2)</p> <ul style="list-style-type: none"> Works well for anyone thinking of doing physics or engineering. Typical kinds of problems that you will look at are: What height will a ball reach if thrown upwards with a given speed? What force is required to stop an object sliding down a slope?

<p>Decision Maths</p> <ul style="list-style-type: none"> Decision Mathematics is used to solve many real life, practical problems. Here are some examples of areas in which Decision Mathematics can be used: What is the best route for a gritting lorry to follow so that it covers every road in a town but keeping the distance travelled to a minimum? 	<p>A level Further Mathematics</p> <p>For A level Further Mathematics you take 6 additional units, three of which are Further Pure Mathematics units and applied Mechanics2.</p>
<p><u>Skills Development & Expected Progress:</u></p> <p>During the first year of study most students do 3 modules which leads to an advanced supplementary award (AS) taking two compulsory modules in Core Maths (C1, C2) and one more in Statistics (S1).</p> <p>Students will be able to progress on to A2 mathematics/ A2 further mathematics if they meet their target minimum grades.</p> <p>Students will be able to progress on to A2 mathematics/ A2 further mathematics if they meet their target minimum grades.</p>	<p><u>Skills Development & Expected Progress:</u></p> <p>In completion of the three AS Level modules a student may wish to continue their studies by taking another year and doing three more modules that would lead to an (A2) A Level Award in Maths.</p> <p>A Level student commonly combine 4 from Core Math (C1,C2,C3,C4) and 2 from Statistics (S1) Mechanics (M1).</p> <p>Students are expected to meet their target grades and obtain the necessary UCAS points for their university of choice. For those students who decide to choose the route of employment the services provided are help with writing CV's and interview skills.</p>
<p><u>Assessment:</u></p> <p>Formative assessments take the form of regular homework set weekly, questioning in class and the correction of misconceptions. In addition to this students are expected to do independent study to develop their understanding of certain topics taught in class. Students are also assessed on similar standard exam style questions once a term. Students are also encouraged to attempt such questions at home and discuss with their teachers any difficulties or concerns with their performance.</p>	<p><u>Assessment:</u></p> <p>Formative assessments take the form of regular homework set weekly, questioning in class and the correction of misconceptions. In addition to this students are expected to do independent study to develop their understanding of certain topics taught in class. Students are also assessed on similar standard exam style questions once a term. Students are also encouraged to attempt such questions at home and discuss with their teachers any difficulties or concerns with their performance.</p>
<p><u>Literacy:</u></p> <p>Throughout the year 12 course, students are developing their ability to decode questions in order to identify suitable methods for their calculations. This is emphasised through teaching students to notice topic specific terminology and key words in questions for use in analysing functional questions which demonstrate real life situations. Students regularly have literacy objectives in their lessons which</p>	<p><u>Literacy:</u></p> <p>Throughout the year 13 course, students are developing their ability to decode questions in order to identify suitable methods for their calculations. This is emphasised through teaching students to notice topic specific terminology and key words in questions for use in analysing functional questions which demonstrate real life situations. Students regularly have literacy objectives in their lessons which</p>

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<p><u>Numeracy:</u></p> <p>Students learn how to solve problems, understand and explain their solutions, make decisions based on logical thinking and reasoning and interpret data, charts and diagrams.</p>	<p><u>Numeracy:</u></p> <p>Students learn how to solve problems, understand and explain their solutions, make decisions based on logical thinking and reasoning and interpret data, charts and diagrams.</p>
<p><u>ICT:</u></p> <p>GeoGebra, Autograph, Excel</p>	<p><u>ICT:</u></p> <p>GeoGebra, Autograph, Excel</p>
<p><u>Life in Modern Britain:</u></p> <p>Students are always encouraged to think analytically and logically during their AS & A-Level Maths programs. These fundamental math skills are useful across all levels disciplines and careers.</p>	<p><u>Life in Modern Britain:</u></p> <p>Students are always encouraged to think analytically and logically during their AS & A-Level Maths programs. These fundamental math skills are useful across all levels disciplines and careers.</p>
<p><u>SMSC:</u></p> <p>Pupils discussing the use of mathematics in cultural symbols and patterns</p>	<p><u>SMSC:</u></p> <p>Pupils learn how mathematics is used in statistics to communicate climate change.</p>
<p><u>Meeting the needs of individual students & Additional Support:</u></p> <p>Students of weaker ability are assigned to academic mentors to revise GCSE A* topics such as solving equations, inequalities and understanding the rules of surds and the laws of indices.</p> <p>Key Stage Five Co-ordinator carries out half- termly analysis of assessment data, highlighting low achievers and high attainers not making sufficient progress. I had regular meetings with students to discuss;</p> <ul style="list-style-type: none"> - Action Plan - Teachers concern - Monitor independent studies - Regular meeting with academic mentors 	<p><u>Meeting the needs of individual students & Additional Support:</u></p> <p>Students of weaker ability are assigned to academic mentors to revise challenging topics.</p> <p>Key Stage Five Co-ordinator carries out half- termly analysis of assessment data, highlighting low achievers and high attainers not making sufficient progress. I had regular meetings with students to discuss;</p> <ul style="list-style-type: none"> - Action Plan - Teachers concern. - Monitor independent studies - Regular meeting with academic mentors
<p><u>Extra-Curricular Activities & Club:</u></p> <p>The school also provides intensive revision sessions before final exams run by</p>	<p><u>Extra-Curricular Activities & Club:</u></p> <p>The school also provides intensive revision sessions before final exams run by</p>

<p>classroom teachers and academic mentors to rectify any last minute misconceptions of students. Students also have access to academic mentors after school in the libraries and VLE. Furthermore they are sent to revision sessions at Birkbeck university which are led by experienced A- Level lecturers and examiners.</p>	<p>classroom teachers and academic mentors to rectify any last minute misconceptions of students. Students also have access to academic mentors after school in the libraries and VLE. Furthermore they are sent to revision sessions at Birkbeck university which are led by experienced A- Level lecturers and examiners.</p>
<p><u>Independent Study/ Homework:</u></p> <p>Independent studies are set every lesson. HW is set every week.</p>	<p><u>Independent Study/ Homework:</u></p> <p>Independent studies are set every lesson. HW is set every week.</p>
<p><u>Resources for Learning Support and VLE:</u></p> <p>The school also thrives on providing computing services for all of its students. The virtual learning environment boasts an outstanding student computer ratio allowing pupils to freely browse the internet, research and print out necessary documents. This service is available at times of break, afterschool and before morning registration.</p>	<p><u>Resources for Learning Support and VLE:</u></p> <p>The school also thrives on providing computing services for all of its students. The virtual learning environment boasts an outstanding student computer ratio allowing pupils to freely browse the internet, research and print out necessary documents. This service is available at times of break, afterschool and before morning registration.</p>