TIFFIN
FOUNDED 1638

Maths Curriculum Overview

Our curriculum is designed for able students with the overall aim of fostering enjoyment and success in Mathematics. We are ambitious, studying topics in depth, so that there is less need to revisit them. Problem solving is at the heart of our curriculum, aiming to engender determination and resilience in the students..
Teachers use a wide range of resources including the comprehensive set of presentations and assessment activities on Dr Frost Maths but consistency is ensured through regular testing, comparing outcomes across different groups.

Key Stage 3

Students follow an accelerated curriculum aimed at laying the foundations for GCSE and beyond. In Year 7, the aim is to bring all students up to a high level of understanding across the subject, including an introduction to algebraic structure, basic number theory. In Year 8, the focus shifts to in-depth study of algebraic techniques and graphs, as well as extended data handling projects. In Year 9, the overarching theme of proportion runs through the year in addition to a substantial study of quadratics.

Key Stage 4

Most students follow an accelerated curriculum in Year 10 covering the majority of the remainder of the GCSE course and aspects of the Level 2 Further Maths curriculum where it overlaps. In Year 11, students complete the GCSE course in the first term and then study the aspects of Further Maths beyond GCSE such as Matrices and Differentiation which deepens their understanding of maths and provides an introduction to more abstract concepts.
Some students follow a GCSE-only course, working at a slower pace throughout Years 10 and 11 to ensure that they reach the same high standard.

Key Stage 5

Single Maths

In Year 12, we first lay the foundations in algebra and functions before studying both the pure and applied maths in-depth, with the aim of giving students insight into Mathematics and its applications as well as the confidence to explore the subject and solve problems. In Year 13, students build on this with the aim of developing a deeper understanding of mathematical concepts and the ability to solve complex problems. Students study the entirety of Statistics in Year 12, and all of Mechanics in Year 13. The Pure topics are divided between the years.

Further Maths

Students who opt for Further Maths are in separate groups, studying at an accelerated pace to cover approximately 3/4 of the Maths A level Pure and all of the Applied content, laying the foundations for Year 13. In addition, they study the AS Further Maths Core Pure content to introduce them to more abstract concepts such as Complex Numbers and Matrices. In Year 13, students complete their study of the Pure and Core Pure content, deepening their understanding and fluency in solving increasingly complex problems. They also study 2 or 3 options according to their interests in Mechanics, Statistics and advanced Pure maths.

KS3 Maths Curriculum

	Year 7	Year 8	Year 9
Autumn Term 1	Negative Numbers Order of Operations Formulae and Expressions Fractions	Rules of Algebra (Yr 7 Recap) Changing the Subject of a Formula Quadrilaterals & Angles in Polygons	Proportional reasoning and Ratio Simultaneous Equations (linear) Factorising Quadratics
Autumn Term 2	Sequences Number Theory Area & Perimeter (including Circles)	Straight line graphs Systematic counting & Probability	Linear and Quadratic Sequences Enlargement & Combined Transformations Trigonometry Similarity
Spring Term 1	Fractions, Decimals and Percentages Brackets Equations	Data project	Decimal Fractions Percentages Quadratic Equations (Factorising) Loci
Spring Term 2	Angles Data Handling (charts & averages) Rounding and Approximation	Compound measures Rules of Indices Standard Form Rounding, errors and estimations Constructions, bearings & scale drawing	Isometric Drawing and Elevations Linear inequalities Mathematical reasoning & proof Units
Summer Term 1	Pythagoras' Theorem Written calculations Ratio & map scales	Brackets & Factorising Multiplying two brackets Equations with Fractions, algebraic fractions	Arcs & sector / Areas & Volumes Probability More Quadratic Equations
Summer Term 2	Transformations Volumes	Data handling (continuous data) Trial & Improvement Set notation Bases	Direct and Inverse Proportion Algebraically More Quadratics Algebra Review

KS4 Maths Curriculum (GCSE + Further Maths)

	Year 10	Year 11
Autumn Term 1	Surds and Indices Manipulating Formulae Linear Graphs, y=mx+c Inequalities: shading regions	Venn diagrams Advanced graphs Rates of change Differentiation
Autumn Term 2	Circle theorems Advanced Trigonometry (1) Sampling, Histograms Hard ratio and proportion, including algebraic methods	Binomial Expansion Coordinate geometry of circles Simultaneous Equations Completing the square (equating coefficients) Advanced Factorisation The Factor Theorem
Spring Term 1	Simultaneous Equations (one quadratic, one linear) Curved graphs Vectors	Matrices
Spring Term 2	Volume and Surface Area Similar shapes Measures and Bounds	Advanced Trigonometry Revision
Summer Term 1	Congruent shapes Algebraic Fractions Sequences Quadratic inequalities	Revision
Summer Term 2	Functions Iteration	n/a

KS4 Maths Curriculum (GCSE)

	Year 10	Year 11
Autumn Term 1	Surds and Indices Manipulating Formulae Linear Graphs, y=mx+c	Probability & Venn diagrams Curved graphs (2) Transformations of curves
Autumn Term 2	Inequalities: shading regions Angles & Circle theorems Advanced Trigonometry (1)	Circle Proof Advanced Trigonometry (2)
Spring Term 1	Sampling Grouped Data Ratio and proportion, including algebraic methods Simultaneous Equations Curved Graphs (1)	Similar shapes Congruent shapes Rates of change
Spring Term 2	Vectors Volume and Surface Area	Revision
Summer Term 1	Measures and Bounds Counting Strategies Algebraic Fractions Sequences Quadratic inequalities	Revision
Summer Term 2	Functions Iteration	n/a

KS5 Maths Curriculum

	Year 12		Year 13	
Autumn Term 1	Algebra Proof Quadratics Equations & Inequalities Graphs & transformations Straight line graphs	Data collection Measures of location & spread Representations of data Probability	Trigonometric functions Trigonometric identities & equations Differentiation	Modelling in mechanics Kinematics Forces
Autumn Term 2	Polynomial division Sine and cosine rules Trigonometric functions Radians, arcs & sectors	Binomial expansion Discrete distributions	Parametric Functions Differentiation Algebraic fractions Proof by contradiction Modulus Function Graph transformations	Variable acceleration Projectiles Inclined planes
Spring Term 1	Exponentials & logarithms Differentiation Integrations Vectors	Hypothesis testing Further probability	Integration	Rigid bodies (moments)
Spring Term 2	Natural logarithms Functions Advanced differentiation	The Normal Distribution	Vectors Numerical methods Binomial expansion	Variable acceleration
Summer Term 1	Circles Proof	Correlation & Regression	Revision	Revision
Summer Term 2	Exam feedback and review. Consolidation of identified knowledge gaps. Teacher directed and supported project work and/or progressing to learn new material. 6th Form Progression Programme.			

KS5 Maths & Further Maths Curriculum

	Year 12 (*)			Year 13	
Autumn Term 1	Equations & Inequalities Graphs & transformations Linear Graphs Polynomials	Logarithms Functions Binomial Expansion	Radians, arcs and sectors Trigonometric functions Vectors Kinematics	Sequences Binomial Series Parametric functions Advanced Differentiation Integration Numerical methods	Option 1
Autumn Term 2	Proof Complex Numbers	Differentiation Data collection, measures of location and spread & representation	Forces Projectiles	Hyperbolic Functions Methods in Calculus Differential Equations	Option 1
Spring Term 1	Series Roots of Polynomials Matrices Transformations	Probability Discrete Random Variables Hypothesis Testing Integration	Further Forces Trigonometric Functions	Complex Numbers Series Volumes of Revolution	Option 2
Spring Term 2	Proof by Induction Vectors	Circles Correlation & Regression	Trigonometric identities & equations Moments	Polar Coordinates	Option 2
Summer Term 1	Volumes of Revolution	Normal Distribution Further Differentiation	Variable acceleration	Revision	Revision
Summer Term 2	Exam feedback and review. Consolidation of identified knowledge gaps. Teacher directed and supported project work and/or progressing to learn new material. 6th Form Progression Programme.				
	(*) This is an example. Different groups follow slightly different schemes to enable them to have specialist teaching across all strands.				

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