The Polygon School 2026 - 2027

Maths: LONG TERM OVERVIEW

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7	Unit 1: Analysing and displaying data - Tables and pictograms - Bar charts - Grouped data - Mode and modal class - Range and median Unit 2: Calculating - Adding - Subtracting - Multiplying - Dividing - Multiplying and dividing by 10. 100 and 1000 - Using the four operations - Positive and negative numbers	Unit 3: Expressions, functions and formulae - Using functions - Function machines - Simplifying expression - Writing expressions - Writing formulae - Using formulae Unit 4: Graphs - Real life graphs - Coordinates - Graphs of functions - Scientific graphs	Unit 5: Factors and multiples - Number rules and relationships - Multiples - Multiplication - Division - Solving problem - Factors and primes - Common factors and multiples Unit 6: Decimals and measures - Estimates and measures - Decimal numbers - Metric Units - Adding and substracting decimals - Rounding - Multiplying and dividing decimals	Unit 7 Angles and Lines - Right angles and lines - Measuring angles - Drawing and estimating angles - Putting angels together	Unit 8 Measuring and shapes - Shapes - Symmetry in shapes - Regular polygons - Perimeter - Area Unit 10 Transformations - Reflections - Translation - Rotation - Congruency	Unit 9 Fractions, decimals percentages - Comparing fractions - Equivalent fractions - Calculating with fractrions - Adding and subtracti fractions - Introducing percentages - Finding percentages

Year 8	**Unit 1: Number properties and calculations** - Adding and subtracting with large numbers - Caluclations - Negative numbers - Writing ratios - Using ratios to solve problems - Multiplicative reasoning **Unit 2: Shapes and measures in 3D** - 3D solids - Nets of 3D solids - Surface area - Volume - Working with measures	**Unit 3: Statistics** - Data collection sheets - Interpreting bar charts - Drawing bar charts - Pie charts **Unit 4: Expressions and equations** - Simplifying expression - Functions - Solving equations - Using brackets	**Unit 5: Decimal calculationss** - Adding and substracting decimals - Ordering and rounding decimals - Problem solving decimals **Unit 6: Angles** - Measuring and drawing angles - Vertically opposite angles - Angles in triangles - Drawing triangles accurately - Designing nets	**Unit 7 Number properties** - Sqaures, cubes amd roots - Calculating with brackets and indices - LCM and HCF - Prime factor decomposition	**Unit 8 Sequences** - Generating sequences - Extending sequences - Special sequences - Position-to-term rules - Finding the *n*th term **Unit 9 Fractions, percentages** - Comparing fractions - Fractions of amounts - Adding and subtracting fractions - Fractions and percentages - Calculating percentages - Percentages and proportion	**Unit 10 Probability** - The language of probability - Outcomes - Probability calculatiic Comparing probabilit

Year 9	**Unit 1: Number calculations** - Adding and subtracting - Multiplying and dividing with negative numbers - Squares, cubes and roots - More powers - Calculations **Unit 2: Sequences and equations** - Algebraic expression - Using the *n*th term - Finding the *n*th term - Solving equations	**Unit 3: Statistics** - Planning a survey - Statistics from tables - Comparing data - Tables - Pie charts and scatter graphs **Unit 4: Fractions, decimals, percentages** - Equivalent proportions Recurring decimals - Adding and substracting fractions - Multiplying fractions - Comparing proportion	**Unit 5: Geometry in 2D and 3D** - Angles - Maps and scales - Constructions - 3D solids **Unit 6: Algebraic and real-life graphs** - Reading graphs - Plotting graphs - Distance-time graphs - Midpoint - Intercepts and gradients	**Unit 7 Multiplicative reasoning** - Using ratios - Using proportion - Problem solving proportions - Measures and conversions	**Unit 8 Algebraic and geometric formulae** - Substituting into formulae - Formulae in geometry - Compound shapes - Circles **Unit 9 Probability** - Probablility experiments - Sample space diagrams - Two way tables - Tree diagrams	**Unit 10 Polygons and Transformations** - Quadrilaterals - Triangles - Transformations - Enlargements - Congruents Shapes

Year 10	**Unit 1: Number** - Calculations - Decimal numbers - Place value - Factors and multiples - Squares, cubes and roots - Index notation - Prime factors **Unit 2: Algebra** - Algebraic expressions - Simplifying expressions - Substitutions - Formulae - Expanding brackets - Factorising - Using expressions and formulae **Unit 3 Graphs, tables,**	**Unit 4: Fractions and percentages** - Working with fractions - Operations with fractions - Multiplying fractios - Dividing fractions - Fractions and decimals - Fractions and percentages - Calculating percentages **Unit 5: Equations, inequalities and sequences** - Solving equations - Solving equations with brackets - Introducing inequalities - Using formulae - Generating sequences Using the *n*th term of a	**Unit 6: Angles** - Properties of shapes - Angles in parallel lines - Angles in triangles - Exterior and interior angles - Geometrical problems **Unit 7: Averages and range** - Mean and range - Mode, Median and range - Types of averages - Estimating the mean Sampling	**Unit 8: perimeter, area, volume** - Rectangles, parallelograms and triangles - Trapezia and changing units - Area of compound shapes - Surface area of 3D shapes - Volume of prisms **Unit 9: Graphs** - Coordinates - Linear graphs - y=mx + c - Real life graphs - Distance time graphs	**Unit 10: Transformations** - Translation - Rotation - Refelction - Enlargement - Describing transformations - Combining transformations **Unit 11 Ratio and proportion** - Writing ratios - Using ratios - Ratios and measures - Comparing using ratios - Using proportion - Proportion and graphs - Proportion problems	**Unit 12: Right angled triangles** - Pythagorias' theorem - Finding angles an lengths using trigonometry **Unit 13: Probability** - Calculating probability - Two events - Experimental probability - Venn diagrams - Tree diagrams

	charts - Frequency tables - Two-way tables - Representing data - Time series - Stem and leaf diagrams - Pie charts - Scatter graphs - Line of best fit	sequence				
Year 11	Unit 14: multiplicative reasoning Foundation - Percentage - Growth and Decay - Compound measures - Distance, Speed and Time - Direct and inverse proportion Unit 15:Construction, loci, bearings Foundation - 3D Solids - Plans and elevations - Scale Drawings and Maps - Accurate Drawings - Construction	Revision	Revision	Exam	Exam	

	- Loci					

YEAR 7 — MEDIUM-TERM OVERVIEW

Half term / Key question:	Topic	Pupil Outcomes	Resources	Cross Curricular links Personal Development Links Careers Related Learning Links
Autumn 1	Unit 1: Analysing and displaying data Unit 2: Calculating	-Interpret data in tables, charts and diagrams -Record data in a frequency table -Find the mode, median and mean and range of a set of data. -Find the modal class for grouped data -Add and subtract numbers in different ways -Solve simple ratio and proportion problems -Continue number sequences -Round and approximate numbers -Multiply numbers and recognise multiples -Recognise square numbers -Multiply and divide by 10, 100 and 1000 -Use simple negative numbers		Cross Curricular Recording experiment results; bar charts, pie charts, time graphs Work related Market research Sports coaching Cross Curricular DT: working out material costs, weights and Quantities Food Tech: scaling recipes, portion sizes Science: speed = distance+time Work related Retail; tills, giving change, discount
Autumn 2	Unit 3: Expressions, functions and formulae Unit 4: Graphs	-Find outputs of simple functions -Describe simple functions -Simplify expressions by collecting like terms -Write expressions from a description in words -Substitute positive integers into simple formulae expressed in words -Substitute integers into simple formulae expressed in letter symbols -Write simple formulae using letter symbols -Read information from a reallife graph -Plot coordinates -Read x- and y-coordinates -Plot graphs of simple functions		Cross Curricular Computing: algorithms, spreadsheets (formulas In Excel). Work related Finance: interest calculations, wages Cross Curricular Sci: plotting experiment results Work related Transport: timetables and routes

Spring 1	Unit 5: Factors and multiples	-Use the priority of operations -Multiply 3-digit numbers by a single digit -Round numbers up or down -Apply simple tests of divisibility -Find common factors multiples, and primes -Recognise and use HCF and LCM		Cross Curricular PE: team groupings – dividing into equal groups Work related Manufacturing: packaging in batches
	Unit 6: Decimals and measures	-Choose suitable units to estimate or measure length, mass and capacity -Read a variety of scales -Know the value of each digit in a number -Order and round decimals to one decimal place or to the nearest whole number		Cross Curricular Sci: measuring temp ad mass Food: grams, litres, recipe measures Work related Retail: prices and weights
Spring 2	Unit 7 Angles and Lines	-Identify right angles, perpendicular and parallel lines -Recognise left and right, anticlockwise and clockwise -Recognise quarter, half and three-quarter turns -Label lines and angles correctly -Identify acute, obtuse and reflex angles -Estimate the size of angles -Use a protractor to draw acute angles to the nearest degree -Know the sum of angles on a straight line and round a point		Cross Curricular Art and design: perspective drawing, tesselations Work related Architecture – angles in design Carpentry – cutting and measuring angles

Summer 1	Unit 8 Measuring and shapes Unit 10 Transformations	-Give the names of regular polygons and triangles -Recognise properties of squares and rectangles -Calculate perimeters of rectangles and regular polygons -Calculate the perimeter and area of shapes made from rectangles -Describe the symmetry of triangles and other shapes -Solve problems involving the perimeter of squares and rectangles -Understand reflections and reflect a shape in a mirror line -Understand translation and translate a shape -Draw and describe rotations -Understand the term 'congruent' and identify congruent shapes		Cross Curricular PE: measuring long jump, shot put Art: geometric patterns Work related Building trades – flooring, tiling Cross curricular Art: symmetry, tessellations, patterns Work related Graphic: logos, patterns
Summer 2	Unit 9 Fractions, decimals percentages	-Order fractions -Relate fractions to division and parts of shapes. -Identify equivalent fractions -Change an improper fraction to a mixed number -Find simple fractions of whole number quantities -Add and subtract simple fractions -Understand a percentage as the number of parts per 100		Cross Curricular Food: dividing recipes, converting measures Work related Retail:sales and offers

		-Convert a percentage to a number of hundredths or tenths -Write a percentages as a fraction or decimal -Find simple percentages of whole number quantities		

YEAR 8 — MEDIUM-TERM OVERVIEW

Half term / Key question:	Topic	Pupil Outcomes	Resources	Cross Curricular Links Personal Development Links Careers Related Learning Links
Autumn 1	Unit 1: Number properties and calculations	- Understand how to use brackets in calculations - Calculate with negative integers - Reduce a ratio to its simplest form - Reduce a ratio to its simplest form - Solve word problems involving ratio or direct proportion - Recognise the links between ratio and fractions - State and use names of 3D solids - Identify and count faces, edges, vertices -Instruct and construct simple nets of 3D shapes Calculate the surface area of cubes - Find the volume of a cube and cuboid by counting cubes - Use the formulae for the volume of cube and a cuboid - Solve problems involving units of measurement (length, area and capacity) - Convert cm3 to litres		Cross Curricular Sci: using positive and neg – temps and charges Work related Money, giving change Banking: calculating totals, deposits and interest Cross Curricular Art/DT: designing nets of 3D shapes, Packaging Sci: volume of liquids, density Work related Manufacturing: packaging and containers
	Unit 2: Shapes and measures in 3D			

Autumn 2	Unit 3: Statistics Unit 4: Expressions and equations	- Design a data collection sheet - Interpret data from compound and comparative bar charts - Construct a frequency table for grouped discrete data - Construct compound bar graphs - Interpret simple charts - Use arithmetic operations with algebra -Simplify algebraic expressions by collecting like terms -Find outputs and inputs of simple functions -Construct functions -Solve linear equations with whole number coefficients -Use the distributive law with brackets -Understand that expressions can be written in more than one way -Multiply a positive integer over a bracket		Cross Curricular PE: recording times and distances Sci: data from experiments Work related Sports analysis, performance tracking Cross Curricular Computing: formulas in spreadsheets, coding Work related Finance: working out wages, tax
Spring 1	Unit 5: Decimal calculations Unit 6: Angles	-Add decimals with varying numbers of decimal places -Add more than two decimals with up to two decimal places -Subtract integers and decimals with varying numbers of decimal places -Multiply decimals with two places by single-digit whole numbers -Multiply integers and decimals -Calculate the squares of decimal numbers -Solve problems involving decimal numbers -Use a protractor to measure reflex angles to the nearest degree -Use a protractor to draw reflex angles to the nearest degree -Calculate angles around a point -Use a protractor to draw obtuse angles to the nearest degree -Calculate angles in a triangle - Use a ruler and protractor to construct a triangle given SAS or ASA - Use ruler and protractor to construct simple nets of 3-D shapes		Cross Curricular Food tech: weighing ingredients Sci: precise measuring Work related Retail: prices with decimals Costruction: decima measures Cross Curricular Art: perspective drawing Work related Retail: prices with decimals

Spring 2	Unit 7 Number properties	- Use a calculator for cubes and cube roots - Use the order of operations with brackets - Use index notation for squares and cubes and for positive integer powers of 10. -Use index notation for small integer powers - Find the prime factor decomposition of a number less than 100 - Find the HCF or LCM of 2 numbers less than 100 (using prime factor decomposition) - Recall the squares of numbers less than 16 and find the square root given the square number		Cross Curricular Sci: repeated properties in nature Work related Manufacturing – producing items in batches
Summer 1	Unit 8 Sequences Unit 10 Probability	- Find terms of sequences arising from practical contexts - Find terms of sequences using term-to-term rules like +3 or −2 - Use the words finite, infinite, ascending and descending to describe sequences - Find terms of a more complex sequence using term-to-term rules like ×2 then +1, or −1 then ×2' - Find terms of linear sequences using term-to-term with positive or negative integers - Describe simple integer sequences, square and triangular numbers - Recognise geometric sequences and other sequences - Find terms of linear sequences using position-toterm rules - Use the language of probability - Use the probability scale from 0 to 1 - Identify all mutually exclusive outcomes for two successive events - Estimate probabilities based on given experimental data		Cross Curricular Art: geometric and repeating designs Sci: life cycles, growth sequences Work related ICT: coding loops and patterns DT: tiling, textile patterns Cross Curricular Sci: predicting experiment outcomes PSHE: making informed decisions, risk Awareness Work related Insurance: calculating risk

Summer 2	Unit 9 Fractions, percentages	-Compare two or more fractions with different denominators -Calculate fractions of quantities and measurements - Add and subtract fractions by writing with a common denominator - Simplify fractions by cancelling all common factors - Express one number as a fraction of another - Multiply a fraction by an integer - Calculate simple percentages - Use percentages to compare simple proportions - Express one given number as a percentage of another		Cross Curricular Food tech: halving/ doubling recipes, portion sizes PSHE: budgeting, money management Work related Retail: discount, offers, sales Finance: tax, savings, interest

YEAR 9 — MEDIUM-TERM OVERVIEW

Half term / Key question:	Topic	Pupil Outcomes	Resources	
Autumn 1	Unit 1: Number calculations Unit 2: Sequences and equations	- Convert between numbers such as 2 360 000 and 2.36 million - Multiply and divide integers, decimals negatives - Use index notation for small integer powers - Find the prime factor decomposition of a number - Work with expressions that contain brackets, squares, cubes and square roots as well as the four operations - Construct expressions from a description in words - Simplify expressions in more than one variable, by collecting like terms - Generate terms of a linear sequence using position-to term - Generate terms from a complex context - Use linear expressions to describe the nth term in a twostep arithmetic sequence - Find outputs of functions - Solve simple two-step linear equations		Cross Curricular Sci: calculations with forces, energy, speed Food: scaling recipes, calorie totals Work related Retail, tills, discount, cash handling Construction: costing materials Cross curricular Art: tesselations, repeating designs Work related Robotics: programming movement sequences

Autumn 2	Unit 3: Statistics Unit 4: Fractions, decimals, percentages	-Select a suitable sample size - Discuss factors that could affect the collection of data - Calculate the mean from a simple frequency table - Draw conclusions from simple statistics - Use two way tables - Find the modal class of a set of continuous data - Interpret and plot scatter graphs and recognise anomalies - Draw pie charts from data presented in a table - Interpret bar graphs and frequency diagrams which are misleading - Add and subtract fractions - Add and subtract mixed number fractions - Multiply a fraction by an integer or a fraction - Divide an integer by a fraction - Recall equivalent fractions, decimals and percentage - Use the equivalence of fractions, decimals and percentages to compare proportions - Find the outcome of given percentage increase or decrease		Cross Curricular Sci: Recording and analysing experimental data PE: fitness performance tracking Work related Business/ retail: sales figures Cross Curricular PSHE: budgeting, money management Sci: concentrations, experimental results Work related Finance: tax, savings, interest
Spring 1	Unit 5: Geometry in 2D and 3D Unit 6: Algebraic and real-life graphs	- Identify alternate and corresponding angles - Understand how to find the interior and exterior angles of polygons - Use scales in maps and plans - Use straight edge and compasses to construct the perpendicular bisector of a line segment - Use straight edge and compasses to construct the bisector of an angle - Use 2-D representations of 3-D objects - Use plans and elevations. - Find volumes of shapes made from cuboids - Understand and use Pythagoras' theorem - Interpret information from a reallife graph - Recognise straight-line graphs parallel to x- or y-axes - Find the midpoint of a line segment -Find the intercept of graphs - Plot graphs of simple linear functions in the form y = mx + c		Cross Curricular Art/ DT: 3D models, perspective drawing Work related Construction: floor plans, building shapes Cross curricular Sci: speed/ time graphs Work related Transport: timetables, journey times

Spring 2	Unit 7 Multiplicative reasoning	- Divide a quantity into two parts in a given ratio - Reduce a ratio to its simplest form - Understand the relationship between ratio and proportion - Use the unitary method to solve word problems involving ratio and direct proportion - Solve best buy / unit price problems - Recognise when values are in direct proportion by reference to a graph - Solve problems involving direct and inverse proportion - Use units of measurement to solve problems - Convert between area measures - Convert metric measures to imperial measures		Cross Curricular Food: scaling recipes up or down Work related Retail: price comparisons, best value
Summer 1	Unit 8 Algebraic and geometric formulae Unit 9 Probability	- Find the measurement of a side, given the perimeter of squares and rectangles - Substitute integers into formulae expressed in letter symbols - Write formulae or equations using letter symbols - Use a formula to calculate the area of triangles - Calculate the perimeter and area of shapes made from rectangles - Calculate areas of shapes made from rectangles and triangles Use a formula to calculate the area of parallelograms - Name the parts of a circle - Use a formula to calculate the circumference or area of a circle - Change the subject of a one-step formula - Find or apply probabilities from experimental data - Identify conditions for a fair game - Work out the probability of two independent events - Use tree diagrams to calculate probabilities		Cross Curricular Sci: formulas for speed, density, energy DT: Surface area and volume Work related Mechanics: fuel use Engineering: load/ strength calculations Cross Curricular Sci: genetics and inheritance PSHE: decision making, risks Work related

				Gaming industry: odds in games
Summer 2	Unit 10 Polygons and Transformations	- Solve geometrical problems using properties of triangles - Know that in congruent shapes, corresponding sides and angles are equal - Solve simple geometrical problems showing reasoning - Transform 2D shapes by combinations of rotations, reflections and rotations - Plot points on a grid and identify resulting geometric shapes - Classify quadrilaterals by their geometric properties - Know that translations, rotations and reflections preserve length and angle - Enlarge 2D shapes, given a centre of enlargement and a positive whole-number scale factor		Cross Curricular Art: symmetry, teselations, patterns Work related DT: Logos and layouts ICT: movement mapping

YEAR 10 — MEDIUM-TERM OVERVIEW

Half term / Key question:	Topic	Pupil Outcomes	Resources	Cross Curricular links Personal Development Links Careers Related Learning Links
Autumn 1	Unit 1: Number - Calculations - Decimal numbers - Place value - Factors and multiples - Squares, cubes and roots - Index notation - Prime factors Unit 2: Algebra - Algebraic expressions - Simplifying expressions - Substitutions - Formulae - Expanding brackets - Factorising - Using expressions and formulae Unit 3 Graphs, tables, charts - Frequency tables - Two-way tables - Representing data - Time series - Stem and leaf diagrams - Pie charts - Scatter graphs - Line of best fit	-calculate with brackets, powers and roots. - multiply and divide decimal numbers - simplify a calculation by cancelling - use one calculation to work out the answer to another - recall prime numbers - find the LCM and HCF of two numbers, by listing or writing the numbers as products of their prime factors. - collect like terms and find common factors to simplify algebraic expressions - write expressions and find their values - expand brackets and factorise expressions completely - understand and use correct mathematical vocabulary and notation - write formulae and substitute values into them - complete and read information from tables and distance charts - draw pie charts and read information from them - draw and interpret data from bar charts and stem and leaf diagrams - draw and interpret time series graphs and scatter graphs and draw a line of best fit - design data collection sheets and two-way tables and use them to solve problems		Cross Curricular Sci: Formula in physics: s peed = distance ./. time Food: converting units Work related Retail/ shop work: money handling, giving change, discounts Cross curricular Science: graphing linear relationships (distance/time) Work related Finance/ banking: simple and compound interest calculations Gardening: calculating areas, predicting Growth patterns.

				Cross curricular Sci: experiment data ICT: spreadsheets Work related Data analyst, marketing.
Autumn 2	Unit 4: Fractions and percentages - Working with fractions - Operations with fractions - Multiplying fractios - Dividing fractions - Fractions and decimals - Fractions and percentages - Calculating percentages Unit 5: Equations, inequalities and sequences - Solving equations - Solving equations with brackets - Introducing inequalities - Using formulae - Generating sequences - Using the *n*th term of a sequence	- add and subtract fractions and mixed numbers - multiply and divide fractions and mixed numbers - convert fractions to percentages and percentages to fractions - convert decimals to fractions and fractions to decimals - write one number as a fraction or percentage of another number - compare the size of decimals, fractions and percentages; arrange them in size order - calculate fractions or percentages of amounts - calculate percentage increase or decrease - calculate simple interest and VAT - solve one- and two-step equations - solve more complex equations involving brackets and/or with the unknown on both sides - understand expression, multiple, equation, factor, formula, identity, term and inequality - substitute values into a formula and solve the resulting equation - rearrange a formula to make a different letter the subject - represent and interpret inequalities on a number line - solve inequalities and identify integers that satisfy an inequality - generate terms of an arithmetic sequence and find the nth term - generate terms of sequences given either the first few terms, or the nth term		Cross Curricular Food: recipe, portions PE: fitness results Work related Retail, finance, catering Cross Curricular Sci: physics (motion and forces) Work related IT: programming

Spring 1	Unit 6: Angles - Properties of shapes - Angles in parallel lines - Angles in triangles - Exterior and interior angles - Geometrical problems Unit 7: Averages and range - Mean and range - Mode, Median and range - Types of averages - Estimating the mean - Sampling	- find missing angles in lines meeting at a point, parallel lines, triangles and quadrilaterals, giving reasons for my answers - form and solve equations to find angles expressed algebraically - find the size of the interior and exterior angles of polygons - find the sum of the interior angles of a polygon and find the size of one interior angle - calculate the mean, mode, median and range from a list, and identify outliers - calculate the mean, mode, median and range from a frequency table, and draw a frequency polygon - estimate the mean and range of grouped data, and identify the class containing the median and the modal class - compare two sets of data using an average and the range - select the most appropriate average to represent a set of data - describe how to select a fair sample and recognise bias in a sample - predict results for a population from a sample		Cross Curricular Art/ design: perspective Physics: reflection/ refraction Work related Carpentry/ joinery, surveying, game design Cross Curricular Sci: recording results PE: scores/times Work related Sports coaching, quality control
Spring 2	Unit 8: perimeter, area, volume - Rectangles, parallelograms and triangles - Trapezia and changing units - Area of compound shapes - Surface area of 3D shapes - Volume of prisms Unit 9: Graphs - Coordinates - Linear graphs - y=mx + c	- find the perimeter and area of rectangles, triangles, parallelograms and trapeziums - work backwards to find a missing length - find the area of compound shapes made from rectangles and triangles - find the area of compound shapes made from rectangles and triangles - convert between metric units of area, volume and capacity - recognise and draw lines parallel to the axes and the lines $y = x$ and $y = -x$ - draw and read values from straight-line graphs - find the midpoint of a line segment find the equation of a line and understand the meaning of m and c in		Cross Curricular Sci: surface area, reactions DT: designing objects PE: sports pitches Work related Construction, architecture, farming

	- Real life graphs - Distance time graphs	$y = mx + c$ - interpret distance–time graphs and other real-life graphs - use the line of best fit on a scatter graph to make predictions - interpret/sketch a range of graphs, including graphs showing real-life situations such as filling a container		Cross Curricular Sci: motion graphs Work related

Summer 1	Unit 10: Transformations - Translation - Rotation - Refelction - Enlargement -Describing transformations -Combining transformations	- translate and reflect given shapes on a grid - describe fully a translation or reflection - enlarge an object by an integer or fractional scale factor - find the area of an enlarged shape - rotate an object about a given centre of rotation - describe fully a rotation or enlargement; work out a scale factor - combine transformations and describe the single equivalent transformation		Cross Curricular Art: symmetry ICT: Image editing Work related Graphic design, game design, animation

	Unit 11 Ratio and proportion - Writing ratios - Using ratios - Ratios and measures - Comparing using ratios - Using proportion - Proportion and graphs - Proportion problems	- combine transformations and describe the single equivalent transformation - use ratios to convert units and enlarge shapes - divide a quantity in a given ratio - solve word problems using ratios - solve proportion problems - use the unitary method to solve proportion problems and work out which product is better value - recognise and use direct proportion on a graph - solve word problems involving direct and inverse proportion		Cross Curricular Food- Recipes CDT – mixing adhesives Work related Kitchen/hospitality Construction
Summer 2	**Unit 12: Right angled triangles** - Pythagorias' theorem - Finding angles and lengths using trigonometry **Unit 13: Probability** - Calculating probability - Two events - Experimental probability - Venn diagrams - Tree diagrams	- use Pythagoras' theorem to find the length of a side in a right-angled triangle - use Pythagoras' theorem to find the length of a line segment, given the coordinates of the end-points - use Pythagoras' theorem to prove whether a triangle contains a right angle - use trigonometry to find the length of a side or the size of an angle in a right-angled triangle - recall the exact values of the sine, cosine and tangent of some angles - calculate probabilities from a single event or for simple combined events - calculate experimental probabilities - draw a sample space diagram and use it to calculate probabilities - draw Venn diagrams; use Venn diagrams to work out probabilities - draw tree diagrams for independent events and use them to calculate probabilities - draw tree diagrams for dependent events and use them to calculate probabilities - use two-way tables to calculate probabilities		Cross Curricular Tech - Construction Work related Architecture, Civil engineering, carpentry, surveying

YEAR 11 — MEDIUM-TERM OVERVIEW

Half term / Key question:	Topic	Pupil Outcomes	Resources	Cross Curricular links Personal Development Links Careers Related Learning Links
Autumn 1	Unit 14: multiplicative reasoning Foundation - Percentage - Growth and Decay - Compound measures - Distance, Speed and Time - Direct and inverse proportion Unit 15:Construction, loci, bearings Foundation - 3D Solids - Plans and elevations - Scale Drawings and Maps - Accurate Drawings - Construction - Loci	- calculate percentage increases and decreases and find the original amount before an increase or decrease - calculate repeated percentage increases and decreases, including compound interest - calculate with, and compare, compound measures, including rates of pay, speed, density and pressure - write and use formulae connecting values that are in direct or inverse proportion - identify faces, edges and vertices in 3D shapes - identify planes of symmetry - draw a 3D shape in 2D view and in isometric form - construct SAS and SSS triangles - draw lines and angles accurately; bisect lines and angles by construction - draw the locus of points from a point and from a line segment - draw the locus of points equidistant from two given points - use loci to identify regions - construct the perpendicular from a point on a line / from a point to a line - construct the perpendicular from a point on a line / from a point to a line - draw and measure bearings between two points; read reciprocal bearings		Cross Curricular Sci: ratios in chemical reactions Food: recipe scaling Work related Retail: discounts, mark ups Construction: material mix ratios Cross curricular DT: Technical drawings, measuring Accurately Art: isometric drawing Work related Architecture, Civil engineering, carpentry, surveying

Autumn 2	Unit 16:Fractions, Indices and standard form - Multiplying and dividing fractions - Index laws - Writing small and large numbers in standard form - calculating with standard form Unit 17: Congruence , similarities and vectors - Similarity and enlargement - Using similarity - Congruence - Vectors	-find the reciprocal of an integer or decimal (and write it in standard form) - multiply and divide mixed numbers by fractions and mixed numbers - use index laws to simplify and evaluate numbers and algebraic expressions - convert numbers between ordinary numbers and standard form - multiply and divide numbers in standard form - add and subtract numbers in standard form - use a calculator to work out answers using numbers in standard form - order numbers written as decimals, single powers and in standard form - work out the scale factor of an enlargement; find missing lengths in enlargements - identify corresponding sides and angles in similar shapes and work out missing lengths - identify congruent shapes and give conditions of congruence - combine column vectors and represent the resultant as a single column vector - add, subtract and multiply vectors - work out column vectors given properties of length and direction - solve problems using vectors		Cross Curricular Food: recipes, portion control Sci: measuring solutions Work related Catering, healthcare, retail Cross curricular Art: symmetry, pattern design DT: design accuracy Work related Architecture, graphic design, engineering

Spring 1	**Revision using past papers**			

Spring 2				
Summer 1		•		

Summer 2				