

Our curriculum is carefully sequenced to ensure cumulative knowledge and progression. Each unit builds on the last, with clear concepts that students must grasp to progress. We define end points to illustrate what mastery looks like by year-end.

Location of resources:	JOHN Maths Staff - Documents John Port Spencer Academy Share Point – Maths Staff – Schemes of Work – KS5 – A Level
Curriculum intent and rationale:	<i>Every student to be the best mathematician they can be.</i> Our aim is that every student has the opportunity to reach their potential mathematically and to be equipped to apply their mathematical knowledge to other subject areas, future courses, careers and everyday life. We aim for students to acquire substantive knowledge and procedural fluency along with conceptual understanding and the ability to apply reasoning and problem-solving skills. Curriculum organisation: Students receive 5 lessons each week and are taught by two teachers.
National Curriculum Links:	AQA Mathematics A-level A-level Mathematics

What content needs to be covered? Key Knowledge and skills / misconceptions to address (with vocab in bold and spelling underlined>)

By the end of the year students will know:

Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Students will learn key knowledge and skills about: - Linear equations - Indices & surds - Proof - Algebraic division & factor theorem - Quadratic equations - Graphs & transformations - Simultaneous equations - Circles - Inequalities - Differentiation Challenge: Students are challenged to apply new knowledge in a context that requires reasoning and problem solving. Misconceptions: Recall of higher GCSE knowledge applying to A-Level, graph transformations in wrong axes, writing inequalities for incorrect region	Students will learn key knowledge and skills about: - Differentiation - Binomial expansion - Trigonometry - Integration - Exponentials & Logarithms - Large Data Set Challenge: Students are challenged to apply new knowledge in a context that requires reasoning and problem solving. Misconceptions: Mix up between differentiation and integration, missing solutions when dealing with quadratic trig, manipulating and apply rules to logs	Students will learn key knowledge and skills about: - Exponentials & Logarithms - Sampling - Vectors - Central tendency & spread - Data presentation and interpretation - Kinematics in one dimension Challenge: Students are challenged to apply new knowledge in a context that requires reasoning and problem solving. Misconceptions: Mixing up averages and spread, recall of GCSE Statistical knowledge such as histograms, scatter diagrams and cumulative frequency	Students will learn key knowledge and skills about: - Data presentation and interpretation - Kinematics in one dimension - Forces & Newton's Laws - Probability distributions - Binomial Distribution Challenge: Students are challenged to apply new knowledge in a context that requires reasoning and problem solving. Misconceptions: Not drawing a force diagram, rounding values with the Binomial Distribution, transformation order written incorrectly when dealing with two transformations in one axis.	Students will learn key knowledge and skills about: - Transformations of graphs - Binomial Distribution - Binomial hypothesis testing - Functions - Normal distribution - Partial fractions - Binomial expansion Challenge: Students are challenged to apply new knowledge in a context that requires reasoning and problem solving. Misconceptions: Using correct notation with functions, applying the second binomial expansion formulae incorrectly, finding and comparing the critical region in Binomial Hypothesis Testing.	Students will learn key knowledge and skills about: - Binomial expansion - Sequences & Series - Trigonometry & circular measure Students will recap, retrieve and build on key knowledge and skills from half term 2 & 4: Challenge: Students are challenged to apply new knowledge in a context that requires reasoning and problem solving. Misconceptions: Trying to solve a trigonometric equation with multiple trig ratios, incorrectly finding the range of validity for a Binomial expansion.



Our curriculum is carefully sequenced to ensure cumulative knowledge and progression. Each unit builds on the last, with clear concepts that students must grasp to progress. We define end points to illustrate what mastery looks like by year-end.

Previous learning that is particularly relevant:					
Knowledge of linear equations and graphs, rules of indices, long division, methods of solving quadratic equations & simultaneous equations, equations of unit circles centred on the origin, completing the square, use of inverses to solve an inequality, gradient of a tangent as a rate of change, trigonometry in right angles triangle,		Knowledge types of data, averages, range, statistical diagrams, distance-time and velocity-time graphs, average speed, probability		Knowledge of Binomial distribution, function notation, algebraic fractions, arithmetic & geometric series, nth terms, trigonometry.	
Future Learning - How content prepares students for future units?					
The work this term links to future learning by introducing calculus, consolidating and developing knowledge of previous learning and preparing knowledge of the large data set for us in statistics questions.		The work this term links to future learning by introducing the Statistics and Mechanics unit that get built upon in Year 13 and start to link real life modelling situations to exponentials.		The work this term links to future learning by introducing hypothesis testing, being able to manipulate functions to partial fraction form ready to integrate at a later date and introducing further trigonometric functions and their graphs.	
Outcomes: By the end of the year pupils will be able to:					
Apply knowledge gained to A-Level style questions that require recall, reasoning and problem-solving skills.					
Assessment Strategy How we know our students are knowing and remembering more – Data from hunting not fishing, formative and summative assessment/s is used to adapt teaching and provide targeted challenge and intervention, supporting SEND and disadvantaged pupils.					
Formative: Transition work test Exam question starters Mini-whiteboard work Homework tasks Class tests Questioning: methods of participation		Summative: Class tests Mock exam in June		Opportunities to revisit past learning: Transition tasks Do it Now questions Homework tasks Practise Papers Revision lessons Afterschool drop in sessions Opportunities for homework (including apps): Completing textbook exercises – Kerboodle Revision Practise papers Tasks from Integral website Specific questions on a worksheet	
How is the curriculum adapted to meet the needs of SEND and disadvantaged pupils, while maintaining high expectations?					



Our curriculum is carefully sequenced to ensure cumulative knowledge and progression. Each unit builds on the last, with clear concepts that students must grasp to progress. We define end points to illustrate what mastery looks like by year-end.

Expected prior knowledge is revisited. Lessons are adapted to the needs of each class.

Wider Curriculum and Enrichment – cultural capital and real world application -

Enriching experiences:

Maths Inspiration trip
After school drop in sessions
Maths Ambassadors
Math support in lower school
UKMT Senior Maths Challenge
Maths Olympiad for Girls
Open Evening support

Our curriculum supports the school value of:

Joy	<i>Foster enthusiasm and engagement by Using manipulatives and a variety of representations to develop understanding. By creating challenge at a level where students can achieve success.</i>
Progress	<i>We monitor and support progress through the use of assessment strategies during lessons that support adaptive teaching strategies. Analysis of termly test data with feedback and development work.</i>
Success	<i>We celebrate success by giving verbal praise, achievement points, certificates, articles in the JPSA Newsletter.</i>
Act with care, kindness, respect, and integrity	<i>We build meaningful connections with our students by ensuring a safe and supportive classroom environment with clear expectations of work and behaviour where there is mutual respect for all people in the room and all people feel valued.</i>

Literacy, Oracy and disciplinary language:

The correct use and understanding of notation, key words and terms is essential for students to be able to understand explanations and questions and to be able to participate effectively, with confidence in discussion and written work.

Key words and terms are explicit in the Scheme of Work
Key words are emphasised in lessons and used in discussion.
Lessons include opportunities to discuss in pairs before feeding back to the whole class.

Cross-Curricular opportunities :

Physics: all mechanics topics
Social Sciences: All statistical topics

Our curriculum supports personal development by:

Careers / Employability skills:

How does the curriculum link to the following employability skills:

Listening – Students need to listen carefully to explanations from their teacher and listen to their peers in class or group discussion

Speaking – Students need to speak their ideas on the solutions to problems using correct terminology.

Problem solving – All mathematical knowledge is applied to problem solving

Aiming high – Learning become incrementally more challenging as a unit progresses. Teachers aim to ensure students progress as far as they are able.

Critical thinking – Considering the information available to work with and deciding how best to use it and what calculations should be done.

Staying positive – Questions can be challenging and students need to remain positive, find out how to deal with the challenges and understand that being ‘stuck’ ultimately leads to learning if dealt with positively.

Leadership – Leading in a group activity or discussion. Feeding back to the whole class on behalf of a group.

Teamwork – Working collaboratively when in a group or when working together as a pair. Being able to share resources fairly and sensible.

Creativity – finding novel solutions, writing a clear solution, finding multiple ways of answering a problem using different skills.

Our curriculum is carefully sequenced to ensure cumulative knowledge and progression. Each unit builds on the last, with clear concepts that students must grasp to progress. We define end points to illustrate what mastery looks like by year-end.

		Employment Sectors discussed include: Trainee teachers present regarding maths in higher education
Curriculum impact is evaluated through pupil study, work scrutiny, and progress data. Findings inform regular curriculum review to ensure continuous improvement.		
When was this curriculum last reviewed? Include date	What changes were made and why?	How is ongoing improvement ensured?
July 2025	July 2025	QA climate walks
		Review in Faculty Time
		Follow up from CPD Analysis of Mock data Ongoing conversation between A-Level team in staffroom AQA webinars on A level marking Casio webinars on use of calculators