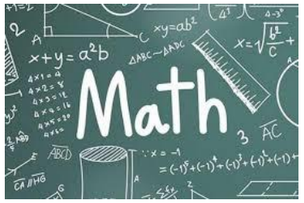

MATHEMATICS CURRICULUM STATEMENT

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. The Mathematics curriculum at The Trafalgar School at Downton will provide a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

CURRICULUM INTENT – *CURRICULUM IMPACT

a. Students will develop competency and fluency for using number *so that* ***they do not fear using number to solve problems in other subjects and areas of life beyond the classroom.**

b. Students will learn the principles of algebra *so that* ***students can use logical methods and analytical thinking to solve multi part problems**.

c. Students will learn how to handle and represent data *so that* ***they can communicate and summarise information.**

d. Students will understand how to use statistics and probability *so that* ***students can interpret real life scenarios and make predictions.**

e. Students will gain an understanding of Geometry *so that* ***students can participate in designing and developing the world around us.**

CURRICULUM IMPLEMENTATION (SEQUENCING)

Terms	**1**	**2**	**3**	**4**	**5**	**6**
Yr7 Units	**Number**	**Number**	**Number**	**Geometry**	**Number**	**Statistics**
Key learning	Students learn about: Place Value and ordering numbers, methods for rounding, arithmetic methods: Addition & Subtraction.	Students get a deeper understanding of Timetables and prime numbers, highest common factors and lowest common multiples, multiplying by powers of 10.	Students learn efficient methods for multiplication & division and BIDMAS for the order of operations and calculations.	Students develop skills for Drawing and estimating angles, constructions of shapes using protractors and using compasses.	Fractions; equivalency, calculations, proportion	Representing data Interpreting data data handling
Assessment	End of Topic Tests	End of Topic Tests - End of term Exam	End of Topic Tests	End of Topic Tests - End of term Exam	End of Topic Test	End of Year Exam
Homework	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week
Yr8 Units	**Algebra**	**Algebra**	**Geometry**	**Number**	**Statistics**	**Algebra**
Key learning	Notation, terms, expressions simplifying expressions expanding and factorising	Substitution into expressions and equations and formula - solving equations - forming and solving equations	conversion area and perimeter volume and surface area of 3D shapes	fractions, decimals & percentages standard form ratio and proportion	- averages - handling data; pie charts, scatter graphs, - probability	- sequences - straight line graphs - transformations
Assessment	End of Topic Test	End of Topic Test - End of term Exam	End of Topic Test	End of Topic Test - End of term Exam	End of Topic Test	End of Year Exam
Homework	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week
Yr9 Units	**Number**	**Algebra**	**Geometry**	**Data handling/ Statistics**	**Geometry**	**Algebra**
Key learning	Place Value, Integers, decimals and operations. BIDMAS and efficient methods, FDP, converting between and operations with. Fractions and percentages of amounts.	Notation, terms, expressions and equations. Laws of indices Substitution, Expanding and factorising expressions including single and double brackets, quadratic expressions	Vocabulary and facts for angles, lines. Properties of shapes/polygons. Parallel lines and Bearings. Congruency and similarity.	Populations and methods for sampling, Data Types and gathering data. Grouping and methods for representing data including Frequency and cumulative frequency tables and graphs. Comparing data, scatter graphs and correlation time series graphs	Pythagoras and trigonometry functions with right angle triangles. Trigonometric equations for other types of triangles.	Formula, substitution into and rearranging to change the subject. Functions and function notation, inverse functions. Composite functions Plotting linear functions and understanding the equation of the line, gradients and intercepts.
Assessment	End of Topic Test	End of Topic Test - End of term Exam	End of Topic Test	End of Topic Test - End of term Exam	End of Topic Test	End of Year Exam
Homework	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week
Terms	**1**	**2**	**3**	**4**	**5**	**6**
Yr10 Units	**Geometry**	**Algebra**	**Statistic /Algebra**	**Algebra / Ratio and Proportion**	**Algebra**	**Geometry**

Key learning	Area and perimeter of quadrilaterals and composite shapes. Area and perimeter of circles and semi-circles, arcs and sectors. Transformation of shapes, including enlargements and scale factors, transformation and vectors	Linear Equations and inequalities and how to solve them. Double inequalities. Simultaneous equations and solving them algebraically and graphically. Plotting linear equations and understanding gradients and intercepts. Parallel and perpendicular lines	Probability and using data to find experimental probability. Mutually exclusive events, sample space diagrams, Venn diagrams and probability trees to solve problems and calculate probabilities. Dependent and conditional probability. Sequences and nth term rules	Describing proportion using fractions and percentages. Simplifying and expressing using ratio notation and dividing quantities in a given ratio. Maps and scale ratios. Percentage increase and decrease, compound interest and depreciation. Compound measure and converting between units. Recognising proportion and inverse proportion.	Quadratic functions and equations Solving using methods including completing the square and the quadratic formula. Plotting functions and finding solutions graphically. Calculating turning points, roots and discriminant. Solving simultaneous equations with linear and quadratic functions. Pythagoras including in 3D and Trigonometric functions and equations including sine and cosine rule	Circle vocabulary and formula, Circle theorems and learning of proof. Constructions with compass and problems involving loci scale and bearings. Revision preparation
STARc Assessment	End of Topic Test	End of Topic Test - End of term Exam	End of Topic Test	End of Topic Test -End of term Exam	End of Topic Test	End of Year Exam
Homework	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week	Skills Check sheet each week
Terms	1	2	3	4	5	6

Yr11 Units	**Number**	**Geometry**	**Data Handling/ Algebra and Graphs**	
Key learning	Estimation, approximation, and using to calculate efficiently compound measures, error intervals and bounds. Factors, Powers, roots and index laws including negative and fractional. Calculating with and rationalising surds. Standards Forms	Identifying 3D shapes. Nets and use of isometric paper. Plans and elevations Volume and Surface Area of cylinders, pyramids and cones and spheres.	Sampling methods, representing data in tables and graphs including frequency & cumulative frequency tables .Measuring and comparing data averages and spread.	Revision and Review
Assessment	End of Topic Test	PPE Exam	PPE Exams	Culminates in the GCSE Exams
Homework	Skills Checks	Skills Checks	Skills Checks	Past Papers

CURRICULUM PROGRESSION MAPPING

MATHS - CORE KNOWLEDGE & SKILLS - PROGRESSION MAPPING							
CONCEPT	**INTERVENTION**	**EMERGING**	**DEVELOPING**	**MASTERING**	**EXTENDING**	**BEYOND**	
Number	Students know their times tables.	Students can add and subtract integers. Students can multiply and divide integers. Students can order numbers and understand place value.	Students can add and subtract integers including negatives and decimals. Students can calculate using BIDMAS. Students can multiply and divide integers and decimals. Students can recognise different types of numbers. Prime numbers, square and cube numbers.	Students can estimate calculations using rounding. Students can check calculations. Students can convert between fractions and percentages. Students can interpret calculator displays. Students can find factors and prime factors of numbers.	Students can convert using standard form. Students can understand and use terminating decimals and fractions. Students can understand the equivalence of fractions and percentages. Students can use LCM and HCF. Students can use all four operations with fractions. Students can find fraction and percentage of amounts.	Students can calculate using standard form. Students can understand error intervals (upper and lower bounds). Students can understand index laws. Students can convert recurring decimals to fractions. Students can use Surds when performing calculations. Students can use the product rule for counting. Students can find percentage increase and decrease and reverse percentages.	
Algebra	Understand algebraic notation.	Students can collect positive like terms. Students can continue an arithmetic sequence. Students can plot coordinates in one quadrant.	Students can collect positive and negative like terms. Students can plot coordinates in four quadrants. Students can plot vertical and horizontal lines. Students can substitute positive values into simple expressions.	Students can collect and simplify expressions. Students can continue a geometric, triangular, and cubic sequence. Students can multiply single brackets. Students can plot straight line graphs.	Students can apply expressions to perimeter, area, and angles. Students can change the subject of a formula. Students can expand two linear expressions. Students can factorise single brackets.	Students can derive an equation. Students understand the index laws, including fractional indices. Students can factorise quadratic expressions. Students can recognise and continue Fibonacci, quadratic	Students can use algebra as methods for “Proof”

			Students can write position-to-term rules.	Students can solve simple linear equations and substitute positive and negative values into expressions & formulae.	Students can plot graphs of linear functions and quadratic functions. Students can plot real life graphs. Students can solve linear equations with variables on both sides. Students can simplify indices – basics and write the Nth term.	and simple geometric sequences. Students can plot cubic functions and reciprocal functions. Students can solve problems with Algebraic Fractions.	
Geometry and Measures	Students can name basic shapes, squares rectangles and identify some of the properties	Students can measure lines and angles. Students can name 2D and 3D shapes. Students can identify the properties of 2D and 3D shape. Students can find the area of rectangles.	Students can find the area of triangles and parallelograms. Students can find the perimeter of 2D shapes. Students can recognise congruent shapes. Students can state the properties of triangles and quadrilaterals and use metric units. Students can construct shapes.	Students can enlarge, reflect, translate and rotate a shape. Students can find alternate & corresponding angles. Students can find the area of circles and trapezia. Students can find the circumference of a circle. Students can recognise similar 2D shapes. Students can use circle terminology and use geometrical terminology & diagrams. Students can recognise and calculate Bearings. .	Students can convert between compound measures. Students can enlarge a shape using a fractional scale factor. Students can find the area of compound shapes. Students can find the volume of prisms. Students can recognise congruent triangles. Students understand and use Pythagoras theorem. Students can recognise plans and elevations and use them to construct 3D shapes. Students can use compasses to construct shapes and angles.	Students can find arc lengths and sectors. Students can find the surface area of a 3D shape. Students can find the volume of spheres and cones. Students can enlarge shapes using negative scale factors. Students can use the properties of similar 2D and 3D shapes Students can find calculate area and volume when shapes are enlarged by scale factor. Students can apply trigonometry to right angle triangles. Students can use Pythagoras with 3D shapes. Students can use constructions skills to loci problems.	Students can use the sine and cosine rule with non-right-angle triangles. Students can find the area of a triangle using Sine. Students can use circle theorems to solve problems. Students understand vectors and can combine them with algebra to show geometric proof. Students can transform graphs. Students can plot and transform Sine and Cosine Graphs.
Probability	Students understand that outcomes can be down to chance.	Students can list outcomes of events.	Students can describe probabilities using words. Students can use the probability scale.	Students can find probabilities of equally likely outcomes. Students can use frequency trees. Students can use two-way tables. Students can use Venn Diagrams to work out probability	Students can find probabilities using sample space diagrams. Students can find relative frequency and theoretical probability. Students can understand mutually exclusive events.	Students can find probability using a probability tree for dependant and independent events.	
Ratio and Proportion		Students can add and subtract fractions with the same denominator. Students can convert 100%, 50%, 25%, 75% into decimals and fractions. Students can simplify fractions and ratio.	Students can compare fractions, decimals, percentages. Students can convert between mixed numbers and improper fractions. Students can express a test score as a fraction.	Students can convert standard units. Students can express one quantity as a percentage or fraction of another. Students can share in a given ratio. Students can use ratio notation. Students can use scale factors with diagrams and maps.	Students can compare lengths, areas and volumes scale factors. Students can solve problems involving ratio and fractions. Students can work out percentage changes.	Students can compare quantities as a ratio. Students can calculate gradient and the rate of change. Students can calculate growth and decay. Students can solve problems with compound units. Students can solve problems involving proportion. Students can work out scale factors and similarity. Students understand compound interest.	
Statistics		Students can create tally and frequency charts. Students can draw a bar chart. Students can draw pictograms.	Students can draw compound bar charts. Students can draw frequency polygons. Students can find all four averages from a list.	Students can draw and interpret pie charts. Students can draw and interpret scatter diagrams. Students can recognise and describe correlation.	Students can compare data using graphs. Students can compare distributions using mean, median, mode and range. Students can draw time series graphs.	Students can draw and interpret histograms with equal class widths. Students understand cumulative frequency and can plot a cumulative frequency graph. Students understand quartiles and quartile range and can find the median. Students can interpret box plots.	

				Students can interpret two-way tables. Students can understand types of data (continuous, discrete). Students can draw and interpret vertical line charts.	Students can take a sample and evaluate from a population. Students can work with grouped data and find the mean and median with classes.	