The Wellington Academy

Maths

At TWA we are committed to ensuring that every student not only enjoys Maths but also achieves success in it. Our thoughtfully designed curriculum allows all learners to reach and surpass their potential, no matter their initial level. Our Mathematics curriculum is designed to develop ambitious, inquisitive and independent learners who appreciate the relevance and beauty of Maths in everyday life.

Ambitious – Independent – Inquisitive

	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
CONTENT / TOPICS / CONCEPTS	Sequences; Algebraic notation and Substitution; Expressions and Equations; Place Value, Ordering and Rounding; Four Operations; Averages and Range; Rounding and Estimation; Graphing data; Fractions, Decimals and Percentages; Directed number; Fractions and percentages of amounts; Perimeter and Area; Speed, Distance and Time; Properties of Number; Add and Subtract Fractions; Angles and Polygons	Ratio; Proportion and Scale; Algebraic Manipulation; Coordinates and Graphs; Multiply and Divide Fractions; Symmetry and Reflection; Area, Volume and Density; Equations and Inequalities; Percentages; Indices; Standard Form; Interpret and Represent Data; Angles in Parallel Lines and Polygons; Tables and Probability; Circles; Graphs and Charts; Sequences	Properties of Number; Percentages; Area and Volume; Equations, Inequalities and Formulae; Fractions; Rates; Standard Form; Maths and Money; Straight line graphs; Ratio and Proportion; Constructions and Congruence; Similarity; Algebraic Manipulation; Pythagoras' Theorem; Non-linear graphs; Probability; Transformations; Simultaneous equations; Trigonometry	**Higher:** Graphs, Area and Perimeter, 3D Forms, Bounds, Transformations, Constructions, Loci, Bearings, Quadratics, Simultaneous Equations, Inequalities, Probability, Multiplicative Reasoning, Similarity and Congruence, Trigonometry, Data **Foundation:** Sequences, Area and Perimeter, 3D Forms, Graphs, Transformations, Ratio and Proportion, Pythagoras, Trigonometry, Probability, Multiplicative Reasoning, Constructions, Loci, Bearings	**Higher:** Cumulative frequency, Box plots, Histograms, Quadratics and Cubics, Circle Theorems, Circle Geometry, Complex Algebra, Vectors and Geometric proof, Reciprocal and Exponential Graphs, Direct and Inverse Proportion **Foundation:** Quadratic Equations and Graphs, 3D Forms, Fractions, Indices, Standard Form, Similarity and Congruence, Vectors, Algebra	**Coordinate Geometry;** lines, circles, intercepts **Calculus;** Stationary points, second derivatives, integration **Statistics;** probability, graphs, binomial and normal distributions **Mechanics;** Newtons laws, kinematics **Algebra;** Binomial expansion	**Calculus;** parametric equations, differentiation rules, integration rules **Geometry;** Advanced trigonometry, Radians Algebra; Proof & Sequences **Mechanics;** Frictions Problems, Moments **Statistics;** Hypothesis testing & errors.
VOCABULARY	Term, Expression, Substitution, Simplify, Like terms, Equation, Decimal Place, Integer, Mode, Mean, Median, Range, Significant Figure, Estimate, Correlation, Perimeter, Area, Multiple, Factor, Prime Number, Powers, Roots, Highest Common Factor, Lowest Common Multiple, Numerator, Denominator, Mixed Number, Improper Fraction, Polygon, Parallel, Perpendicular	Simplify, Ratio, Proportion, Scale, Similar, Formula, Identity, Equation, Expand, Factorise, Gradient, Midpoint, Line symmetry, Rotational symmetry, Reflect, Density, Mass, Volume, Area, Inequality, Multiplier, Indices, Standard Form, Outliers, Discrete, Continuous, Frequency, Interior, Exterior, Alternate, Corresponding and Co-Interior Angles, Circumference	Prime factors, Surd, Interest, Surface area, Volume, Rates of Change, Compound Units, Borrowing, Budgeting, Insurance, Spending, Gradient, Intercept, Direct Proportion, Inverse Proportion, Construct, Congruent, Bisector, Enlargement, Similarity, Hypotenuse, Opposite, Adjacent, Roots, Turning Points, Set, Union, Intersection, Complement, Rotation, Translation	Linear, Quadratic, Area, Perimeter, Volume, Surface Area, Reflect, Rotate, Translate, Enlarge, Factorise, Solve, Inequality, Loci, Bearing, Bisector, Congruent, Similar, Nth Term, Hypotenuse, Adjacent, Opposite, Geometric, Estimate, Convert, Gradient, Intercept, Roots, Turning Point, Solution, Net, Bound, Compound Measure, Sine, Cosine, Tangent, Sample	Higher: Cumulative, exponential, reciprocal, iteration, function, Quadratic, Simultaneous, Geometric, Proportion, Sketch, Solve, Prove Foundation: Plot, Root, Intercept, Turning Point, Expand, Factorise, Circumference, Surface Area, Volume, Indices, Similarity, Congruence, Vector	• Derivative • Rates of change • Net Force • Standard deviation • Expected value • Suvat • Binomial coefficient	• Coefficient of friction • Composite function • Contradiction • Discrete distribution

ASSESSMENT

In all year groups, students are regularly assessed through formative assessments. These may take form of questioning, low stakes quizzing and end of unit assessments. Any end of unit assessment will be marked by the teacher and feedback is given through regular IACT lessons. These lessons provide further feedback to students and allow them time to act and improve upon their work. Additionally, summative assessments happen at two intervals during the academic year, which will test all knowledge acquired up to that point (including topics learnt in previous years. At KS3, some assessments are solely non-calculator, whilst some have a calculator element dependent on topics learnt. At KS4, all summative assessments have a calculator and non-calculator element and from the second assessment point in year 10 will all be past exam papers. Summative assessments at KS5 are all calculator based.

SKILLS

Deep Understanding: Students are encouraged to build a strong grasp of mathematical concepts through exploration and reasoning, rather than relying solely on memorized rules.

Mathematical Thinking: Developing the ability to think mathematically both inside and outside the classroom is essential for truly mastering mathematical ideas.

Mathematical Language: Pupils are supported in using precise mathematical language throughout their learning, helping to reinforce and deepen their conceptual understanding.

PERSONAL DEVELOPMENT

In KS3, students begin to build resilience when tackling challenging problems, a skill that is further developed in KS4. Through differentiated activities tailored to both support and challenge, students cultivate a growth mindset. This approach ensures that every pupil experiences a sense of achievement in each lesson, regardless of their previous attainment. Students are given opportunities to apply their mathematical skills in real-life contexts, allowing them to explore and use these skills to solve a range of problems.