Department long term plans



Autumn A Topic	YEAR 7 Number Algebra Number sense Four operations Negative numbers Order of operations Expressions	YEAR 8 Percentage Money Indices Equations Percentage of amounts Percentage change Calculating with money	Mathematics YEAR 9 Fractions and decimals Probability Standard form Inequalities Quadratic equations Fraction decimal and percentage	YEAR 10 Percentage change Volume and Surface area Simultaneous equations Formulae	YEAR 11 The Year 11 SoW is split into a Higher and Foundation pathway. Foundation
Autumn A Topic	Number Algebra Number sense Four operations Negative numbers Order of operations	Percentage Money Indices Equations Percentage of amounts Percentage change	Fractions and decimals Probability Standard form Inequalities Quadratic equations	Percentage change Volume and Surface area Simultaneous equations	The Year 11 SoW is split into a Higher and Foundation pathway. Foundation
Topic	Algebra Number sense Four operations Negative numbers Order of operations	Money Indices Equations Percentage of amounts Percentage change	Probability Standard form Inequalities Quadratic equations	Volume and Surface area Simultaneous equations	Higher and Foundation pathway. Foundation
	Number sense Four operations Negative numbers Order of operations	Indices Equations Percentage of amounts Percentage change	Standard form Inequalities Quadratic equations	Simultaneous equations	<u>Foundation</u>
		Index laws Solving equations	review. Percentage change. Theoretical and experimental probability. Calculations with standard form. Factorising and solving quadratic.	Compound interest Growth and decay Surface area Volume Simultaneous equations Re-arranging the subject of a formula	Indices Brackets Handling data and statistical diagrams. Primes, factors and multiples. Fractions Expressions Equations Index laws and simplifying expressions Expand and factorise. Grouped data including averages. Draw and interpret graphs and charts Prime factor decomposition. HCF and LCM Ordering fractions and the four operations with fractions. Simplifying expressions. Laws of indices. Solving equations.
					Solving simultaneous equations.
					Higher Indices Recurring decimals.



					Brackets Surds Algebraic fractions Equations Recurring decimals Expand and factorise brackets Using surds Simplify algebraic fractions. Four operations with algebraic fractions. Quadratic equations Quadratic simultaneous equations Indices with fractional and negative powers.
Autumn A Knowledge	Using number lines. Integer and decimal place value. Ordering negative numbers. Rounding integers and decimals. Adding and subtracting integers and decimals. Multiplying and dividing by powers of 10. Multiplying and dividing integers and decimals. Using the four operations on negative numbers. Use the order of operations Use algebraic notation and terminology. Simplifying expressions.	Finding percentages of an amount with and without a calculator. Calculating a percentage change with and without a calculator. Value for money. Index rules with positive and negative indices. Simplifying expressions with indices. Simplifying algebraic fractions by cancelling common factors. Solving equations with two or more steps. Solving equations with unknown on both sides. Constructing and solving equations. Solving equations with the unknown in the denominator.	Convert between fractions, percentages and decimals and order them. Finding fractions and percentages of an amount with and without a calculator. Simple interest calculations. Calculating percentage change with and without a calculator. Finding original values in percentage calculations. Finding the percentage an amount has been changed by. Calculating expected results from repeated experiments. Calculating experimental probabilities. Frequency trees. Using the four operations with standard form with and without a calculator. Solve inequalities with unknown on both sides. Solve double inequalities Construct and solve inequalities.	Compound interest calculations Growth and decay Finding the surface area of pyramids, cones, spheres, frustums and compound shapes Finding the volume of pyramids, cones, spheres and frustums. Finding the volume of composite shapes Solving simultaneous equations using elimination, substitution and graphically. Constructing and solving simultaneous equations Re-arranging the subject of a formula with 2 or more steps Re-arranging the subject of a formula where the subject appears twice	Foundation Using the laws of indices with positive and negative indices. Simplifying expressions using index laws. Expand double brackets Factorise quadratics of the form x^2 + bx + c. Factorise using the difference of two squares. Solve equations of the form x^2 + bx + c=0. Interpreting frequency tables with grouped data including averages. Draw and interpret line graphs, scatter graphs and Pie charts. Use Prime factor decomposition and use this to calculate the HCF and LCM. Order fractions and mixed numbers. Add, subtract, multiply and divide mixed numbers.



			Factorising quadratics of the form $x^2 + bx + c$ Factorising the difference of two squares. Solve quadratics of the form $x^2 + bx + c = 0$		Simplify expressions using the laws of indices. Simplify algebraic fractions. Solve equations with two or more steps including with brackets and variables on both sides. Form and solve equations Factorise and solve quadratics. Higher Estimating roots and powers. Indices with fractional and negative powers. Converting between fractions and recurring decimals Expand triple brackets Completing the square Factorise quadratics ax^2 + bx + c. Solve quadratics where ax^2 + bx + c=0 The four operations with Surds. Simplifying and expanding brackets with surds. Rationalise the denominator. Simplify algebraic fractions The four operations with algebraic fractions. Solve quadratic equations using factorisation, completing the square and the quadratic formula. Solve simultaneous equations
					with quadratics including graphically.
Autumn A Skills	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.
Autumn A	Half termly Unit assessments.	Half termly Unit assessments.	Half termly Unit assessments.	Half termly Unit assessments.	Half termly Unit assessments.



Assessment opportunity	Assessment for learning during the lesson. Half termly book checks. Fluency check	Assessment for learning during the lesson. Half termly book checks. Fluency check	Assessment for learning during the lesson. Half termly book checks. Fluency check	Assessment for learning during the lesson. Half termly book checks. Fluency check	Assessment for learning during the lesson. Half termly book checks.
Autumn B Topic	Algebra Measure Substitution Equations Time Measures	Ratio Term to term rules Position to term rules Ratio Scale diagrams	Formula Constructions Circles Re-arranging formulae. Constructing bisectors and perpendicular lines Circles and cylinders	Right angled trigonometry Constructions Equations of linear graphs Real life graphs Right angled trigonometry. Constructions and Loci. Plot and interpret real life graphs.	Foundation Simultaneous equations Angles Right angled triangles Solve simultaneous equations Angle facts. Angles on Parallel lines Angles in polygons. Pythagoras' theorem Trigonometry. Higher Pythagoras' theorem and trigonometry. Circle geometry Trigonometric graphs and ratios Non-right-angled trigonometry 3D Pythagoras and trigonometry. Circle theorems.
Autumn B Knowledge	Substitution into a formula. Solving equations with one step and then more than one step. Converting units of time. Using clocks. Calculating with time. Using timetables and calendars. Estimating and measuring length, mass and capacity. Using appropriate Units	Term-to-Term rules for numerical sequences and sequences of patterns. Substituting into position-to-term rules Position-to-term rules for arithmetic sequences and sequences of patterns. Writing and simplifying ratios. Writing ratios in the form 1: n. Converting between ratios, fractions, and percentages Using equivalent ratios to find unknown amounts Sharing amounts in a given ratio.	Change the subject of a formula Constructing bisectors of angles. Construct perpendicular bisectors and lines. Find the arc length of sectors. Finding the area of sectors. Finding the volume and surface area of cylinders.	Rearranging a formulae Trigonometric ratios, find angles and lengths in right-angled triangles. Exact values of common trigonometric ratios. Applying trigonometry to finding angles of depression and elevation. Constructing bisectors of angles. Constructing perpendicular bisectors and lines. Finding the equation of a straight line from its gradient and a point. Finding the equation of a straight. line from two points on a line.	Foundation Solve simultaneous equations using elimination, substitution and graphically. Form and solve simultaneous equations. Combine angle facts Angles on parallel lines Angles in polygons Pythagoras' theorem in 2D shapes Calculating lengths and angles using Trigonometry. Exact values of trigonometric ratios. Calculate bearings.



		Draw and interpret scale diagrams		Equations of parallel and perpendicular lines. Plot and interpret real life graphs Find equations of linear real-life graphs. Sketch water flows.	Calculate bearings with trigonometry. Higher Using the exact values of trigonometric ratios Graphs of trigonometric functions The sine, cosine and area rule. Using Pythagoras' theorem and trigonometry in 3D. Apply and prove the standard circle theorems concerning angles, radii, tangents and chords, and use them to prove related results.
Autumn B	Fluency, Problem Solving,	Fluency, Problem Solving,	Fluency, Problem Solving,	Fluency, Problem Solving,	Fluency, Problem Solving,
Skills	Reasoning.	Reasoning.	Reasoning.	Reasoning.	Reasoning.
Autumn B	Half termly Unit assessments.	Half termly Unit assessments.	Half termly Unit assessments.	Half termly Unit assessments.	Half termly Unit assessments.
Assessment	Assessment for learning during	Assessment for learning during	Assessment for learning during	Assessment for learning during	Assessment for learning during
opportunity	the lesson.	the lesson.	the lesson.	the lesson.	the lesson.
	Half termly book checks.	Half termly book checks.	Half termly book checks.	Half termly book checks.	Half termly book checks.
	Termly assessment	Termly assessment	Termly assessment	Termly assessment	Full exam series which includes
					Paper 1, Paper2 and Paper 3.
Spring A	Line & Shape properties	Rounding	Rounding	Set notation	<u>Foundation</u>
Topic	Perimeter	Co-ordinates	3D shapes	Tree Diagrams	Surface area
	Area	Area	Pythagoras' theorem	Compound measures	Volume
	Co-ordinates and shape	Circles	Ratio and proportion	Ratio	Probability
	Factors multiples and primes	Standard form	Error interval	Venn diagrams and worded set	Inequalities
	Line and shape properties	Significant figures	Representations of 3D shapes	notation.	Calculate the surface area
	Symmetry	Co-ordinates and midpoints	Pythagoras' theorem in 2D	Independent and dependent	Calculate the Volume
	Perimeter	Area and units	shapes	events.	Theoretical and experimental
	Area	Area and circumference	Ratio	Density and pressure.	Probability.
		Converting between Standard form and ordinary numbers.	Proportion word problems	Working with ratios and algebra	Solve inequalities
					<u>Higher</u>
					Statistical diagrams
					Probability



					Inequalities Functions Histograms Conditional probability Linear and quadratic inequalities. Substituting into a function. Finding composite and inverse functions
Spring A Knowledge	Line and shape properties. Symmetry. Finding the perimeter of 2D shapes. Finding areas using grids. Calculate the area of rectangles, triangles and compound shapes. Reading and plotting coordinates. Solving shape problems involving co-ordinates. Finding, factors, multiples and use the tests for divisibility. Calculating the HCF (Highest Common Factor) and LCM (Lowest Common Multiple).	Rounding integers and decimals using significant figures. Estimating calculations. Calculating midpoints. Solving shape properties involving co-ordinates. Find the area of parallelograms and trapeziums. Convert units of area. Identifying parts of a circle Finding the circumference and area of circles. Use standard form with positive and negative indices.	Finding error intervals. Truncating decimals. Finding error intervals for truncated numbers. Plans and elevations Pythagoras' theorem in 2D. Writing and simplifying ratios. Sharing amounts in a given ratio Solving direct and inverse proportion word problems. Currency conversion.	Draw and interpret Venn diagrams. Use set notation that will be in a worded format. Tree diagrams for independent and dependent events. Calculating with pressure and density. Combining ratios Calculating with ratios and algebra Changing ratios.	Foundation Calculate the surface area of cuboids, prisms, pyramids and spheres. Calculate the volume of cuboids, prisms, pyramids and spheres. Probability of mutually exclusive events Sample space diagrams Expected results from repeated experiments. Probability from Venn diagrams. Tree diagrams Experimental probability. Write inequalities and represent them on a number line. Solve inequalities. Form and solve inequalities. Form and solve inequalities. Higher Draw and interpret histograms Calculate averages from Histograms. Conditional probability from tables, Venn diagrams and tree diagrams.



Continue A	Fluency, Problem Solving,	Fluency, Problem Solving,	Fluency, Problem Solving,	Fluency, Problem Solving,	Use the conditional probability formula. Use the product rule for counting. Graphs of linear inequalities. Solve quadratic inequalities. Substituting into functions including composite functions. Finding composite and inverse functions. Fluency, Problem Solving,
Spring A Skills	Reasoning.	Reasoning.	Reasoning.	Reasoning.	Reasoning.
Spring A Assessment opportunity	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Fluency check	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Fluency check	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Fluency check	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Fluency check	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks.
Spring B	Fractions	Venn diagrams	Linear graphs	The Year 10 SoW now splits into a	<u>Foundation</u>
Topic	Brackets	3D shapes	Compound measures	Higher and Foundation pathway.	Vectors
	Writing and comparing fractions. Adding and subtracting fractions. Factorise and expanding brackets.	Surface area and volume Venn diagrams Factors, multiples and primes. Nets. Surface area. Volume.	Motion-time graphs Equations of linear graphs. Speed and rates. Distance- time graphs.	Foundation Graphs Sequences Velocity time graphs Cubic, reciprocal and exponential graphs. Arithmetic and geometric sequences – Foundation Higher Graphs Sequences Sampling Proportion Velocity time graphs	Percentages Linear inequalities. Vector problems Percentage change Calculating with compound measures. Working with Ratio and proportion. Standard form Higher Transformations Iterative formula Algebraic proof Similarity Transforming graphs
				Cubic, reciprocal and exponential graphs. Quadratic, Geometric and special sequences.	Iransforming graphs Iterative formula Writing algebraic proofs. Area and volume of similar shapes.



				Sampling.	
Spring B Knowledge	Finding fractions of shapes. Constructing fractions. Simplify fractions. Ordering fractions. Converting between mixed numbers and improper fractions. Adding and subtracting fractions. Adding and subtracting mixed numbers. Expanding a single bracket and simplifying. Factorising into one bracket.	Construct and interpret Venn diagrams. Calculate a probability from a Venn diagram. Find the HCF and LCM using prime factor decomposition. Properties of 3D shapes Nets of 3D shapes. Calculate the surface area of a net. Find the surface area of cubes, cuboids, and prisms. Converting units of volume	Finding equations of straight line graphs. Interpreting equations of straight line graphs. Calculating with speed. Calculating with rates. Plotting and interpreting distance-time graphs. Calculating speed from distance time graphs. Plotting distance-time graphs using speeds.	Direct and inverse proportion Foundation Plotting velocity-time graphs Calculating acceleration from velocity time graphs. Graphs of cubic, reciprocal and exponential functions. Position to term rules. Higher Plotting velocity-time graphs Calculating acceleration from velocity time graphs. Graphs of cubic, reciprocal and exponential functions. Position to term rules for quadratic and geometric sequences. Special sequences Sampling and bias. Capture-Recapture. Construct direct and inverse proportion equations. Graphs of direct and inverse proportion.	Foundation Solve inequalities with unknowns on both sides Solving double inequalities Construct and solve inequalities. Add, subtract and multiply column vectors. Identifying parallel vectors. Solve geometric problems using vectors. Percentage change with a calculator. Finding original amounts in percentage calculations. Finding the percentage an amount has changed by. Compound interest. Growth and decay. Calculating with speed, rates, density and pressure. Combining ratios. Calculating with ratio and algebra. Changing ratios. Add, subtract, multiply and divide using standard form. Standard form with a calculator. Higher Translate, reflect and transform graphs. Identify a solution to an equation by using iterative methods. Writing algebraic proofs. Finding the perimeter, area, surface area and volume of similar shapes.



Spring B	Fluency, Problem Solving,	Fluency, Problem Solving,	Fluency, Problem Solving,	Fluency, Problem Solving,	Fluency, Problem Solving,
Skills	Reasoning.	Reasoning.	Reasoning.	Reasoning.	Reasoning.
Spring B Assessment opportunity Summer A	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Termly assessment Angles	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Termly assessment Linear graphs	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Termly assessment Quadratic graphs	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Termly assessment	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Full exam series which includes Paper 1, Paper2 and Paper 3. Foundation
Topic	Handling data & Statistical diagrams Proportion Angle calculations. Averages and range. Interpreting, and drawing tables and charts. Collecting and presenting data. Proportion problems.	Transformations Angles Statistical diagrams Inequalities Plotting graphs and finding equations. Transforming shapes. Finding unknown angles. Drawing and interpreting statistical diagrams. Linear inequalities.	Angles and bearings Transformations Similarity and congruence Handling data & statistical diagrams Plotting and interpreting quadratic graphs. Angles. Bearings. Transforming shapes. Similarity. Congruence. Collecting and presenting data. Understand similarity and congruency. Finding unknown sides in similar shapes. Congruent triangles. Construct triangles. Collecting and presenting data.	Sampling Proportion Transformations Sampling Direct and inverse proportion Combining transformations Higher Transformations Rounding Indices Enlargement Combining transformations Bounds Indices with fractional and negative powers	Compound measures Ratio and proportion Standard form Sequences Linear graphs Speed, Density and pressure. Sharing in a ratio Converting between standard form. Four operations with Standard form. Position to term rules for arithmetic, geometric and special sequences. Plot straight line graphs. Finding the equation of a straight line Using and applying y=mx+c Higher Geometric proofs. Non-Linear graphs. Vector proofs Writing geometric proofs. Calculating areas under a graph and gradients of tangents. Equations of circles and tangents.
Summer A	Measuring, Estimating, drawing	Plotting horizontal and vertical	Plotting graphs of quadratic	Foundation	Foundation
Knowledge	and naming angles.	lines.	functions.	Sampling and bias.	



Angles on a line, around a point, vertically opposite and in a triangle. Calculating the range, mean, mode and median. Interpret frequency tables and two-way tables. Draw and interpret tally charts, pictograms and bar charts. Collecting and recording data

using tables. Presenting data making conclusions

Finding averages from frequency tables.

Choosing appropriate averages and solving problems. Solving proportion problems.

Plotting straight line graphs. Finding equations of straight line graphs.

Complete and describe translations and reflections. Angles in quadrilaterals. Combining angle facts. Angles in parallel lines. Using the properties of quadrilaterals to find angles. Angles in polygons.

Draw and interpret Pie charts, line graphs and stem- and – leaf diagrams.

Finding averages from diagrams. Reading and drawing inequalities

on number lines. Solving single inequalities. Interpreting graphs of quadratic functions.

Solving quadratic equations graphically.

Combining angle facts. Angles in parallel lines.

Using the properties of quadrilaterals to find angles.

Angles in polygons.

Measuring and drawing bearings. Calculating bearings.

Rotation.

Enlargement using positive scale factors.

Mixed transformations.

Types of data.

Comparing populations using diagrams.

Choosing suitable averages and solving problems.

Interpreting direct and inverse proportion equations. Graphs of direct and inverse proportion Combine transformations such as enlargement with a positive scale factor, rotation, reflection and

Higher

translation.

Combine transformations such as enlargement with a positive and negative scale factor, rotation, reflection and translation. Find bounds for calculations. Estimating roots and powers. Indices with fractional and negative powers.

Complete calculations involving, speed, density and time. Sharing in a ratio. Calculating a missing part given a

Combined ratios

Convert between ordinary numbers and standard form and vice versa.

Multiply, divide, add and subtract numbers in standard form. Solve standard form problems in

context. Calculate missing terms in arithmetic sequences, geometric sequences and special sequences. Calculate the nth term of a

Plot straight line graphs. Interpret straight line graphs. Find the equation of a straight line given a graph, a co-ordinate and the gradient, or 2 coordinates.

Equations of parallel lines.

Higher

sequence.

Solve geometric problems and proofs with vectors. Solve geometric proofs with, angle facts, similarity and congruence. Prove the circle theorems. Estimating gradients of non-linear graphs using tangents. Calculate distances from velocity time graphs Estimating areas under non-linear graphs Equations of circles and tangents.



Summer A Skills	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.
Summer A Assessment opportunity	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Fluency check	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Fluency check	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Fluency check	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Fluency check	Closing the gap assessment. Assessment for learning during the lesson. GCSE examination.
Summer B Topic	Fractions, Decimals and Percentages Probability Multiplying & dividing fractions Fractions of an amount Fractions, decimals and percentages Theoretical Probability	Brackets Algebraic fractions Recurring decimals Double brackets Fractions review Algebraic fractions Fractions and recurring decimals	Handling data & statistical diagrams Vectors Scatter graphs Grouped data Column vectors	Foundation Rounding Indices Brackets Handling data and statistical diagrams Sampling Error intervals Index laws and simplifying expressions Expand and factorise. Grouped data including averages. Draw and interpret line graphs. Higher Recurring decimals. Brackets Handling data and statistical diagrams Recurring decimals Expand and factorise brackets Cumulative frequency graphs. Box plots Compare populations using box plots and cumulative frequency	Au2 assessment review Adapted curriculum from Au2
Summer B Knowledge	Reciprocals. Multiplying and dividing fractions. Multiplying and dividing mixed numbers.	Expanding double brackets Calculating with fractions. Simplifying algebraic fractions by factorising.	Plot and interpret scatter graphs. Using lines of best fit. Interpreting frequency tables with grouped data.	Foundation Finding error intervals Using the laws of indices with positive and negative indices.	For both Higher and foundation, the Scheme of Learning will be based on class specific areas of weakness identified in the QLA.



	Fractions of an amount with and without a calculator. Converting between fractions, decimals and percentages Ordering fractions, decimals and percentages. Writing numbers as percentages of other numbers. Using probability phrases. Writing probabilities as fractions, decimals and percentages. Probability of mutually exclusive events. Sample space diagrams.	Adding and subtracting algebraic fractions. Use the recurring decimal notation. Converting fractions to recurring decimals.	Finding averages from grouped data. Drawing and interpreting frequency polygons. Understanding column vectors. Adding, subtracting, and multiplying column vectors. Identifying parallel vectors.	Simplifying expressions using index laws. Expand double brackets Factorise quadratics of the form x^2 + bx + c. Factorise using the difference of two squares. Solve equations of the form x^2 + bx + c=0. Interpreting frequency tables with grouped data including averages. Draw and interpret line graphs. Higher Converting between fractions and recurring decimals Expand triple brackets Completing the square Factorise quadratics ax^2 + bx + c. Solve quadratics where ax^2 + bx + c=0 Draw and interpret cumulative frequency graphs. Draw and interpret Box plots Compare populations using box plots and cumulative frequency	
Summer B Skills	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.	Fluency, Problem Solving, Reasoning.
Summer B Assessment opportunity	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Termly assessment	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Termly assessment	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Termly assessment	Half termly Unit assessments. Assessment for learning during the lesson. Half termly book checks. Mock examination which includes Paper 1, Paper 2 and Paper 3.	Closing the gap assessment. Assessment for learning during the lesson. GCSE examination.

