Mathematics curriculum overview

Mathematics curriculum intent

Our mathematics curriculum intent is to provide all students with a varied, well- connected, thought provoking and challenging experience whilst studying mathematics with us at Studley High School. They follow a Key Stage 3 pathway for Years 7 & 8 and 9 then begin their GCSE curriculum from Year 10.

The Key Stage 3 curriculum, is split into three channels, the themes they cover being the same for all students, but the channel chosen varies specific to the students. For example, our curriculum begins with the theme of number. This is delivered with an emphasis on transition; students sharing key concepts, different approaches and problem solving strategies. The intent is to promote a love for diversity within mathematics, listening to other people's ideas and observing or discussing various methods for solving the same problem. The spiral nature of our three year Key Stage 3 curriculum means that students' are able to deepen their knowledge, understanding and connections through the successive encounters of individual topics throughout the curriculum.

The Key Stage 4 curriculum is split, like the GCSE examination, into a Foundation or Higher strand. The tier itself then provides a certain diagnosed curriculum for the students. Throughout the Key Stage 4 curriculum students are able to develop fluent knowledge, skills and understanding of mathematical methods and concepts. There is also deliberate and frequent intentional overlap in the curriculum during Year 9/10 between the two tiers as we prepare all students for the opportunity to advance onto higher tier.

Mathematics curriculum implementation

At the beginning of every mathematics lesson here at Studley, students all complete a retrieval practice task, using their personal exercise books. This is completed within a quiet focused environment promoting a love for independence, self-testing and resilience. This gives students dedicated time to regularly practice recalling facts, terminology and definitions, as well as interpreting and communicating information accurately.

In mathematics lessons teachers use a wide range of teaching and learning resources, interactive whiteboards and visualisers for frequent exposure to the modelling of mathematics. This can often be by both teacher and students,

followed by the mathematical dialogue of challenge and reason to further deepen their knowledge, understanding and connections. The need for emphasis on communication, allows students to make deductions, inferences and draw their conclusions, which in turn will develop them to solve problems in other contexts.

To foster and develop a love for learning, all students here at Studley complete weekly mathematics homework from a consistent online mathematics learning platform. They complete their weekly homework task using their personal exercise book, promoting a love for independence, self-testing and resilience. The homework success is celebrated every week, excellent modelled work from personal exercise books is publicised amongst peers, and mathematical difficulties discussed.

In addition to our mathematics lessons, there have been many opportunities every year for students to further develop their connections with mathematics. These have included; UKMT Junior and Intermediate, qualifications offered in Functional Skills in mathematics, Big Bang trip partnered with the Science department, Engineering girls club, University trips to mathematics departments at Oxford and Birmingham, Year 10 Maths Big Quiz, Cipher challenge, Bletchley Park and departmental Shine sessions.

Mathematics curriculum impact

One way we check that students are learning what we have intended and that it is having an impact, is through regular opportunities for retrieval practice. As well as the consistent start to lessons and a weekly retrieval homework, our students' completed assessments are analysed using an online platform, which then addresses five of their poorly performed topics. These are just three of the ways our curriculum is planned to give explicit opportunities for students' to review their progress and assess that their fluency and mastery is incrementally improving.

The mathematics department promotes the Studley DNA within students, by encouraging resilience, teamwork, communication and independence. This then will them prepare them with skills needed for exams and beyond.

Mathematics continues to be a successful department at Studley. We place great value on fostering an environment that allows all pupils to make excellent progress, regardless of their starting points when they join us. Our department's progress 8 scores are consistently high and key measures such as 4+, 5+ and 7+ percentages place us well above national averages.

links to prior learning

KEY STAGE 3 Maths Delivery Grid

	Content – Autumn, Spring, Summer	Assessment	Enrichment
Year 7	Unit 1 Number Skills Unit 2 Analysing and displaying data Unit 3 Expressions, functions and formulae Unit 4 Decimals and measures Unit 5 Fractions Unit 6 Probability Unit 7 Ratio and proportion Unit 8 Lines and angles Unit 9 Sequences and graphs Unit 10 Transformations	Topic Tests Unit 1-10 Baseline Assessment End of Autumn Assessment (Units 1-4) End of Spring Assessment (Units 5-7) End of Summer Assessment (Units 8-10) Knowledge Assessments	Literacy – key vocabulary and command words Problem solving skills Modelled examples Shine tasks Discussion of misleading statistics and relation to real world
Year 8	Unit 1 Number Unit 2 Area and volume Unit 3 Statistics, graphs and charts Unit 4 Expressions and equations Unit 5 Real-life graphs; Unit 9 Straight-line graphs Unit 6 Decimals and ratio Unit 7 Lines and angles Unit 8 Calculating with fractions Unit 9 Straight-line graphs Unit 10 Percentages, decimals and fractions	Topic Tests Unit 1-10 Baseline Assessment End of Autumn Assessment (Units 1-4) End of Spring Assessment (Units 5-7) End of Summer Assessment (Units 8-10) Knowledge Assessments	Literacy – key vocabulary and command words Problem solving skills Modelled examples Shine tasks Discussion of real life graphs and relation to real world

Year 9	Unit 1 Indices and standard form Unit 2 Expressions and formulae Unit 3 Dealing with data Unit 4 Multiplicative reasoning Unit 5 Constructions Unit 6 Sequences, inequalities, equations and proportion Unit 7 Circles, Pythagoras and prisms Unit 8 Graphs Unit 9 Probability Unit10 Comparing shapes	Topic Tests Unit 1-10 Baseline Assessment End of Autumn Assessment (Units 1-4) End of Spring Assessment (Units 5-7) End of Summer Assessment (Units 8-10) Knowledge Assessments	Literacy – key vocabulary and command words Problem solving skills Modelled examples Shine tasks Comparing data and relation to real world

	Content – Autumn, Spring, Summer	*Assessment*	*Enrichment*
Year 10 Foundation	Unit 1 Number Unit 2 Algebra Unit 3 Graphs, tables and charts Unit 4 Fractions and percentages Unit 5 Equations, inequalities and sequences Unit 6 Angles Unit 7 Averages and range Unit 8 Perimeter, area and volume 1 Unit 9 Graphs Unit 10 Transformations Unit 11 Ratio and proportion Unit 12 Right-angled triangles Unit 13 Probability Unit 14 Multiplicative reasoning	Units 1 – 4 topic tests Units 5 – 9 topic tests Units 10 – 14 topic tests Year 10 Mock Exams Further Edexcel Foundation Assessment (dates given in advance)	Literacy – key vocabulary and command words Problem solving skills Modelled examples Shine tasks Discussion of misleading statistics and relation to real world Sparx XP Boost Sparx Target Sparx Independent Learning
Year 10 Higher	Unit 1 Number Unit 2 Algebra Unit 3 Interpreting and representing data Unit 4 Fractions, ratio and proportion Unit 5 Angles and trigonometry Unit 6 Graphs Unit 7 Area and volume Unit 8 Transformations and constructions Unit 9 Equations and inequalities Unit 10 Probability	Units 1 – 5 topic tests Units 6 – 10 topic tests Units 11 – 15 topic tests Year 10 Mock Exams Further Edexcel Higher Assessment (dates given in advance)	Literacy – key vocabulary and command words Problem solving skills Modelled examples Shine tasks Discussion of misleading statistics and relation to real world Sparx XP Boost Sparx Target Sparx Independent Learning

	Unit 11 Multiplicative reasoning Unit 12 Similarity and congruence Unit 13 More trigonometry Unit 14 Further statistics Unit 15 Equations and graph		

Year 11 Foundation	Unit 15 Constructions, loci and bearings Unit 16 Quadratic equations and graphs Unit 17 Perimeter, area and volume 2 Unit 18 Fractions, indices and standard form Unit 19 Congruence, similarity and vectors Unit 20 More algebra Targeted and Personalised Revision	Topic Tests Unit 15-17 Topic Tests Unit 18-20 Year 11 Mock Exams Further Edexcel Foundation Assessment (dates given in advance) GCSE Foundation Paper 1, 2 and 3	After School Revision session Invite-only intervention Easter School Literacy – key vocabulary and command words Problem solving skills Modelled examples Shine tasks Comparing data and relation to real world Sparx XP Boost Sparx Target Sparx Independent Learning
Year 11 Higher	Unit 16 Circle theorems Unit 17 More algebra Unit 18 Vectors and geometric proof Unit 19 Proportion and graphs Targeted and Personalised Revision	Topic Tests Unit 16-17 Topic Tests Unit 18- 19 Year 11 Mock Exams Further Edexcel Higher Assessment (dates given in advance) GCSE Higher Paper 1, 2 and 3	After School Revision session Invite-only intervention Easter School Literacy – key vocabulary and command words Problem solving skills Modelled examples Shine tasks Comparing data and relation to real world Sparx XP Boost Sparx Target Sparx Independent Learning