STANTONBURY
SCHOOL

Edexcel (9-1)

Mathematics- KS3 (Year 7)

Scheme of learnin

STANTONBURY SCHOOL

Scheme of learning - Subject Intent

In Year 7 we give students the opportunity to become more fluent and confident in the basic concepts studied at Key Stage 2, while developing their depth of understanding and their reasoning skills. Students apply fundamental concepts to new and challenging contexts such as algebraic manipulation, prime factorisation and probability. Students also start to learn basic calculator skills, practicing these skills in units on averages, area and angles. Four lessons are allocated per week to deliver the curriculum.

TERM 1 Yr 7 Higher	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
AUTUMN 1 HIGHER Weeks 1-3				
3 Weeks (12 hrs)	**1 Analysing and displaying data** 1.1 Two-way tables and bar charts	1. Use two-way tables. 2. Interpret and draw dual bar charts and compound bar charts.	Building on… Calculating and interpreting the mean of a data set in Key Stage 2. Building towards… Interpreting, analysing, and comparing the distributions of data sets through appropriate measure of central tendency and spread throughout Key Stage 3 and Key Stage 4. This unit revisits the concepts of place value, the four operations, powers and roots covered in Years 7 & 8.	**N1 S1 S2 S3 S4 S5 S6**
	1.2 Averages and range	1. Choose the most appropriate average for a set of data. 2. Find the mode, median, mean and range for a set of data. 3. Compare sets of data using averages and the range.		
	1.3 Grouped data	1. Group discrete and continuous data. 2. Draw and interpret grouped frequency diagrams.	Building on… Building on… Interpreting and presenting data using bar charts and time graphs at Key Stage 2.	
	1.4 More graphs	1. Interpret and draw line graphs. 2. Recognise when a graph is misleading.	Building towards… Constructing and interpreting statistical diagrams including scatter graphs, pie charts, box plots.	
	1.5 Pie charts	1. Draw and interpret pie charts.		
	1.6 STEM: Scatter graphs and correlation			

		1. Graph paper and draw scatter graphs. 2. Describe the correlation between two sets of data. 3. Draw a line of best fit and use it to estimate values.		
		Learning Checkpoint 1 **Unit 1 : End of Unit Assessment and Feedback**		

TERM 1 Yr 7H	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
AUTUMN 1 HIGHER Weeks 4-5				
3 Weeks (8 hrs)	**2 Number skills** 2.1 Factors, primes and multiples 2.2 Using negative numbers 2.3 Multiplying and dividing 2.4 Squares and square roots 2.5 More powers and roots	1. Understand the difference between multiples, factors and primes. 2. Find all the factor pairs of any whole number. 3. Find the HCF and LCM of two numbers. 1. Add, subtract, multiply and divide positive and negative numbers. 1. Use mental and written strategies for multiplication. 2. Divide a 3-digit integer by a single or 2-digit integer. 1. Use index notation for squares and square roots. 2. Calculate with squares and square roots.	Building on… Identifying and listing factors, multiples and primes at Key Stage 2. Building towards… Factorising linear and quadratic expressions in Years 8 and 9 as well as working with surds and indices at Key Stage 4. Building on… Arithmetical operations at Key Stage 2. Students will revisit and deepen their understanding of written methods of arithmetic and the order of operations. . Building towards… Solving more complex problems in Key Stage 3 and Key Stage 4.	**N1 N2 N3 N4 N6 N7 N14 N15**

	2.6 Calculations	1. Carry out calculations involving squares, cubes, square roots and cube roots. 2. Use factorising to work out square roots and cube roots. 3. Solve word problems using square roots and cube roots. 1. Estimate answers to complex calculations. 2. Carry out calculations involving brackets.		
	HALF TERM TEST	**Learning Checkpoint 2 Unit 2: End of Unit Assessment and Feedback**		

TERM 1 Yr 7H	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
AUTUMN 2 HIGHER Week 7-9				
3 Weeks (12 hrs)	**3 Equations, functions and formulae** 3.1 Simplifying algebraic expressions 3.2 Writing algebraic expressions	1. Simplify expressions by collecting like terms. 1. Construct expressions using four operations.	Building on… The laws of arithmetic introduced at Key Stage 1 and 2. Solving missing number problems at Key Stage 2 as well as the Year 7 unit taught in Autumn 1 on algebraic notation and manipulation. Function machines with both numerical and algebraic expressions: the concepts of inputs, operations and outputs.	**A1 A2 A3 A4 A5 A6 A7**

	3.3 STEM: Using formulae 3.4 Writing formulae 3.5 Brackets and powers 3.6 Factorising expressions	1. Substitute into formulae. 1. Derive formulae from a description. 1. Expand expressions involving brackets. 2. Substitute into expressions involving powers. 1. Factorise an algebraic expression.	Building towards… Writing algebraically and manipulating expressions are fundamental skills that underpin a large proportion of secondary mathematics. Substitution is a fundamental skill required for many other topics in Key Stage 4 such as area, volume, algebraic proportion, solving quadratics, trigonometry, linear and quadratic graphs, simultaneous equations etc… In addition, being able to work fluently with negative numbers is vital throughout secondary mathematics.	
		Learning Checkpoint 3 Unit 3: End of Unit Assessment and Feedback		

TERM 1 Yr 7H	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
AUTUMN 2 HIGHER Week 10-13				
3 Weeks (12 hrs)	**4 Fractions** 4.1 Working with fractions 4.2 Adding and subtracting fractions 4.3 Fractions, decimals and percentages 4.4 Multiplying and dividing fractions 4.5 Working with mixed numbers	1. Compare and simplify fractions. 2. Write one number as a fraction of another. 3. Work out simple fractions of amounts. 1. Write an improper fraction as a mixed number. 2. Add and subtract fractions. 1. Work with equivalent fractions, decimals and percentages. 2. Use division to write a fraction as a decimal. 1. Work out fractions of amounts. 2. Divide an integer and a fraction by a fraction. 3. Multiply a fraction by a fraction. 1. Add and subtract mixed numbers. 2. Enter time as a mixed number into a calculator.	Building on… Working with fractions, decimals and percentages at Key Stage 2. Building towards …. Students will need to work fluently with fractions, decimals and percentages throughout secondary mathematics. Building on… Fraction work from Key Stage 2 that includes calculating a fraction of an amount, comparing and order fractions and basic operations with fractions. Building towards …. Later in Key Stage 3, fraction arithmetic will be used in units on probability. At Key Stage 4, students will need a good understanding of fraction arithmetic in order to perform complex operations with algebraic fractions.	**N1 N2 N3 N4 N6 N8 N10 N12 N15 R3 R9**

		3. Multiply and divide a mixed number.		
AUTUMN 2	**END OF TERM TEST**	**Learning Checkpoint 4 Unit 4: End of Unit Assessment and Feedback**		

TERM 2 Yr 7H	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SPRING 1	**HIGHER**	**WEEK 15-16**		
2 Weeks (8 hrs)	**5 Angles and shapes** 5.1 Angles and parallel lines 5.2 Triangles 5.3 Quadrilaterals	1. Work out unknown angles when two or more lines meet or cross at a point. 2. Work out unknown angles involving parallel lines 1. Describe the line and rotational symmetry of triangles. 2. Understand how to prove that a result is true 3. Use properties of a triangle to work out unknown angles. 4. Use the properties of isosceles and equilateral triangles to solve problems.	Building on… Understanding angles as a measure of turn at Key Stage 2, as well as using a protractor to measure angles and using angle facts to solve angles problems. We will also draw on equation solving skills learnt earlier in Year 7. Building towards… Angles in parallel lines in Year 8, angles in polygons and bearings in Year 9, and circle theorems in Year 11.	**G3 G4 G6 G11**

TERM 2 Yr 7H	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SPRING	1 HIGHER	WEEK 17-18		
2 Weeks	**6 Decimals** 6.1 Ordering decimals 6.2 Rounding decimals 6.3 Adding and subtracting decimals 6.4 Multiplying decimals 6.5 Dividing decimals 6.6 Fractions, decimals and percentages 6.7 FINANCE: Working with percentages	1. Write decimals in ascending and descending order. 1. Round to decimal places. 1. Add and subtract decimals. 1. Multiply a decimal by an integer. 2. Use place value to multiply decimals. 1. Divide a decimal by a whole number. 2. Divide a number by a decimal. 1. Convert between fractions decimals and percentages. 2. Compare different proportions using percentages.	Building on… Working with fractions, decimals and percentages at Key Stage 2. Building towards… Students will need to work fluently with fractions, decimals and percentages throughout secondary mathematics. Building on… Performing simple operations with decimals at Key Stage 3. Building towards… Working fluently with decimals and powers of ten are fundamental skills needed throughout secondary mathematics. For example, students will need to make mental calculations with powers of ten when they study metric units later in Year 7. Students will also work with powers of ten when they study Standard Index Form in maths and science in Year 9 and at Key Stage 4	**N1 N2 N3 N4 N6 N10 N12 N14 N15 R9**

		1. Calculate percentages with and without a calculator. 2. Calculate percentage increases and decreases. 3. Work backwards to solve a percentage problem.		
SPRING 1	**HALF TERM TEST**	**Learning Checkpoint 6 Unit 6: End of Unit Assessment and Feedback**		

TERM 2 Yr 7H	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SPRING	**2 HIGHER**	**WEEK 20-21**		
2 Weeks (8 hrs)	**7 Equations** 7.1 Solving one-step equations 7.2 Solving two-step equations 7.3 More complex equations 7.4 Trial and improvement	1. Write and solve simple equations. 2. Solve problems using equations. 1. Write and solve two-step equations. 2. Write and solve equations that have brackets. 1. Write and solve equations with letters on both sides. 1. Solve equations that include x^2 and x^3 2. Use trial and improvement to find solutions to 1 decimal place.	Building on… Solving missing number problems at Key Stage 2 as well as the Year 7 unit taught in Autumn 1 on algebraic notation and manipulation. Building Towards This unit covers a fundamental skill that is needed for many other units covered throughout Key Stage 3 and Key Stage 4. Students will need to be able to solve equations of all different types and in various contexts and will specifically use this skills in the upcoming Year 7 units on area and angles.	**A1 A2 A4 A5 A7**
SPRING 2	**END OF TERM TEST**	**Learning Checkpoint 7 Unit 7: End of Unit Assessment and Feedback**		
TERM 3 Yr 7H	**TOPIC**	**CORE LEARNING**	**SEQUENCING**	**SPECIFICATION LINK**
SUMMER	**1 HIGHER**	**WEEK 24-27**		

2 Weeks (12 hrs)	**8 Multiplicative reasoning** 8.1 STEM: Metric and imperial units 8.2 Writing ratios 8.3 Sharing in a given ratio 8.4 Proportion 8.5 Proportional reasoning 8.6 Using the unitary method	1. Convert between metric and imperial units. 2. Use metric units. 1. Write a ratio in its simplest form. 2. Simplify a ratio expressed in fractions or decimals. 1. Share a quantity in 2 or more parts in a given ratio. 1. Understand the relationship between ratio and proportion. 1. Solve simple word problems involving ratio and direct proportion. 2. Solve simple word problems involving ratio and inverse proportion. 1. Solve problems involving ratio and proportion using the unitary method. 2. Write ratios in the form 1: *n* 3. Solve best buy problems.	Building on… An introduction to metric and imperial units at Key Stage 2. Building towards… The next unit in Year 7 involves working with units to calculate area and perimeter. Fluency in working with units is also necessary for future topics such as solving compound measure problems in both maths and science. Building on… Students did a lot of work on proportion at Key Stage 2, both directly and indirectly through other topics. They have already used proportion reasoning to solve many problems. Building towards… This unit builds towards algebraic proportion in Year 9 and Key Stage 4, but also covers a fundamental skill that can be applied to many units throughout Key Stage 3 and 4.	**R4 R5 R6 R7 R8 R10**
		Learning Checkpoint 8		

		Unit 8: End of Unit Assessment and Feedback		

TERM 3 Yr 7H	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SUMMER	**1 HIGHER**	**WEEK 28-31**		
3 Weeks (12 hrs)	**9 Perimeter, area and volume** 9.1 Triangles, parallelograms and trapeziums	1. Calculate the area of triangles. 2. Calculate the area of parallelograms.	Building on… The area of 2D shapes covered at Key Stage 2. This unit also draws on other previously taught skills including substitution, equations and rounding.	**N13 R1 G1 G12 G13 G14 G15 G16 G17**

	9.2 Perimeter and area of compound shapes 9.3 Properties of 3D solids 9.4 Surface area 9.5 Volume 9.6 STEM: Measures of area and volume	3. Calculate the area of trapeziums. 1. Calculate the perimeter of shapes made from rectangles and triangles. 2. Calculate the area of shapes made from rectangles and triangles. 1. Identify nets of different 3D shapes. 2. Know the properties of 3D shapes. 1. Calculate the surface area of a cube. 2. Calculate the surface area of a cuboid. 1. Calculate the volume of a cube. 2. Calculate the volume of a cuboid. 3. Convert between different units of	Building towards… Answering questions that require the application of volume and surface area in various contexts in Key Stage 4 as well as working with area and volume of similar shapes. Building on … An introduction to metric and imperial units at Key Stage 2. Building towards… Working with units when calculating area and volume. Fluency in working with units is also necessary for future topics such as solving compound measure problems in both maths and science.	

		volume: cm^3, ml and litres. 1. Convert between metric measures for area and volume.		
HIGHER Yr 7	**HALF TERM TEST**	**Learning Checkpoint 9 Unit 9: End of Unit Assessment and Feedback**		

TERM 3 Yr 7H	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SUMMER	**2 HIGHER**	**WEEK 33-34**		
2 Weeks (8 hrs)	**10 Sequences and graphs** 10.1 Sequences 10.2 The nth term 10.3 Pattern sequences 10.4 Coordinates and line segments	1. Work out the terms of an arithmetic sequence using the term-to-term rule. 2. Work out a given term in a simple arithmetic sequence. 1. Work out and use expressions for the *n*th term in an arithmetic sequence. 2. Generate sequences and predict how they will continue. 3. Recognise geometric sequences and work out the term-to-term rule.	Building on … Patterns and sequences introduced at Key Stage 2, plus algebraic expressions and substitution taught in Year 7. Students will also work with sequences involving fractions decimals and negative numbers. Building towards … Quadratic sequences at Key Stage 4. Building on… Plotting coordinates and substitution into expressions. Building towards…	**A6 A14 G6 G25**

	10.5 Graphs	1. Use positive and negative coordinates. 2. Work out the midpoint of a line segment. 1. Draw straight-line graphs. 2. Recognise straight-line graphs parallel to the axes. 3. Recognise graphs of $y = x$ and $y = -x$	Solving simultaneous equations at Key Stage 4, and further work on linear and non-linear graphs at Key Stage 4.	
HIGHER Yr 7	**END OF YEAR HIGHER YEAR 7**	**Learning Checkpoint 10 Unit 10: End of Unit and Year Assessment and Feedback**		

FOUNDATION Yr 7

TERM 1 Yr 7F	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK

AUTUMN 1 FOUNDATION Week 1-3				
3 Weeks (12 hrs)	**1 Analysing and displaying data** 1.1 Tables and pictograms 1.2 Bar charts 1.3 Grouped data 1.4 Mode and modal class 1.5 Range and median 1.6 Mean	1. Find information from tables and pictograms. 1. Find information from bar and bar-line charts. 2. Display data using bar and bar-line charts. 1. Organise data using a tally chart. 2. Understand and use frequency tables. 3. Understand and draw a grouped bar chart. 1. Find the mode of a set of data. 2. Find the modal class of a set of data. 1. Find the range and median of a set of data.	Building on… Calculating and interpreting the mean of a data set in Key Stage 2. Building towards… Interpreting, analysing and comparing the distributions of data sets through appropriate measure of central tendency and spread throughout Key Stage 3 and Key Stage 4.This unit revisits the concepts of place value, the four operations, powers and roots covered in Years 7 & 8. Building on… Building on… Interpreting and presenting data using bar charts and time graphs at Key Stage 2. Building towards… Constructing and interpreting statistical diagrams including scatter graphs, pie charts, box plots.	**S2 S4**

		2. Compare sets of data using their range, mode and median 1. Calculate the mean of a set of data.		
		Learning Checkpoint 1 **Unit 1 : End of Unit Assessment and Feedback**		

TERM 1 Yr 9F	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
AUTUMN 1 FOUNDATION Week 4-6				
3 Weeks (12 hrs)	**2 Calculating** 2.1 Adding 2.2 Subtracting 2.3 Multiplying 2.4 Dividing	1. Add numbers together in different ways. 2. Round to the nearest 10. 3. Approximate before adding. 1. Subtract numbers in different ways. 2. Approximate before subtracting. 1. Multiply numbers. 2. Recognise multiples. 3. Recognise square numbers. 4. Find roots of square numbers on a calculator. 1. Divide one number by another.	Building on… Arithmetical operations at Key Stage 2. Students will revisit and deepen their understanding of written methods of arithmetic and the order of operations. Building towards… Solving more complex problems in Key Stage 3 and Key Stage 4. Building on… Identifying and listing factors, multiples and primes at Key Stage 2. Building towards… Factorising linear and quadratic expressions in Years 8 and 9 as well as working with surds and indices at Key Stage 4.	**N1 N2 N3 N6 N14 N15**

	2.5 Multiplying and dividing by 10, 100 and 1000 2.6 Using the four operations 2.7 Positive and negative numbers	2. Use times tables to help you divide. 1. Multiply and divide by 10, 100 and 1000. 1. Use addition, subtraction, multiplication and division. 2. Solve simple ratio and proportion problems. 1. Use simple negative numbers. 2. Continue a sequence.		
AUTUMN 1	**HALF-TERM TEST**	**Learning Checkpoint 2** **Unit 2: End of Unit and HT Assessment and Feedback**		

TERM 1 Yr 7F	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
AUTUMN 2 FOUNDATION Week 8-10				
3 Weeks (12 hrs)	**3 Expressions, functions and formulae** 3.1 Using functions 3.2 Function machines 3.3 Simplify expressions 3.4 Writing expressions 3.5 STEM: Using formulae 3.6 Writing formulae	1. Find outputs of simple functions. 1. Describe simple functions using words or symbols. 1. Simplify expressions. 1. Write expressions given a description in words. 1. Substitute positive integers into simple formulae written in words.	Building on… The laws of arithmetic introduced at Key Stage 1 and 2. Building towards… Writing algebraically and manipulating expressions are fundamental skills that underpin a large proportion of secondary mathematics. Building on …. Function machines with both numerical and algebraic expressions: the concepts of inputs, operations and outputs. Building towards… substitution is a fundamental skill required for many other topics in Key Stage 4 such as area, volume, algebraic proportion, solving quadratics, trigonometry, linear and quadratic graphs, simultaneous equations etc… In addition, being able to work fluently with negative numbers is vital throughout secondary mathematics.	**A1 A2 A3 A4 A5 A6 A7**

		2. Substitute integers into simple formulae written in letter symbols. 1. Write simple formulae using words and letter symbols.		
		Learning Checkpoint 3 **Unit 3: End of Unit Assessment and Feedback**		

TERM 1 Yr 7F	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
AUTUMN 2 FOUNDATION Week 11-13				
3 Weeks (12 hours)	**4 Graphs** 4.1 Real-life graphs 4.2 Coordinates 4.3 Graphs of functions 4.4 STEM: Scientific graphs	1. Read information from real-life graphs. 2. Draw graphs to show change over time. 1. Write the coordinates of points on a grid. 2. Plot points from their coordinates. 1. Plot graphs of simple functions. 2. Read values from graphs. 1. Draw line graphs to show relationships between quantities. 2. Read values from science graphs.	Building on… Interpreting and presenting data using bar charts and time graphs at Key Stage 2 Building towards… Constructing and interpreting statistical diagrams including scatter graphs, pie charts. Building on …. Working with coordinates and graphs at Key Stage 2, and knowledge of quadrilateral properties from earlier in Year 7 Building towards… Plotting graphs through Key Stage 3 and 4 in both maths and science	**N1 N2 N3 N8 N10 N11 N12 R9**
	END OF AUTUMN TERM TEST	**Learning Checkpoint 4** **Unit 4: End of Unit and EOT Assessment and Feedback**		

TERM 1 Yr 7F	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SPRING 1	**FOUNDATION Week**			
3 Weeks (12 hrs)	**5 Factors and multiples** 5.1 Number rules and relationships 5.2 Multiples 5.3 Multiplication 5.4 Division	1. Understand the priority of operations. 2. Understand the rules of multiplication. 3. Use the operation keys on a calculator. 1. Recognise multiples of 2, 5, 10 and 25. 2. Work out multiples. 1. Multiply 3-digit numbers by a single digit. 2. Round numbers to the nearest 100 and 1000. 1. Divide 3-digit numbers by a single digit. 2. Decide whether you can divide a number by 2, 5, 9 or 10.	Building on… Work on factors and multiples down at primary school, plus prime factorisation and divisibility laws taught in Year 7. Building towards… Algebraic HCF and LCM, plus more complex problem solving at Key Stage 4. Building on… Identifying and listing factors, multiples and primes at Key Stage 2. Building towards… Factorising linear and quadratic expressions in Years 8 and 9 as well as working with surds and indices at Key Stage 4.	**N2 N3 N4**

	5.5 Solving problems 5.6 Factors and primes 5.7 Common factors and multiples	3. Begin to identify factors of numbers. 1. Solve problems involving multiplication and division. 2. Use a calculator to solve multiplication and division problems. 1. Find factors of numbers. 2. Identify prime numbers. 1. Recognise and use multiples, factors and primes. 2. Find common factors and common multiples. 3. Work out the HCF and LCM of two numbers. 4. Work out if a number is divisible by 3, 4 or 6.		
		Learning Checkpoint 5 **Unit 5: End of Unit Assessment and Feedback**		

TERM 2 Yr 7 F	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SPRING 1	**FOUNDATION Week**			
3 Weeks (12 hrs)	**6 Decimals and measures** 6.1 Estimates and measures 6.2 Decimal numbers 6.3 Metric units 6.4 Adding and subtracting decimals	1. Estimate, and choose suitable units, to measure length, mass and capacity. 2. Draw lines to the nearest mm and measure lines to the nearest cm. 3. Read a variety of scales. 4. Record estimates to a suitable degree of accuracy. 1. Read and write numbers in figures and words. 2. Understand, compare, order and use decimals for tenths and hundredths, including in measures. 3. Read and interpret scales using decimals. 1. Order metric measurements. 2. Convert between different units of measure. 3. Read and interpret scales. 4. Record measurements.	Building on… Performing simple operations with decimals at Key Stage 3. Building towards… Working fluently with decimals and powers of ten are fundamental skills needed throughout secondary mathematics. For example, students will need to make mental calculations with powers of ten when they study metric units later in Year 7. Students will also work with powers of ten when they study Standard Index Form in maths and science in Year 9 and at Key Stage 4 Building on… An introduction to metric and imperial units at Key Stage 2. Building towards… The next unit in Year 7 involves working with units to calculate area and perimeter. Fluency in working with units is also necessary for future topics such as solving compound measure problems in both maths and science. Building on…	**N1 N2 N13 N15 G14**

	6.5 Rounding 6.6 Multiplying and dividing decimals 6.7 FINANCE: Calculating with money	1. Recognise and extend number sequences by counting in decimals. 2. Add and subtract decimal numbers. 3. Extend mental methods of calculation, to include decimals. 1. Round decimals to nearest whole number and nearest tenth. 2. Use a calculator and interpret the display in different contexts (decimals). 1. Consolidate and extend mental calculation methods, including decimals. 2. Multiply and divide decimal numbers. 1. Use a calculator to solve word problems involving money. 2. Round amounts on a calculator to 2 decimal places.	Performing simple operations with decimals at Key Stage 3. Building towards… Working fluently with decimals and powers of ten are fundamental skills needed throughout secondary mathematics. For example, students will need to make mental calculations with powers of ten when they study metric units later in Year 7. Students will also work with powers of ten when they study Standard Index Form in maths and science in Year 9 and at Key Stage 4.	
	HALF-TERM TEST	**Learning Checkpoint 6** **Unit 6: End of Unit and HT Assessment and Feedback**		

TERM 2 Yr 7F	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SPRING 2	FOUNDATION Week			
3 Weeks (8 hrs)	**7 Angles and lines** 7.1 Right angles and lines 7.2 Measuring angles 1 7.3 Measuring angles 2 7.4 Drawing and estimating angles 7.5 Putting angles together	1. Know a right angle is 90 degrees. 2. Recognise quarter, half and three-quarter turns. 3. Recognise parallel and perpendicular lines. 4. Use compass points. 1. Recognise acute and obtuse angles. 2. Measure acute angles. 3. Label lines and angles. 1. Recognise acute, obtuse and reflex angles. 2. Measure obtuse angles. 1. Estimate the size of angles. 2. Draw acute angles. 1. Find missing angles on a straight line. 2. Find missing angles round a point.	Building on… Understanding angles as a measure of turn at Key Stage 2, as well as using a protractor to measure angles and using angle facts to solve angles problems. We will also draw on equation solving skills learnt earlier in Year 7. Building towards… Angles in parallel lines in Year 8, angles in polygons and bearings in Year 9, and circle theorems in Year 11.	**G1 G3**

	END OF SPRING TERM TEST	**Learning Checkpoint 7** **Unit 7: End of Unit Assessment and Feedback**		

TERM 3 Yr 7 F	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SUMMER 1	**FOUNDATION** **Week**			
3 Weeks (12 hrs)	**8 Measuring and shapes** 8.1 Shapes 8.2 Symmetry in shapes 8.3 More symmetry 8.4 Regular polygons 8.5 Perimeter	1. Identify triangles, squares and rectangles. 2. Recognise the properties of triangles, squares and rectangles. 1. Describe the line symmetry of triangles, quadrilaterals and other shapes. 1. Solve problems using line symmetry. 2. Describe rotational symmetry. 1. Identify polygons. 2. Understand the line and rotational symmetry of rotational polygons. 1. Find the perimeter of squares, rectangles and regular polygons. 2. Calculate the perimeter of shapes made from rectangles.	Building on… . Building towards… Building on… Building towards…	**G4 G14 G16 G17**

	8.6 Area	3. Solve problems involving the perimeter of squares and rectangles. 1. Use metric units to measure area. 2. Calculate the area of squares and rectangles.		
		Learning Checkpoint 8 **Unit 8: End of Unit Assessment and Feedback**		

TERM 3 Yr 7 F	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SUMMER 1	**FOUNDATION**			
3 Weeks (8 hrs)	**9 Fractions, decimals and percentages** 9.1 Comparing fractions 9.2 Equivalent fractions 9.3 Calculating with fractions 9.4 Adding and subtracting fractions 9.5 Introducing percentages 9.6 FINANCE: Finding percentages	1. Order fractions. 2. Use fractions to describe parts of shapes. 1. Identify equivalent fractions. 2. Simplify fractions by cancelling. 3. Change an improper fraction to a mixed number. 1. Calculate simple fractions of quantities. 1. Add and subtract simple fractions. 1. Understand percentage as 'the number of parts per 100'. 2. Write a percentage as a fraction or decimal. 1. Calculate percentages.	Building on… Working with fractions, decimals and percentages at Key Stage 2. Building towards …. Students will need to work fluently with fractions, decimals and percentages throughout secondary mathematics. Building on… Fraction work from Key Stage 2 that includes calculating a fraction of an amount, comparing and order fractions and basic operations with fractions. Building towards …. Later in Key Stage 3, fraction arithmetic will be used in units on probability. At Key Stage 4, students will need a good understanding of fraction arithmetic in order to perform complex operations with algebraic fractions.	**N1 N2 N8 N11 N12 R3 R9**

SUMMER	**HALF-TERM TEST**	**Learning Checkpoint 9** **Unit 9: End of Unit HT Assessment and Feedback**		

TERM 3 Yr 7 F	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SUMMER 2	**FOUNDATION Week**			
2 Weeks (hrs)	**10 Transformations** 10.1 Reflection 10.2 Translation 10.3 Rotation 10.4 STEM: Congruency	1. Reflect a shape in a mirror line. 1. Translate a shape. 1. Draw and describe rotations. 1. Identify congruent shapes.	Building on… Basic angle rules covered in Year 7 and angle in parallel lines from Year 8. Pupils will use their reasoning skills and apply their previously learnt angles rules to solve more complex angle problems. Building towards… Multi-step angle questions and circle theorems at Key Stage 4. Students will start to construct chains of reasoning, leading to geometric proof at Key Stage 4 and beyond. Building on …. Translation, reflection and symmetry at Key Stage 3, as well as equations of horizontal and vertical lines taught earlier in Year 9. Building towards… More complex transformations and invariance at Key Stage 4 Building on ….	**G3 G4 G5 G7**

			Similar shapes and length scale factors from Key Stage 2 as well proportional reasoning covered in Year 8. Building towards… Problems involving similar area and volume at Key Stage 4, and loci problems at Key Stage 4. The skill of building a chain of reasoning will also develop understanding of geometrical proofs in Key Stage 4 and beyond.	
	END OF TERM TEST **END OF YEAR TEST**	**Learning Checkpoint 10** **Unit 10: End of Unit Assessment and Feedback**		

TERM 1 **Yr 7M**	**TOPIC**	**CORE LEARNING**	**SEQUENCING**	**SPECIFICATION LINK**
Autumn 1	**MIDDLE Weeks 1-3**			
3 Weeks (12 hrs)	**1 Analysing and displaying data** 1.1 Mode, median and range	1. Find the mode of a set of data, numerical and non-numerical. 2. Find the median of a set of data (odd and even number of values). 3. Find the range of a set of data.	Building on… Calculating and interpreting the mean of a data set in Key Stage 2. Building towards… Interpreting, analysing and comparing the distributions of data sets through appropriate measure of central tendency	**S2 S4**

	1.2 Displaying data 1.3 Grouping data 1.4 Averages and comparing data 1.5 Line graphs and more bar charts 1.6 Spreadsheets	1. Read and draw pictograms, bar charts and bar-line charts. 2. Read and construct tally charts and frequency tables. 3. Find the mode and range from a chart or table. 1. Read and construct grouped tally charts and frequency tables. 2. Read and construct grouped bar charts for discrete and continuous data. 3. Find the modal class from a bar chart or frequency table. 1. Calculate the mode, median, mean and range of a set of values. 2. Compare two sets of data using an average and the range. 1. Read and draw a line graph. 2. Read and draw a dual bar chart. 3. Read and draw a compound bar chart. 1. Enter data into a spreadsheet program.	and spread throughout Key Stage 3 and Key Stage 4.This unit revisits the concepts of place value, the four operations, powers and roots covered in Years 7 & 8. Building on… Building on… Interpreting and presenting data using bar charts and time graphs at Key Stage 2. Building towards… Constructing and interpreting statistical diagrams including scatter graphs, pie charts, box plots.	

		2. Use a spreadsheet to calculate the mode, median, mean and range. 3. Use a spreadsheet to draw bar charts, dual bar charts, compound bar charts, grouped bar charts and line graphs.		
		Learning Checkpoint 1 **Unit 1 : End of Unit Assessment and Feedback**		

TERM 1 Yr 7M	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
Autumn 1	**MIDDLE Weeks 4-6**			
3 Weeks (12 hrs)	**2 Number skills** 2.1 Mental maths 2.2 Addition and subtraction	1. Know and use the priority of operations and laws of arithmetic 2. Recall multiplication facts up to 10 × 10 3. Multiply and divide by 10, 100, 1000 1. Round whole numbers to the nearest 10, 100, 1000 2. Check answers using estimation.		**A2 A4 A5**

	2.3 Multiplication 2.4 Division 2.5 Finance: Time and money 2.6 Negative numbers 2.7 Factors, multiples and primes 2.8 Square and triangle numbers	3. Add and subtract whole numbers using written methods. 1. Multiply whole numbers using a written method. 1. Divide whole numbers using a written method. 2. Check answers using inverse operations. 1. Round decimals to the nearest whole number. 2. Interpret a calculator display. 3. Solve problems involving time and money using a calculator. 1. Order positive and negative numbers. 2. Add and subtract positive and negative numbers. 3. Begin to multiply with negative numbers. 1. Identifying and understanding factors, multiples and prime numbers.	Building on… Building towards… Building on… . Building towards… .	

		1. Recognise and use square numbers, square roots and triangle numbers.		
AUTUMN 1	**HALF-TERM TEST**	**Learning Checkpoint 2** **Unit 2: End of Unit Assessment and Feedback**		

TERM 1 Yr 7M	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
Autumn 2	**MIDDLE Weeks 8-10**			
3 Weeks (12 hrs)	**3 Expressions, functions and formulae** 3.1 Functions	1. Find outputs of simple functions written in words and using symbols. 2. Describe simple functions in words.	Building on… The laws of arithmetic introduced at Key Stage 1 and 2. Building towards…	**A1 A2 A3 A4 A7**

	3.2 Simplifying expressions 1 3.3 Simplifying expressions 2 3.4 Writing expressions 3.5 STEM: Substituting into formulae 3.6 Writing formulae	1. Simplify simple algebraic expressions by collecting like terms. 2. Use arithmetic operations with algebra. 1. Use brackets with numbers and letters. 2. Simplify more complicated expressions by collecting like terms. 1. Write expressions from word descriptions using addition, subtraction and multiplication. 2. Write expressions to represent function machines. 1. Substitute positive integers into simple formulae written in words. 2. Substitute integers into formulae written in letter symbols. 1. Identify variables and use letter symbols. 2. Write simple formulae using letter symbols.	Writing algebraically and manipulating expressions are fundamental skills that underpin a large proportion of secondary mathematics. Building on …. Function machines with both numerical and algebraic expressions: the concepts of inputs, operations and outputs. Building towards… substitution is a fundamental skill required for many other topics in Key Stage 4 such as area, volume, algebraic proportion, solving quadratics, trigonometry, linear and quadratic graphs, simultaneous equations etc… In addition, being able to work fluently with negative numbers is vital throughout secondary mathematics.	

		3. Identify formulae and functions. 4. Identify the unknowns in a formula and a function.		
		Learning Checkpoint 3 Unit 3: End of Unit Assessment and Feedback		

TERM 1 Yr 9M	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
Autumn 2	**MIDDLE Weeks 11-13**			
3 Weeks (12 hrs)	**4 Decimals and measures**		Building on…	**N1 N2 N13 N15 A8 R2 G14 G16**

	4.1 Decimals and rounding 4.2 Length, mass and capacity 4.3 Scales and coordinates 4.4 Working with decimals mentally	1. Measure and draw lines to the nearest millimetre. 2. Write decimals in order of size. 3. Round decimals to the nearest whole number and to one decimal place. 4. Round decimals to make estimates and approximations of calculations. 1. Compare measurements by converting them into the same units. 2. Solve simple problems involving units of measurement in the context of length. 3. Convert between metric units of length, mass and capacity. 1. Read scales on a range of measuring equipment. 2. Interpret the display of a calculator in different contexts. 3. Interpret metric measures displayed on a calculator. 4. Plot and read coordinates in all four quadrants. 1. Multiply decimals mentally.	An introduction to metric and imperial units at Key Stage 2. Building towards… The next unit in Year 7 involves working with units to calculate area and perimeter. Fluency in working with units is also necessary for future topics such as solving compound measure problems in both maths and science Building on… Performing simple operations with decimals at Key Stage 3. Building towards… Working fluently with decimals and powers of ten are fundamental skills needed throughout secondary mathematics. For example, students will need to make	

	4.5 Working with decimals 4.6 Perimeter 4.7 Area 4.8 STEM: More units	2. Check a result by considering whether it is of the right order of magnitude. 1. Understand where to position the decimal point by considering equivalent calculations. 2. Add and subtract decimals. 3. Multiply and divide decimals by single-digit whole numbers. 1. Work out the perimeters of shapes. 2. Solve perimeter problems. 1. Find areas by counting squares. 2. Calculate the areas of squares and rectangles. 3. Solve problems involving area. 1. Choose suitable units to estimate length and area. 2. Use units of measurement to solve problems. 3. Use metric and imperial units.	mental calculations with powers of ten when they study metric units later in Year 7. Students will also work with powers of ten when they study Standard Index Form in maths and science in Year 9 and at Key Stage 4. Building on… Working out the area and perimeter of rectilinear shapes at Key Stage 2, as well as previous Year 7 topics: units, expressions and equations. Building towards… This unit will build specifically towards units on area and volume in Year 8. It will also build towards multi-step Key Stage 4 contextual problems.	
	END OF AUTUMN 2 TERM TEST	**Learning Checkpoint 4**		

		Unit 4: End of Unit and EOT Assessment and Feedback		

TERM 2 Yr 7M	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SPRING 1	**MIDDLE** Weeks 15-17			
3 Weeks (12 hrs)	**5 Fractions** 5.1 Comparing fractions 5.2 Simplifying fractions 5.3 Working with fractions 5.4 Fractions and decimals	1. Use fraction notation to describe parts of a shape. 2. Compare simple fractions. 3. Use a diagram to compare two or more simple fractions. 1. Change an improper fraction to a mixed number. 2. Identify equivalent fractions. 3. Simplify fractions by cancelling common factors. 1. Add and subtract simple fractions. 2. Calculate simple fractions of quantities. 1. Work with equivalent fractions and decimals.	Building on… Working with fractions, decimals and percentages at Key Stage 2. Building towards …. Students will need to work fluently with fractions, decimals and percentages throughout secondary mathematics. Building on… Fraction work from Key Stage 2 that includes calculating a fraction of an amount, comparing and order fractions and basic operations with fractions. Building towards …. Later in Key Stage 3, fraction arithmetic will be used in units on probability. At Key Stage 4, students will need a good	**N8 N10 N11 N12 R3**

	5.5 Understanding percentages 5.6 Percentages of amounts	2. Write one number as a fraction of another. 1. Understand percentage as 'the number of parts per 100'. 2. Convert a percentage to a number of hundredths or tenths. 3. Work with equivalent percentages, fractions and decimals. 1. Use different strategies to calculate with percentages. 2. Express one number as a percentage of another.	understanding of fraction arithmetic in order to perform complex operations with algebraic fractions	
		Learning Checkpoint 5 **Unit 5: End of Unit Assessment and Feedback**		

TERM 2 Yr 7M	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SPRING 1	**MIDDLE Weeks 18-20**			
2 Weeks (hrs)	**6 Probability** 6.1 The language of probability 6.2 Calculating probability 6.3 More probability calculations 6.4 Experimental probability	1. Use the language of probability. 2. Use a probability scale with words. 3. Understand the probability scale from 0 to 1. 1. List and count outcomes. 2. Calculate probability based on equally likely outcomes. 3. Compare probabilities. 1. Calculate probability of A or B happening by counting outcomes. 2. Calculate the probability of an event not happening. 1. Record data from a simple experiment.	Building on… Working with fraction, decimal and percentage equivalents from earlier in Year 7. Building towards… Calculating the probability of dependent events using tree diagrams in Year 8 as well as working with set notation and Venn Diagrams in Year 9.	**A3 A6 A17 A18 A19 A20 A21 A22**

	6.5 FINANCE: Expected outcomes	2. Estimate probability based on experimental data. 3. Make conclusions based on the results of an experiment. 1. Use probability to estimate the number of expected wins in a game. 2. Apply probabilities from experimental data in simple situations.		
Spring 1	**HALF-TERM TEST**	**Learning Checkpoint 6** **Unit 6: End of Unit Assessment and Feedback**		

TERM 2 Yr 7M	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SPRING 2	**MIDDLE Weeks 18-20**			
3 Weeks (12 hrs)	**7 Ratio and proportion** 7.1 Direct proportion 7.2 Writing ratios 7.3 Using ratios 7.4 Scales and measures 7.5 Proportions and fractions	1. Use direct proportion in simple contexts. 2. Solve simple problems involving direct proportion. 3. Use the unitary method to solve simple word problems involving direct proportion. 1. Use ratio notation. 2. Reduce a ratio to its simplest form. 3. Reduce a three-part ratio to its simplest form by cancelling. 1. Divide a quantity into two parts in a ratio given in words. 2. Divide a quantity into two parts in a given ratio. 3. Solve word problems involving ratio. 1. Use ratios and measures.	Building on… Solving problems that involve unequal sharing and grouping using knowledge of fractions and multiples at Key Stage 2. Building towards… Application of ratios to geometrical, statistical and numerical problems at Key Stage 4.	**R3 R4 R5**

	7.6 Proportions and percentages	1. Use fractions to describe and compare proportions. 2. Understand and use the relationship between ratio and proportion. 3. Use percentages to describe proportions. 1. Use percentages to compare simple proportions. 2. Understand and use the relationship between ratio and proportion.		
SPRING	**END OF TERM TEST**	**Learning Checkpoint 7** **Unit 7: End of Unit Assessment and Feedback**		

TERM 3 Yr 7M	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SUMMER 1	**MIDDLE Weeks 18-20**			
3 Weeks (12 hrs)	**8 Lines and angles** 8.1 Lines, angles and triangles 8.2 Estimating, measuring and drawing angles 8.3 Drawing triangles accurately 8.4 STEM: Calculating angles 8.5 Angles in a triangle	1. Describe and label lines, angles and triangles. 2. Identify angle, side and symmetry properties of triangles. 1. Use a protractor to measure and draw angles. 2. Estimate the size of angles. 3. Solve problems involving angles. 1. Use a ruler and protractor to draw triangles accurately. 2. Solve problems involving angles and triangles. 1. Use the rule for angles on a straight line, angles around a point and vertically opposite angles. 2. Solve problems involving angles. 1. Use the rule for the sum of angles in a triangle. 2. Calculate interior and exterior angles.	Building on… Understanding angles as a measure of turn at Key Stage 2, as well as using a protractor to measure angles and using angle facts to solve angles problems. We will also draw on equation solving skills learnt earlier in Year 7. Building towards… Angles in parallel lines in Year 8, angles in polygons and bearings in Year 9, and circle theorems in Year 11. . Building on… Working with fractions, decimals and percentages at Key Stage 2.	**G1 G3 G4**

	8.6 Quadrilaterals	3. Solve angle problems involving triangles. 1. Identify and name types of quadrilaterals. 2. Use the rule for the sum of angles in a quadrilateral. 3. Solve angle problems involving quadrilaterals.	Building towards… Students will need to work fluently with fractions, decimals and percentages throughout secondary mathematics.	
		Learning Checkpoint 8 **Unit 8: End of Unit Assessment and Feedback**		

TERM 3 Yr 7M	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SUMMER 1	**MIDDLE Weeks 18-20**			
3 Weeks (12 hrs)	**9 Sequences and graphs** 9.1 Sequences 9.2 Pattern sequences 9.3 Coordinates 9.4 Extending sequences	1. Revisit sequences including term-to-term rules. 2. Develop the use of mathematical language to describe sequences. 3. Demonstrate how sequences can be used as a mathematical model to describe patterns. 1. Generate sequences from practical sequences, describing how patterns grow. 2. Continue sequences arising from practical contexts and use them to answer questions. 1. Read, generate and plot coordinates. 2. Recognise geometric shapes drawn on coordinate grids and find coordinates of points using geometric information. 3. Find and calculate the midpoints of a line segment. 1. Continue and describe special sequences.	Building on… Patterns and sequences introduced at Key Stage 2, plus algebraic expressions and substitution taught in Year 7. Students will also work with sequences involving fractions decimals and negative numbers. Building towards… Quadratic sequences at Key Stage 4.	**P1 P2 P3 P4 P5 P6 P7 P8 P9**

	9.5 Straight-line graphs 9.6 Position-to-term rules	2. Generate sequences using more complex (two-step) term-to-term rules. 3. Continue sequences arising from practical contexts. 4. Begin to identify and use position-to-term rules. 5. Recognise an arithmetic sequence and find the starting number and common difference. 1. Recognise, name and plot straight line graphs parallel to the x- or y-axis. 2. Generate coordinates that satisfy a simple linear rule and plot the graph in the first quadrant. 3. Read values from a graph. 4. Recognise, name and plot the graphs of y = x and y = –x. 1. Identify and use position-to-term rules. 2. Write the nth term of a sequence using algebra. 3. Recognise the relationships between term-to-term rules, position-to-term rules and nth terms.	Building on… Plotting coordinates and substitution into expressions. Building towards… Solving simultaneous equations at Key Stage 4, and further work on linear and non-linear graphs at Key Stage 4.	
	HALF-TERM TEST	**Learning Checkpoint Unit 9 End of Unit Assessment and Feedback**		

TERM 3 Yr 7M	TOPIC	CORE LEARNING	SEQUENCING	SPECIFICATION LINK
SUMMER 2	**MIDDLE Weeks 18-20**			
3 Weeks (12 hrs)	**10 Transformations** 10.1 Congruency and enlargements 10.2 Symmetry 10.3 Reflection 10.4 Rotation 10.5 Translations and combined transformations	1. Identify congruent shapes. 2. Use the language of enlargement. 3. Enlarge shapes using given scale factors. 4. Work out the scale factor given an object and its image. 1. Recognise line and rotational symmetry in 2D shapes. 2. Identify all the symmetries of 2D shapes. 3. Identify reflection symmetry in 3D shapes. 1. Recognise and carry out reflections in a mirror line. 2. Reflect a shape on a coordinate grid. 3. Describe a reflection on a coordinate grid. 1. Describe and carry out rotations on a coordinate grid.	Building on… Translation, reflection, and symmetry at Key Stage 3, as well as equations of horizontal and vertical lines taught. Building towards… More complex transformations and invariance at Key Stage 4.	**G5 G7 G8 G19**

		1. Translate 2D shapes. 2. Combine transformations.		
	END OF TERM TEST **END OF YEAR TEST**	**Learning Checkpoint 10** **Unit 10: End of Unit Assessment and Feedback**		