THOMAS ALLEYNE'S HIGH SCHOOL

UTTOXETER LEARNING TRUST — INSPIRED TEACHING INSPIRING CHILDREN

Curriculum Overview for: Mathematics

**Key Stage 4
Academic Year Group: 9
Tier: Higher**

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Number 1 – Basic number and decimals / Factors & Multiples Geometry & Measures (G & M) 1 – Angles / Scale drawings & Bearings	Algebra 1 – Basic algebra review Number 2 - Fractions Statistics 1 - Collecting and Representing data	Number 3 – Rounding and Estimation Algebra 2 - Sequences G & M 2 – Perimeter and Area	Ratio & Proportion (R & P) 1 – Basic Percentages Algebra 3 – Coordinates and Linear graphs / Real Life Graphs	G & M 3 – Circles R & P 2 – Ratio & Proportion Probability 1 – Basic Probability	Algebra 4 – Equations / Quadratics Statistics 2 – Scatter Graphs G & M 4 - 2D representations of 3D Shapes
Content	Basic number and decimals • Ordering numbers • Inequality symbols • 4 Operations integers, decimals and negatives • Place value • Recurring decimals • Factors, Multiples & Prime numbers • HCF / LCM Angles • Angle rules • Angles on parallel lines Scale drawings & Bearings • scale diagrams • Measuring, drawing and calculating bearings	Basic Algebra • Order of operations • Algebraic notations • Collecting like terms • Expanding single brackets • Factorising into a single bracket • identities Fractions • Order fractions • Four operations with fractions • Improper fractions and mixed numbers Collecting and Representing data • Definitions of data • Draw and interpret data using various graphical representations: Histograms, Cumulative frequency, box plots	Rounding and Estimation • Rounding numbers to decimal places • Rounding numbers to significant figures • Estimation • Bounds and error intervals Sequences • triangle, square, cube numbers • Continuing sequences • Generating sequences • Nth term of a linear sequence • Fibonacci, quadratic and geometric • Nth term of a quadratic sequence Perimeter and Area • Perimeter of shapes • Area of rectangles, triangles, parallelograms and trapezia • Compound shapes • Surface area of cuboids and prisms	Basic percentages • % of an amount • % change • Convert between %, fractions and decimals • % increase and decrease Coordinates and Linear graphs • Coordinates in all four quadrants • Midpoints • Straight line graphs • Gradients and intercepts • Equation of a straight line • Line through 2 points • Parallel and perpendicular lines Real Life Graphs • Conversion graphs • Distance-Time graphs • Speed-Time graphs	Circles • Naming parts • Circumference of a circle • Area of a circle • Compound shapes • Surface area of sphere, pyramids and cones • Arcs and sectors Ratio and Proportion • Ratios as fractions • Simplifying ratios • 1:n or n:1 • Dividing in a ratio • Multiplicative relationships • Ratios as graphs • Best buys Probability • Listing outcomes • Probability from experiments • Exhaustive and mutually exclusive events • Calculating probabilities • Two-way tables • Frequency trees	Equations • Substitution into formulae • Solving linear equations (incl unknown on both sides • Graphical solutions Scatter graphs • Correlation • Plotting and interpreting scatter graphs • Drawing and using lines of best fit • Outliers • Interpolation and extrapolation • Causation 2D representations of 3D Shapes • Properties of 3D shapes • Isometric drawings • Plans and elevations • Nets Quadratics • Expanding • Factorising • Difference of two squares • Solving quadratic equations
Rationale/ Linking	Link forward to: Year 9 - A1, N2, S1, N3, G&M2, A2, R&P1, G&M3, R&P2, P, A4, G&M4 Year 10 – N4, G&M5, S3, R&P3, N5, G&M6, N6, G&M7, G&M8, N7, G&M9	Links forward to: Year 9 - A2, A3, R&P1, R&P2, P, S2, A4 Year 10 – N4, R&P3, A5, G&M8, S4, A6	Links forward to: Year 9 – A3, G&M3, A4, G&M4 Year 10 – G&M5, N6, G&M8, N7, A7, G&M9	Links forward to: Year 9 – R&P2, P, A4, S2 Year 10 – G&M5, R&P3, A7	Links forward to: Year 9 – G&M4 Year 10 - R&P3, G&M8, N7, P2, A8, G&M9	Links forward to: Year 10 – A5, G&M8, S4, A6, A7, G&M9
Assessment	5 Assessment Points throughout the year: October, December, February, April and June				**Learning Resources**	Black pen, green pen, pencil, ruler, protractor, compass, scientific calculator

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UTTOXETER LEARNING TRUST — INSPIRED TEACHING INSPIRING CHILDREN

Curriculum Overview for: Mathematics

Key Stage 4
Academic Year Group: 10
Tier: Higher

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Number 4 – indices Geometry & Measures (G & M) 5 – Measures / Transformations Statistics 3 – Statistical Measures	Ratio & Proportion (R & P) 3 - Percentages Number 5 – Surds G & M 6 – Loci & Constructions	Number 6 – Standard Form G & M 7 – Angles & Polygons Algebra 5 – Simultaneous Equations	G & M 8 – Similarity & Congruence / Pythagoras' Theorem & Basic Trigonometry Number 7 – Number Review & Extend	Probability 2 - Probability Statistics 4 – Statistics Review and Recap Algebra 6 – Introduction to Quadratics	Algebra 7 – Algebra Recap & Review / Coordinate Geometry Recap / Non-Linear Graphs G & M 9 – Volume & Surface Area
Content	Indices • Roots & Powers • Index Laws • Negative & Fractional Indices Measures • Convert between metric & imperial units • Upper & Lower Bounds • Compound Units (Speed, Density & Pressure) • Convert between compound units Transformations • Rotation • Reflection • Translation • Enlargement – inc. fractional & negative scale factors • Invariant points Statistical Measures • Types of Data • Find Mean, Median, Mode and Range from a list and grouped & ungrouped frequency tables	Percentages • Fraction, Decimals and Percentage Conversions • Percentage of an amount • Increase & Decrease by a Percentage • Original Value • Repeated Percentage Change Surds • Calculate with Surds • Simplifying Surd expressions • Rationalise denominators (single term) Constructions & Loci • Construct a Perpendicular/ Angle Bisector • Solve Loci Problems	Standard Form • Convert to and from standard form • Calculate with Standard Form Properties of Polygons • Angles Recap • Quadrilaterals • Angles in regular & irregular polygons Simultaneous Equations • Solving Simultaneous Equations by elimination method and graphically • Forming and solving linear / simultaneous equations	Congruence & Similarity • Congruent Triangles • SSS, SAS, ASA, RHS • Similar Shapes inc. area & volume Pythagoras' Theorem & Trigonometry • SOH CAH TOA • Finding missing angles & sides of a right angled triangle • Exact values of $\sin\theta$, $\cos\theta$, $\tan\theta$ for 0°, 30°, 45°, 60° and 90° Number Review & Extend • Upper & Lower Bounds • Recurring Decimals to Fractions • Product Rule for Counting	Probability • Probability tree diagrams for independent & dependent combined events • Venn Diagrams inc. set notation • Two-Way tables Statistics Review & Recap • Scatter Graphs • Cumulative Frequency Graphs • Box Plots • Histograms Introduction to Quadratics • Expanding Double Brackets • Factorising Quadratic expressions inc. a>1 • Completing the Square	Algebra Recap & Review • Linear & Quadratic sequences • Geometric progressions • Rearranging formulae • Linear equations Coordinate Geometry Recap • Parallel & Perpendicular lines • Equation of a line (given two points / one point & given gradient) Non-Linear Graphs • Quadratic, Cubic, Reciprocal & Exponential Graphs • Solve non-linear equations graphically Volume & Surface Area • Volume & Surface Area of Prisms • Volume & Surface Area of Pyramids, Spheres, Cones • Calculate exactly in terms of pi
Links/Rationale	Links from: Year 9 - N1, G&M1, A3, S1 Links forward to: Year 10 – N5, N6, G&M8, G&M9, S4 Year 11 – R&P5, A8, G&M11, A14	Links from : Year 9 -R&P1,G&M1 Year 10 – N4 Links forward to: Year 11 – R&P4, A8	Links from : Year 9 - G&M1, A4 Year 10 – N4 Links forward to: Year 10 – G&M8, A7 Year 11 – A11	Links from : Year 9 – N1, N3 Year 10 - G&M5 Links forward to: Year 11 – G&M10	Links from : Year 9: P1, S1, S2 Year 10 – S3 Links forward to: Year 10 – A7 Year 11 – A8-A12	Links from : Year 9: A2, A3, A4, G&M3 Year 10 - G&M5 Links forward to: Year 11 – R&P4, R&P5, A8, A9, A!3, A14
Assessment	5 Assessment Points throughout the year: October, December, February, April and June		Learning Resources		Black pen, green pen, pencil, ruler, protractor, compass, scientific calculator	

THOMAS ALLEYNE'S HIGH SCHOOL

UTTOXETER LEARNING TRUST — INSPIRED TEACHING INSPIRING CHILDREN

Curriculum Overview for: Maths

Key Stage 4 Academic Year Group: 11 Higher

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1
Topic	Ratio and Proportion (R & P) 4 - Growth and Decay / Direct and inverse Proportion Algebra 8 - Further solving equations Algebra 9 - Functions	Revision for mocks Geometry and measures (G & M) 10 - Further trigonometry/ Circle theorems Algebra 10 - Inequalities	Algebra 11 - Further simultaneous equations G&M 11 – vectors Algebra 12 – Algebraic fractions	Algebra 13 – Non-linear graphs Algebra 14 – Transforming functions R & P 5 - Gradients and rates of change Algebra 15 - Area under a curve	Revision on areas of weakness identified by the class teacher from the mocks alongside in class assessments
Content	Growth and Decay • Compound interest and depreciation • Growth and decay problems Further solving equations • Linear equations • Quadratic equations – factorise, complete the square, formula, graphically • Set up and solve equations • Iteration Direct & inverse proportion (worded) • Solve proportion problems • Construct and solve equations to represent direct and inverse relationships • Graphs for direct and inverse proportion Functions • Function notation • Compound functions • Inverse functions	Further Trig • Graphing sin, cos and tan • Recap trig • Exact values • Sine rule • Cosine rule • Sine rule for area • Deciding appropriate methods Inequalities • Representing inequalities graphically • Solving linear and quadratic inequalities • Representing inequalities using set notation Circle Theorems • Applying and justifying the full range of circle theorems • Circle theorem proofs	Simultaneous equations • Linear simultaneous equations • Quadratic simultaneous equations • Solving graphically Vectors • Add and subtract vectors • Multiplying by a scalar • Drawing vectors • Parallel and colinear vectors • Geometric proof Algebraic fractions • Simplifying algebraic fractions • Four operations • Solving equations with algebraic fractions	Non-linear graphs • Quadratic, cubic, reciprocal, exponential graphs • Equation of a circle • Tangents to a circle Transforming functions • Describe the impact of a transformation • Sketching transformations Gradients and rates of change • Gradient of a tangent • Interpreting gradients/rates of change Area under a curve • Approximating area under a curve • Interpreting area under a curve	
Rationale/ Linking	Links form: R&P3, A6, A7, A8, N4, N5	Links from: N1, A4, A6, G&M8	Links from: A5, A6, A7, G&M5	Links from: A3, A7, A13, G&M2, G&M5	
Assessment	AP1 Year 11 mocks AP2 in class AP3 in class Additional past papers completed in class during revision			**Learning Resources**	Black pen, green pen, pencil, ruler, protractor, compass, scientific calculator