

# **MATHEMATICS**

# YEAR 10 FOUNDATION

#### **CURRICULUM INTENT**

The curriculum and assessment of students at this stage of education has been carefully designed to promote deep learning of mathematics and develop students into analytical and logical problem solvers.

Students in Year 10 will strengthen and consolidate their knowledge of number, ratio and proportion, algebra, geometry, and data. They will use and apply their understanding of the Big Ideas of mathematics which have been developed to improve the students' ability to retain information, develop their mathematical skills and apply their knowledge using a consistent range of methods and techniques. Students will be taught to link and interconnect the Big Ideas in a fluent way thus becoming familiar with them. The curriculum will ensure that students are able to solve multi-step problems and will ensure that all students have access to appropriate challenge. In addition to this, we aim to broaden students' perception of mathematics by providing the opportunity to explore how the skills they are developing can be used in real life situations. We believe that this exposure to the application of mathematics, in addition to their learning, will inspire them to be our next generation of mathematicians.

	PRIOR LEARNING	We have carefully designed the curriculum so that students will review the topics taught during Year 9 with interleaving to support the recall and retention of previously learned content and build on this to prepare them for their GCSE examination in Year 11.
Ť	PERSONAL DEVELOPMENT & CURRICULUM LINKS	There are opportunities for links with science, technology, geography and PE. Consistent methods will be used a cross all departments to support students' understanding of mathematics.
•	EXTRA-CURRICULAR & CULTURAL CAPITAL	AMSP will be running support sessions, trips and competitions to widen student understanding of mathematics, particularly with real life scenarios and context. In addition to this, other trips and competitions will be run with a key focus on careers and potential jobs that involve mathematics. Homework support will be available from September. The aims of these are to support students with resources and projects that would normally be unavailable to them.

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	AUTUMN 1	AUTUMN 2	SPRING 1 SPRING 2		SUMMER 1	SUMMER 2		
	NUMBER	ALGEBRA AND GEOMETRY	STATISTICS AND NUMBER	NUMBER AND PROPORTINAL	GRAPHS AND ALGEBRA	ALGEBRA AND DATA		
	All students will know:	All students will know:	All students will know:	REASONING	All students will know:	All students will know:		
	Calculations with integers,	Simplifying expressions	Types of data and how it can be	All students will know:	Coordinates in 4 quadrants	How to solve simple linear		
	fractions and decimals	Substitution	collected	Fluent use of calculator to solve	Midpoint of a line	inequalities		
	Powers and roots	Manipulating expressions	Stem and leaf diagrams	numerical problems	Equations of horizontal and	Congruent and similar shapes		
	Rounding and estimation	Expanding and factorising single	Pie charts	Calculations involving time and	verticallines	Transformations of shapes		
1 55	Index laws	brackets	Mode, median, mean and range	timetables	Plotting linear and quadratic	Calculating missing lengths on		
	HCF & LCM	Forming and solving simple	Averages from tables and graphs	Rounding, truncation and error	graphs	similar shapes		
TOPIC/KNOWLEDGE	Prime factor decomposition	equations	Scatter graphs and correlation	intervals	Gradient and y intercept of linear	Systematic listing, the language		
ĮŽ	Calculations with negative	Using a formula	Time series graphs	Estimation	graphs	of probability and sample spaces		
5	numbers	Changing the subject of a	Equivalent fractions, decimals	Direct and inverse proportion	Finding missing terms in	Calculating probability		
<u> </u>	Order of operations	formula	and percentages	Value for money	sequences	Frequency tree diagrams		
-	Equivalent fractions Fraction of an amount	Drawing and measuring angles Construction	Decimal multipliers Percentage of an amount	Exchange rates Recipes	Term to term rules Nth term rules	Venn diagrams Ratio notation, equivalent ratio		
	Fraction of all amount	Angle properties of lines,	Percentage increase and	Using decimal multipliers to	Using picture sequences	and calculating with ratio.		
		triangles and polygons	decrease	increase and decrease an	Linear inequalities and how they	Using ratio for scale drawings		
		Area of simple shapes including	decrease	amount	can be represented	and maps		
		circles		Calculating a percentage change	can be represented	and maps		
		on des		calculating a percentage change				
	Problem solving, written and	Problem solving, written and	Problem solving, written and	Problem solving, written and	Problem solving, analysis of data,	Problem solving, analysis of		
	verbal communication, logical	verbal communication, logical	verbal communication, logical	verbal communication, logical	written and verbal	data, written and verbal		
SIJ	and accurate thinking and	and accurate thinking and	and accurate thinking and	and accurate thinking and	communication, logical and	communication, logical and		
SKILLS	solutions. Application of topics to	solutions. Application of topics to	solutions. Application of topics to	solutions. Application of topics to	accurate thinking and solutions.	accurate thinking and solutions.		
	geometric and contextual	geometric and contextual	geometric and contextual	geometric and contextual	Application of topics to	Application of topics to		
	problems.	problems.	problems.	problems.	contextual problems.	contextual problems.		
	Students will complete low stake	Students will complete low stake	Students will complete low stake	Students will complete low stake	Students will complete low stake	Students will complete low stake		
	topic tests regularly to check	topic tests regularly to check	topic tests regularly to check	topic tests regularly to check	topic tests regularly to check	topic tests regularly to check		
	retention and understanding of	retention and understanding of	retention and understanding of	retention and understanding	retention and understanding of	retention and understanding of		
	content taught.	content taught.	content taught.	of content taught.	content taught.	content taught.		
	Gaps identified will be addressed	Gaps identified will be addressed	Gaps identified will be addressed	Gaps identified will be addressed	Gaps identified will be addressed	Gaps identified will		
	in lessons and via homework set	in lesson and via homework set	in lesson and via homework set	in lesson and via homework set	in lesson and via homework set	be addressed in lesson and		
ASSESSMENT	on Sparx Maths. Students will also sit a formal GCSE style	on Sparx Maths.	on Sparx Maths. Students will also sit a formal GCSE style	on Sparx Maths.	on Sparx Maths. Students will sit a formal GCSE	via homework set on Sparx Maths.		
SSE	assessment, which focusses on		assessment, that focusses on all		style during the half term	iviatiis.		
¥	all the content from half term 1.		the content from half term 1, 2		which will consist of 2 papers.			
	direction for their terms.		and 3.		This will be used to support gap			
					closure and intervention moving			
					forward through Year 10 and into			
					Year 11.			
	Multiply, divide, sum, product,	Simplify, solve, equation, balance	Discrete, continuous, primary,	Round, decimal place, significant	Coordinate, axis, horizontal,	Solve, congruent, similar, vector,		
	difference, grid method, place	method, factorise, expand,	se condary, question naire, stem	figure, estimate, approximate,	vertical, midpoint, linear,	translation, rotation, clockwise,		
	value table, factor,	substitute, rearrange, formula,	and leaf, key, pie chart,	truncate, error interval,	quadratic, parabola, vertex,	anti-clockwise, centre, scale		
	multiple, prime number,	construct, bisect, acute, obtuse,	represent, mode, median, mean,	exchange rate, proportion,	gradient, intercept, parallel,	factor, enlargement, reflection,		
AB	integer, negative number,	reflex, right angle, parallel,	range, frequency, positive,	direct, indirect, increase,	term, sequence, difference,	sample space, independent,		
VOCAB	estimate, order of operations,	perpendicular, opposite, straight	negative, correlation, strong,	decrease, multiplier, original	coefficient, geometric, Fibonacci,	dependent, probability		
_ >	simplifying, HCF, LCM,	line, equilateral, isos celes,	weak, time series, equivalent,		inequality, greater than, less	conditional, tree diagrams,		
	numerator, denominator,	scalene, quadrilateral, kite,	original, increase, decrease		than, number line,	outcome, the oretical,		
	equivalent, common, improper fraction, mixed number	trapezium, polygon, interior, exterior, radius, diameter,				experimental, relative frequency, fair, biased		
	inaction, inixed fluinber	circumference				in Equency, Idii, Diaseu		
		Circumiterence						

#### **READING SKILLS**

In mathematics this year, decoding, fluency, vocabulary, prior knowledge, and summarising will support problem-solving, reasoning, and comprehension of mathematical language. This will enable students to interpret, apply, and communicate concepts effectively.

#### **CAREERS LINKS**

Acoustic specialist, actuary, chartered accountant, cryptographer, data scientist, economist, investment analyst, mathematician, medical statistician, meteorologist, operations research analyst, research scientist, risk management officer, software engineer, statistician, teacher or lecturer, technician

#### **SUPPORTING STUDENTS AT HOME**



## **MATHEMATICS**

PRIOR LEARNING

# YEAR 10 HIGHER

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EXTRA-CURNICULAR & CULTURAL CAPITAL   AMSP will be running support sessions, trips and competitions to widen student understanding of mathematics.	Year 11.				
AUTUMN 1  ALGEBRA AND GEOMETRY All students will know. Equations of Incor graphs Experimenting obtains to linear inequalities in two variables on a Caretising rid. Transformations Similarly Application of Pythagons' Theorem Conductive interpretice of regular and inequalities in two variables on a Caretising rid. Transformations Similarly Conductive interpretion of problems Conducted interpreting obtains to linear inequalities in two variables on a Caretising rid. Transformations Similarly Conductive interpretion of problems Compound measures: speed, Solving graphs and deprehability problems similar graphs (Linear sequences and fright transformations Similarly) Solving graphs How to construct, interpret and composition of Pythagons' Theorem Age properties of regular and irregular polytens involving ratio Age properties of regular and irregular polytens Age properties of regular and irregular polytens Age properties of polytens Age properties of regular and irregular polytens Age properties of polytens Age properties of polytens Age properties of polytens Conducted and accurate thinking and all catent thinking and solutions. Application of lopis to geometric and contextual problems.  Problem solving, written and verbal communication, logical and accurate thinking and solutions. Application of lopis to geometric and contextual problems.  Suddents will complete low state topic tests regularly to check retention and understanding of content taught.  Gaps identified will be addressed in lessons and via honeworks set on Sparx Maths. Students will also stat formal GCE style assessment, which floouses on all the content from half term 1.  Suddents will complete low state topic tests regularly to check retention and understanding of content taught.  Gaps identified will be addressed in lessons and via honework set on Sparx Maths.  Suddents will complete low state topic tests regularly to check retention and understanding of content taught.  Gaps identified will be addressed in lessons and via honework set on Sparx Maths.	There are opportunities for links with science, technology, geography and PE. Consistent methods will be used across all departments to support students' understanding of mathematics.				
AUTUMN 2  A STATUS AND NUMBER AND GEOMETRY All students will know: Equations of linear graphs Parallel and perpendicular lines Solving situationess equations to linear graphs will and algebraic line Representing solutions to linear graphs and glebraically Representing solutions to linear inequalities in two variables on a Cartestain grid. Transformations Similarity Representing solutions to linear inequalities in two variables on a Cartestain grid. Representing solutions to linear inequalities in two variables on a Cartestain grid. Representing solutions to linear inequalities in two variables on a Cartestain grid. Representing solutions to linear inequalities in two variables on a Cartestain grid. Representing solutions to linear inequalities in two variables on a Cartestain grid. Representing solutions to linear inequalities in two variables on a Cartestain grid. Representing solutions to linear inequalities in two variables on a Cartestain grid. Representing solutions to linear inequalities in two variables on a Cartestain grid. Representing solutions Solving a quadratic by Volume Volume Solving a quadratic by Volume Solving a quadratic by Volume Compare box plot sain Age properties of regular and Age pro	AMSP will be running support sessions, trips and competitions to widen student understanding of mathematics, particularly with real life scenarios and context. In addition to this, other trips and competitions will be run with a key focus on careers and potential jobs that involve mathematics. Homework support will be available from September. The aims of these are to support				
All students will know: Equations of linear graphs Parallel and perpendicular lines Solving simultaneous equalphase; percentages; perce	SUMMER 2				
Percentages; percentages inferest and general percentages percentages; inferest and general percentages; percentages; inferest and general general percentages; percentages; inferest and general gene	LGEBRA AND SHAPE				
Problem solving, written and verbal communication, logical and and are lendered with communication, logical and and are the histogrand of content taught.  Suburging will complete low stake topic tests regularly to check retention and understanding of content taught.  Gags is definified will be addressed in lessons and via homework set on Sparx Maths.  Problem will complete low stake topic tests regularly to check retention and understanding of content taught.  Gags is deriffed will be addressed in lessons and via homework set on Sparx Maths.  Joseph was to construct and and and spectors on all the content from half term 1.  Expanding double and triple backets so we quadratics placently on construct, interpret and compare box plots and box box box plots and box box box plots and box box box box box box b	ents will know:				
Solving simultaneous equators graphically and algebraical by and agebraical by and algebraical by the generating solutions to linear inequalities in two variables on a cartesian grid.  Transformations Compound measures: speed, density and pressure proportion problems compound measures: speed, density and pressure proportion problems schip two way tables, and are length of circles and lengths  Rear and are length of circles and lengths  Construction and loci  Problem solving, written and verbal communication, logical and accurate thinking and solutions. Application of topics to geometric and contextual problems.  Students will complete low stake topic tests regularly to check retention and understanding of content taught.  Gassi identified will be addressed in lessons and via homework set on shark Maths.  Subject of the content from half term 1.  Students will complete low stake topic tests regularly to check retention and understanding of content taught.  Gassi identified will be addressed in lessons and via homework set on spanx Maths.  Subject of the content taught.  Gassi identified will be addressed in lessons and via homework set on spanx Maths.  Subject of the content taught.  Gassi identified will be addressed in lessons and via homework set on spanx Maths.  Subject of the content taught.  Gassi identified will be addressed in lesson and via homework set on spanx Maths.  Subject of the content taught.  Gassi identified will be addressed in lesson and via homework set on spanx Maths.  Subject of the content taught.  Gassi identified will be addressed in lesson and via homework set on spanx Maths.  Subject of the content taught.  Gassi identified will be addressed in lesson and via homework set on spanx Maths.  Subject of the content taught.  Gassi identified will be addressed in lesson and via homework set on spanx Maths.  Subject of the content taught.  Gassi identified will be addressed in lesson and via homework set on spant Maths.  Subject of the content taught.  Gassi identified will be addressed in	s and surface area of				
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#### **READING SKILLS**

In mathematics this year, decoding, fluency, vocabulary, prior knowledge, and summarising will support problem-solving, reasoning, and comprehension of mathematical language. This will enable students to interpret, apply, and communicate concepts effectively.

#### **CAREERS LINKS**

Acoustic specialist, actuary, chartered accountant, cryptographer, data scientist, economist, investment analyst, mathematician, medical statistician, meteorologist, operations research analyst, research scientist, risk management officer, software engineer, statistician, teacher or lecturer, technician

#### **SUPPORTING STUDENTS AT HOME**



## MATHEMATICS

PRIOR LEARNING

## YEAR 10 CROSSOVER

We have carefully designed the curriculum so that students will review the topics taught during Year 9 with interleaving to

#### **CURRICULUM INTENT**

The curriculum and assessment of students at this stage of education has been carefully designed to promote deep learning of mathematics and develop students into analytical and logical problem solvers.

Students in Year 10 will strengthen and consolidate their knowledge of number, ratio and proportion, algebra, geometry, and data. They will use and apply their understanding of the Big Ideas of mathematics which have been developed to improve the students' ability to retain information, develop their mathematical skills and apply their knowledge using a consistent range of methods and techniques. Students will be taught to link and interconnect the Big Ideas in a fluent way thus becoming familiar with them. The curriculum will ensure that students are able to solve multi-step problems and will ensure that all students have access to appropriate challenge. In addition to this, we aim to broaden students' perception of mathematics by providing the opportunity to explore how the skills they are developing can be used in real life situations. We believe that this exposure to the application of mathematics, in addition to their learning, will inspire them to be our next generation of mathematicians.

					support the recall and retention of previously learned content and build on this to prepare them for their GCSE examination in Year 11.			
	PERSONAL DEVELOPMENT & CURRICULUM LINKS		There are opportunities for links with science, technology, geography and PE. Consistent methods will be used across all departments to support students' understanding of mathematics.					
			AMSP will be running support sessions, trips and competitions to widen student understanding of mathematics, particularly with real life scenarios and context. In addition to this, other trips and competitions will be run with a key focus on careers and potential jobs that involve mathematics. Homework support will be available from September. The aims of these are to support students with resources and projects that would pormally be upayailable to them.					
L		AUTUMN 1	AUTUMN 2		SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
		NUMBER and ALGEBRA	GEOMETRY and NUMBER		UMBER and GRAPHS dents will know:	NUMBER and GEOMETRY	PROBABILITY	ALGEBRA and GEOMETRY
	TOPIC/KNOWLEDGE	All students will know: Calculations with integers, decimals and fractions Powers and roots Order of operations Index laws Percentages Rounding, error intervals and estimation. Simplifying algebraic expression Expanding single brackets Factorising algebraic expressions Substitution Changing the subject of a formula	Problem solving with area and perimeter. Direct and inverse proportion Value for money Recipes	Conver number form Calcula in stand withou Interpri context Conver Distand	ting large and small ers to and from standard tions with numbers given dard form with and t a calculator eting and drawing tual graphs ting between units of time the time graphs y time graphs	All students will know: Simple and compound interest Compound measures: working with density, pressure and speed Converting compound units Solving problems involving ratio Identifying congruent shapes Using vectors for translation of shapes Drawing and identifying reflections, rotations, translations and enlargement Similar shapes: identifying scale factors and finding the dimensions of similar shapes	All students will know: Systematic listing The language of probability How to record, describe and analyse the frequency of outcomes for simple probability experiments Theoretical probability That the sum of probabilities for mutually exclusive events = 1 How to construct and use a sample space diagram How to construct and use frequency trees, two way tables and Venn diagrams to calculate probabilities	All students will know: Properties of linear graphs Finding the equation of a line from a graph / given two points Identifying parallel lines from their equations Plotting straight line graphs Solving simultaneous equations graphically and algebraically Using Pythagoras' Theorem to calculate the lengths of unknown sides in a right angled triangle Using trigonometry to calculate
		Linear and quadratic graphs Sequences Solving equations and inequalities Problem solving, written and verbal communication, logical	Exchange rates Percentage change Problem solving with ratio  Problem solving, written and verbal communication, logical		m solving, written and communication, logical	Problem solving, written and verbal communication, logical	Problem solving, analysis of data, written and verbal communication,	missing lengths and angles in right angled triangles Mixed problems involving trigonometry and Pythagoras.  Problem solving, analysis of data, written and verbal
	SKILLS	and accurate thinking and solutions. Application of topics t geometric and contextual problems.	and accurate thinking and	and acc	curate thinking and ns. Application of topics to tricand contextual	and accurate thinking and solutions. Application of topics to geometric and contextual problems.	logical and accurate thinking and solutions. Application of topics to contextual problems.	communication, logical and accurate thinking and solutions. Application of topics to contextual problems.
	ASSESSMENT	Students will complete low stake topic tests regularly to check retention and understanding of content taught.  Gaps identified will be addressed in lessons and via homework set on Sparx Maths. Students will also sit a formal GCSE style assessment, which focusses on all the content from half term 1.	topic tests regularly to check retention and understanding of content taught. Gaps identified will be addressed	topic to retenti- conten Gaps ic in lesso on Spa also sit ass essr	ts will complete low stake ests regularly to check on and understanding of t taught. dentified will be addressed on and via homework set inx Maths. Students will a formal GCSE style ment, that focusses on all attent from half term 1, 2	Students will complete low stake topic tests regularly to check retention and understanding of content taught. Gaps identified will be addressed in lesson and via homework set on Sparx Maths.	Students will sit a formal GCSE style during the half term which will consist of 2 papers. This will be used to support gap closure and intervention moving into Year 11.  Students will complete low stake topic tests regularly to check retention and understanding of content taught.  Gaps identified will be addressed in lesson and via homework set on Sparx Maths.	Students will complete low stake topic tests regularly to check retention and understanding of content taught.  Gaps identified will be addressed in lesson and via homework set on Sparx Maths.
	VOCAB	Grid method, factorise, expand, place value table, factor, multiple, integer, round, estimate, order of operations, simplifying, balance method, simplify, substitute, solve, quadratic, linear, rearrange, unknown, gradient, intercept, geometric, Fibonacci, inequality	Acute, obtuse, reflex, right angle, parallel, perpendicular, opposite, bearing, corresponding, alternate, co-interior, equilateral, isosceles, scalene, quadrilateral, kite, trapezium, polygon, interior, exterior, radius, diameter, circumference, exchange rate, ratio, direct, indirect, proportion, part, whole, multiplier, original	form, I interce of char	ower, standard inear, gradient, y pt, parallel, solution, rate ge, interpolate, olate, velocity, ation	Congruent, similar, vector, Simple interest, multiplier, compound interest, original amount, density, mass, volume, pressure, force, area, speed, distance, time, translation, reflection, rotation, clockwise, anticlockwise, enlargement, centre, scale factor	Sample space, independent, dependent, probability, conditional, fair, bias, outcome, event, equally likely, predicted, theoretical, experimental, relative frequency, sample space, frequency tree	Quadrant, linear, gradient, y intercept, parallel, coordinate, simultaneous, solution, substitute, Pythagoras, hypotenuse, opposite, adjacent, tangent, sine, cosine, inverse

#### **READING SKILLS**

In mathematics this year, decoding, fluency, vocabulary, prior knowledge, and summarising will support problem-solving, reasoning, and comprehension of mathematical language. This will enable students to interpret, apply, and communicate concepts effectively.

#### **CAREERS LINKS**

Acoustic specialist, actuary, chartered accountant, cryptographer, data scientist, economist, investment analyst, mathematician, medical statistician, meteorologist, operations research analyst, research scientist, risk management officer, software engineer, statistician, teacher or lecturer, technician

#### **SUPPORTING STUDENTS AT HOME**



# MATHEMATICS

PRIOR LEARNING

# YEAR 11 FOUNDATION

Year 11 will build on the knowledge, skills and understanding of mathematical concepts learned during Years 9 and 10.

#### **CURRICULUM INTENT**

The curriculum and assessment of students at this stage of education has been carefully designed to promote deep learning of mathematics and develop students into analytical and logical problem solvers: Year 11 students will strengthen their knowledge and understanding of the Big Ideas and will start to prepare for their GCSE exams. We have chosen Pearson Edexcel as our exam board; a key element of student learning in Year 11 is how to interpret GCSE questions and how to apply their understanding of the Big Ideas to these questions. Big Ideas have been developed to improve the student's ability to retain information and knowledge. We also aim for fluency in the language of mathematics and for students to enhance their literacy skills when explaining their understanding of mathematics.

•			Foundation tier students in Year 11 will become more confident when applying this understanding to a range of challenges including multistep questions. Higher tier students will continue to develop a wider and deeper knowledge of topics, and a greater number of mathematical skills and procedures				
			There are opportunities for links with science, technology, geography and PE. Consistent methods will be used a cross all departments to support students' understanding of mathematics.				
			AMSP will be running support sessions, trips and competitions to widen student understanding of mathematics, particularly with real life scenarios and context. In addition to this, other trips and competitions will be run with a key focus on careers and potential jobs that involve mathematics. Homework support will be available from September. The aims of these are to support students with resources and projects that would normally be unavailable to them.				
	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1 & 2		
	GEOMETRY AND ALGEBRA	GEOMETRY, DATA AND ALGEBRA	GEOMETRY AND ALGEBRA	EXAM PREPARATION AND	EXAM PREPARATION AND		
TOPIC/KNOWLEDGE	All students will know: Simplify expressions Substitution Expand and factorise Represent inequalities Solve inequalities Basic angle facts Bearings Reflecting shapes Vertical and horizontal graphs Rounding Estimation Bounds Rotating shapes Enlarging shapes	All students will know: Plans and elevations Translate shapes Use vector notation Using tree diagrams to calculate probability Plot linear graphs Plot quadratic graphs Factorise and solve quadratics	All students will know: Pythagoras' theorem Trigonometry Solving equations Simultaneous equations Perpendicular bisector Angle bisector	REVISION  Assessment results from each class will inform a bespoke revision and exam preparation plan for students.	REVISION  Assessment results from each class will inform a bespoke revision and exam preparation plan for students.		
SKILLS	Development of problem-solving skills, alongside logical and accurate thinking when producing solutions. Application of mathematical concepts to geometric and real-life contextual problems, ensuring relevance and depth of understanding.	Development of problem-solving skills, alongside logical and accurate thinking when producing solutions. Application of mathematical concepts to geometric and real-life contextual problems, ensuring relevance and depth of understanding.	Development of problem-solving skills, alongside logical and accurate thinking when producing solutions. Application of mathematical concepts to geometric and real-life contextual problems, ensuring relevance and depth of understanding.	Development of problem-solving skills, alongside logical and accurate thinking when producing solutions. Application of mathematical concepts to geometric and real-life contextual problems, ensuring relevance and depth of understanding.  Strengthening understanding of command words used in examinations to enhance examination technique.	Development of problem-solving skills, alongside logical and accurate thinking when producing solutions. Application of mathematical concepts to geometric and real-life contextual problems, ensuring relevance and depth of understanding.  Strengthening understanding of command words used in examinations to enhance examination technique.		
ASSESSMENT	Students will complete a low-stakes GCSE practice paper every week. Gaps identified will be addressed in lessons and via homework set on Sparx Maths.	Students will complete a low-stakes GCSE practice paper every week. Gaps identified will be addressed in lesson and via homework set on Sparx Maths. Students will sit a GCSE assessment at the beginning of the half term. This will be used to support gap closure and intervention as we progress through the year.	Students will complete a low-stakes GCSE practice paper every week. Gaps identified will be addressed in lesson and via homework set on Sparx Maths. Students will sit a mock GCSE at the end of the half term which will consist of 3 GCSE papers. This will be used to support gap closure and intervention moving into the next half term	Students will complete a low-stakes GCSE practice paper every week. Gaps identified will be addressed in lesson and via homework set on Sparx Maths.	Students will complete a low-stakes GCSE practice paper every week. Gaps identified will be addressed in lesson and via homework set on Sparx Maths.  External assessment		
VOCAB	Simplify, expression, substitute, expand, factorise, inequalities, solve, estimation, rotation, enlargement, vertical, horizontal, reflection.	Plan, elevation, face, translate, vector, linear, equation, quadratic, factorise.	Solve, simultaneous, perpendicular, bisect, trigonometry, Pythagoras, Hypotenuse, Adjacent, Opposite, Sine, Cosine, Tangent	Grid method, factorise, expand, place estimate, order of operations, simplif substitute, solve, quadratic, equation interest, depreciation, linear, parallel, Rearrange, solving, equation, balance	ying, balance method, simplify, , Increase, decrease, compound , perpendicular, HCF, LCM, sequence,		

#### **READING SKILLS**

In mathematics this year, decoding, fluency, vocabulary, prior knowledge, and summarising will support problem-solving, reasoning, and comprehension of mathematical language. This will enable students to interpret, apply, and communicate concepts effectively.

#### **CAREERS LINKS**

Acoustic specialist, actuary, chartered accountant, cryptographer, data scientist, economist, investment analyst, mathematician, medical statistician, meteorologist, operations research analyst, research scientist, risk management officer, software engineer, statistician, teacher or lecturer, technician

#### **SUPPORTING STUDENTS AT HOME**

As a department, we have invested in Sparx Maths which is an online learning platform containing over 10000 mathematical videos and quizzes. This can be accessed on any device and is an excellent revision tool. Students can use revision guides and bespoke "Passports" to support their studies. Modelled answers are provided after each assessment, via YouTube videos so that students can review any topics they found challenging.

parallel, bearings, best buy, inverse, simplify.



## **MATHEMATICS**

# YEAR 11 HIGHER

#### **CURRICULUM INTENT**

The curriculum and assessment of students at this stage of education has been carefully designed to promote deep learning of mathematics and develop students into analytical and logical problem solvers: Year 11 students will strengthen their knowledge and understanding of the Big Ideas and will start to prepare for their GCSE exams. We have chosen Pearson Edexcel as our exam board; a key element of student learning in Year 11 is how to interpret GCSE questions and how to apply their understanding of the Big Ideas to these questions. Big Ideas have been developed to improve the student's ability to retain information and knowledge. We also aim for fluency in the language of mathematics and for students to enhance their literacy skills when explaining their understanding of mathematics.

1	PRIOR LEARNING  PERSONAL DEVELOPMENT & CURRICULUM LINKS	Year 11 will build on the knowledge, skills and understanding of mathematical concepts learned during Years 9 and 10. Foundation tier students in Year 11 will become more confident when applying this understanding to a range of challenges including multistep questions. Higher tier students will continue to develop a wider and deeper knowledge of topics, and a greater number of mathematical skills and procedures  There are opportunities for links with science, technology, geography and PE. Consistent methods will be used across all departments to support students' understanding of mathematics.
	EXTRA-CURRICULAR & CULTURAL CAPITAL	AMSP will be running support sessions, trips and competitions to widen student understanding of mathematics, particularly with real life scenarios and context. In addition to this, other trips and competitions will be run with a key focus on careers and potential jobs that involve mathematics. Homework support will be available from September. The aims of these are to support students with resources and projects that would normally be unavailable to them.

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1 & 2			
TOPIC/KNOWLEDGE	ALGEBRA AND DATA  All students will know: Simultaneous equations Iteration Functions Cumulative frequency graphs Box plots	All students will know: Histograms Parts of circles Circle theorems Completing the square	Algebra AND GEOMETRY  All students will know: Solving linear inequalities Graphical inequalities Pythagoras' theorem in 3D Similar shapes	All students will know: Vector geometry Transformations Construction Loci Solving any triangle Trigonometry in 3D	REVISION  Students will undertake a bespoke exam preparation and revision plan based upon each classes assessment results.			
SKILLS	Development of problem-solving skills, alongside logical and accurate thinking when producing solutions. Application of mathematical concepts to geometric and real-life contextual problems, ensuring relevance and depth of understanding.	Development of problem-solving skills, alongside logical and accurate thinking when producing solutions. Application of mathematical concepts to geometric and real-life contextual problems, ensuring relevance and depth of understanding.	Development of problem-solving skills, alongside logical and accurate thinking when producing solutions. Application of mathematical concepts to geometric and real-life contextual problems, ensuring relevance and depth of understanding.	Development of problem-solving skills, alongside logical and accurate thinking when producing solutions. Application of mathematical concepts to geometric and real-life contextual problems, ensuring relevance and depth of understanding.	Development of problem-solving skills, alongside logical and accurate thinking when producing solutions. Application of mathematical concepts to geometric and real-life contextual problems, ensuring relevance and depth of understanding.  Strengthening understanding of command words used in examinations to enhance examination technique.			
ASSESSIMENT	Students will complete a low-stakes GCSE practice paper every week. Gaps identified will be addressed in lessons and via homework set on Sparx Maths.	Students will complete a low-stakes GCSE practice paper every week. Gaps identified will be addressed in lesson and via homework set on Sparx Maths. Students will sit a GCSE assessment at the beginning of the half term. This will be used to support gap closure and intervention as we progress through the year.	Students will complete a low-stakes GCSE practice paper every week. Gaps identified will be addressed in lesson and via homework set on Sparx Maths. Students will sit a mock GCSE at the end of the half term which will consist of 3 GCSE papers. This will be used to support gap closure and intervention moving into the next half term	Students will complete a low-stakes GCSE practice paper every week. Gaps identified will be addressed in lesson and via homework set on Sparx Maths.	Students will complete a low-stakes GCSE practice paper every week. Gaps identified will be addressed in lesson and via homework set on Sparx Maths.  External assessment			
VOCAB	Solve, equations, simultaneous, cumulative, iteration, recurrence relation, function, inverse, composite, median, interquartile range, lower quartile, upper quartile, outlier, substitute.	Histogram, frequency density, radius, circumference, diameter, segment, arc, sector, chord, tangent, cyclic quadrilateral, alternate segment, root, y intercept, turning point, minimum, maximum	Solve, inequalities, shading Region, Pythagoras, hypotenuse similar, scale factor, ratio, proportion, corresponding sides, reduction	Reflection, enlargement, translation, rotation, describe, vector, perpendicular, bisect, loci, trigonometry, hypotenuse adjacent, opposite, angle of elevation / depression,	Grid method, factorise, expand, place value table, factor, multiple, integer, estimate, order of operations, simplifying, balance method, simplify, substitute, solve, quadratic, equation, Increase, decrease, compound interest, depreciation, linear, parallel, perpendicular, HCF, LCM.			

#### **READING SKILLS**

In mathematics this year, decoding, fluency, vocabulary, prior knowledge, and summarising will support problem-solving, reasoning, and comprehension of mathematical language. This will enable students to interpret, apply, and communicate concepts effectively.

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#### **SUPPORTING STUDENTS AT HOME**