Subject Name

Curriculum core purpose. Intent

At Old Buckenham High School, our mathematics curriculum is broad, balanced, and inclusive, designed to foster academic excellence, curiosity, and character in all students. Rooted in the development of fluency, reasoning, and problem-solving, our curriculum supports students to become confident mathematicians who can apply their skills and knowledge to real-life contexts.

Carefully sequenced and knowledge-rich, the curriculum ensures a secure progression from Key Stage 2 through to Key Stage 4. It is designed to provide all students with strong foundational knowledge, challenge them to think critically and analytically, and support them in making connections across mathematical domains. By developing resilience and precision in mathematical thinking, we prepare our students for future success in education, employment, and wider society.

Community

Mathematics plays an important role in promoting a shared sense of purpose and collaboration within our school and beyond. Our curriculum supports peer-to-peer learning, encouraging students to work together to solve problems, explain reasoning, and learn from one another's approaches. This sense of shared responsibility helps students to develop mutual respect, patience, and empathy when tackling challenging content.

We also highlight the real-world value of mathematics in local and global communities — from careers in finance, engineering, and technology, to everyday applications such as budgeting and data literacy. Where possible, we bring in guest speakers, promote STEM pathways, and make links with local businesses and organisations to show students how mathematics is used meaningfully in the wider world.

Ambition

Our mathematics curriculum is unashamedly ambitious. We believe all students, regardless of background or prior attainment, are capable of achieving highly in mathematics with the right support, guidance, and challenge.

The curriculum is carefully structured to enable all learners to master fundamental concepts while extending and deepening understanding through increasingly complex and abstract content. High expectations are central to our approach — we expect precision, perseverance, and pride in every mathematical endeavour. Students are challenged to reason mathematically, justify methods, and explore multiple approaches to problem-solving,

encouraging creativity and independence. Through this, they develop confidence in their ability to tackle unfamiliar problems, building the skills and self-belief to succeed in future studies and careers.

Respect

Respect is cultivated in mathematics through classroom routines that value every student's contribution. We create a safe and supportive environment where mistakes are viewed as learning opportunities and effort is celebrated.

Students are encouraged to listen to others' reasoning, challenge ideas constructively, and work together respectfully to achieve shared goals. By learning to engage in mathematical dialogue with curiosity and openness, students develop the interpersonal skills essential for both academic and personal growth.

Content-Knowledge and Skills.	Subject specific pedagogy
Throughout Key Stage 3 and 4, students will: • Develop fluency in key mathematical operations and procedures, enabling accurate and efficient recall and application. • Strengthen their ability to reason mathematically, including justifying decisions, proving results, and identifying patterns. • Solve a wide variety of problems, applying their knowledge flexibly to unfamiliar contexts. • Make connections across topics, such as the links between algebra and geometry or fractions and ratios, to deepen understanding. • Build mathematical literacy, including the ability to interpret, construct, and communicate effectively using the language of mathematics.	Teaching in mathematics is built on clear, direct instruction combined with active student engagement. Lessons are designed to expose the structure of mathematical ideas, with carefully chosen representations and models used to aid understanding. We use retrieval practice and interleaving to support long-term retention and ensure students revisit key knowledge regularly. Misconceptions are anticipated and addressed, and scaffolding is provided where necessary to support all learners, gradually removed to promote independence. Assessment for learning is embedded into every lesson, enabling responsive teaching that meets students' needs. High-quality questioning, formative assessment, and feedback help teachers to identify gaps and adapt instruction accordingly.

Mathematics Curriculum Content 2025-26

SUBJECT Curriculum Content	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7	**Topic**: NP1 – Place Value and the Number Line **Key concepts**: Writing integers and decimals, ordering positive integers, multiplying/dividing by powers of 10, rounding, metric conversions, midpoints and medians. **Topic**: NP2 – Addition and Subtraction **Key concepts**: Strategies for addition and subtraction with integers and decimals, complements, inverses, commutative and associative laws, zero pairs, perimeter, basic angle facts, mean, range and aplications with money.	**Topic**: NP3 – Multiplication and Division **Key concepts**: Times tables to 12, mental and written strategies, multiples and LCM, division/multiplication of integers and decimals, inverse operations, factors and HCF, area, volume and application with money. **Topic**: NP4 – Powers, roots and Primes **Key concepts**: Squares to 15 and cubes to 10, using index form, understanding roots, addittion and subtraction rules with indices and prime numbers.	**Topic**: NP5 – Order of Operations **Key concepts**: Commutativity and fluency in calculations, order of operations including exponents and brackets. **Topic**: NP6 – Directed Numbers **Key concepts**: Negative numbers in context, ordering with negative numbers and the four operations with directed numbers.	**Topic**: A1 – Introduction to Algebraic Thinking **Key concepts**: Concept of an unknown variable, simplifying simple expressions, solving simple equations, substituting into expressions. **Topic**: NP7 - Fractions **Key concepts**: Understand the concept of a fraction, proper and improper fractions, equivalence, complements, 4 operations with fractions and reciprocals.	**Topic**: NP8 – Percentages, Fractions and Decimals **Key concepts**: Equivalence of FDP, recurring and terminating decimals, % of an amount, decimal multipliers, % increase and decrease and applications. **Topic**: NP9 – Estimation and Use of Calculator **Key concepts**: Using a calculator effectively, timetables on a calculator, approximating, error intervals and estimating.	**Topic**: A2 – Manipulating and Simplifying Expressions 1 **Key concepts**: Algebraic notation, collecting like terms, simplifying indices and writing algebraic expressions.
Year 8	**Topic**: GM1 – Drawing, Measuring and Constructing **Key concepts**: Points, lines, segments, measuring lines, labeling correctly, using a protractor,	**Topic**: A4 – Linear Equations **Key concepts**: Understanding equality and balancing, solving equations from 1 step to multi step and unknown on both sides.	**Topic**: GM2 – Polygons and Angles **Key concepts**: Angles on a straight line, around a point, vertically opposite, naming and recognising features of triangles/quadrilaterals/polygons, interior and exterior angles of polygons, angles in parallel lines and bearings.	**Topic**: GM3 - Area **Key concepts**: Define area, area of triangles/quadrilaterals/circles/compound shapes and problems with area. **Topic**: NP11 - Ratio **Key concepts**:	**Topic**: A5 - Formulae **Key concepts**: Evaluate formulae by substitution, writing formulae, generating	**Topic**: SP2 – Bivariate Data and Time Series **Key concepts**: Draw scatter graphs, correlations, lines of best fit and use and

	using a compass, constructing triangles, constructing bisectors and simple loci. **Topic:** A3 – Manipulating and Simplifying Expressions 2 **Key concepts:** Expanding a single brackets, factorising into a single bracket, expanding 2 binomials and writing complex algebraic expressions.	**Topic:** NP10 – Proportional Reasoning **Key concepts:** Directs and inverse proportion, comparing quantities, scaling up/down, % increase/decrease and finding % change.	**Topic:** SP1 – Discrete Data **Key concepts:** The data handling cycle, qualitative/quantitative data, frequency tables, graphs, averages, spread and comparing data sets.	Ratio notation, simplifying ratio, scale drawings, fractions from ratios and finding the value of parts given the whole or other parts.	sequences and rearranging formulae. **Topic:** A6 – The Cartesian Grid **Key concepts:** Drawing an acurate grid and plotting in the 4 quadrants, introduce vectors, midpoints, expressing relationships algebraically and graphicaly, reading values of variables from a graph, finding gradients and intercepts and understanding parallel and perpendicular lines	interpret tables and line graphs for time series. **Topic:** A7 – Introduction to Sequences **Key concepts:** Generate terms of a sequence, find and use the nth term, recognise common sequences and work with visual representations of sequences.
Year 9	**Topic:** A8 – Linear Inequalities **Key concepts:** Representing inequalities on a number line, solving inequalities, solving compound ;inear inequalities, setting up inequalities and representing inequalities on a graph with shading. **Topic:** NP12 – Standard Form **Key concepts:** Convert to and from standard form, compare numbers in	**Topic:** A9 – Contextual Graphs **Key concepts:** Real life graphs (fixed charge, rate of change, conversion), SDT, distance-time graphs, gradient of a line and speed and velocity time graphs. **Topic:** SP3 – Introduction to Probability **Key concepts:** Systematic listing, frequency of outcomes, theoretical probability, sum of probabilities sum to 1, generating theoretical sample	**Topic:** A10 – Advanced Linear Graphs and Equations **Key concepts:** Finding the gradient of a line, use y=mx+c, identify equations of parallel and perpendicular lines, solve equations graphically, solving simultaneous equations graphically and algebraicaly. **Topic:** GM4 – Congruence and Similarity **Key concepts:** Congruence, tesselation, transformations (reflection, rotation, translation and enlargement), similarity and conditions for congruency.	**Topic:** GM5 – Right-Angled Triangles **Key concepts:** Pythagoras in 2d/3d, proving right angled with pythagoras, Trigonometric ratios, exact trig values and problems involving pythagoras and trigonometry. **Topic:** NP13 – Advanced Proportion and Rates of Change **Key concepts:** Reverse %, simple interest, direct/inverse proportion, compound units and ratio problems;	**Topic:** GM6 - Circles **Key concepts:** Parts of a circle, Circumference, area, problems, length of arc/area of sector and Circle theorems.	**Topic:** GM7 – Advanced Drawing, Measuring and Constructing **Key concepts:** Interior/exterior angles in a polygon, problems with angles, converting between 2D and 3D units of measurement, naming and recognising polyhedra, drawing 3D shapes,

	standard form, 4 operations with standard form and applications.	spaces and recording outcomes and possibilities using frequency trees/2 way tables/venn diagrams.				interpreting nets, planes of symmetry and loci.
Year 10	**Topic**: SP4 – Continuous Data **Key concepts**: Measures of central tendency, graphical representations, boxplots, cumulative frequency, spread and quartiles and comparing data sets. **Topic**: SP5 – Set Theory and Logic **Key concepts**: Representing sets with notaion/venn diagrams, intersections and unions of sets, using AND and OR rules and representing solutions using set notations.	**Topic**: NP14 – Number Theory **Key concepts**: Finding HCF/LCM using prime factors, advanced prime numbers, recurring and terminating decimals and writing error intervals with calculations. **Topic**: A11 – Advanced Manipulating and Simplifying Expressions **Key concepts**: Addition/subtraction of indices, power of a power, power of 0, expand 2/3 binomials, factorising quadratics (inc. Difference of 2 squares), simplifying algebraic fractions, rearranging more complex formulae and simplifying an expression by factorising.	**Topic**: A12 – Quadratic Graphs and Equations **Key concepts**: Plotting and reading values from a graph and solving quadratic equations (by factorising, with the quadratic formula, completing the square, sketching). **Topic**: GM8 – Surface Area and Volume **Key concepts**: Surface area/volume of prisms/spheres/cylinders/pyramids/frustrums etc. And similarity of volume and area.	**Topic**: A13 – Advanced Sequences **Key concepts**: Quadratic and geometric sequences, fibonacci sequences, quadratic sequences and recurrence relations. **Topic**: GM9 – Advanced Length and Area **Key concepts**: Pythagoras and trigonometry in 3D, area of any triangle, sine/cosine rules, area of a segment and problems.	**Topic**: SP6 – Sampling and Advanced Data Analysis **Key concepts**: Solving problems with averages, describe/apply sampling techniques, describe/infer population properties, histograms, frequency polygons and midpoints.	**Topic**: NP15 – Indices and Surds **Key concepts**: Understanding types of numbers, 4 operations with surds, simplifying surds, rationalising a denominator, negative and fractional indices, equations involving indices, changing the base and problem application.
Year 11	**Topic**: A14 – Advanced Quadratic Graphs and Equations **Key concepts**: Forming and solving quadratics from context, complete the square to find roots, finding turning points, solving quadratic inequalities and solving simultaneous equations when one	**Topic**: GM10 – Advanced Vectors **Key concepts**: Represeprenting vectors, 4 operations of vectors, magnitude of vectors and geometric arguments/proofs with vectors. **Topic**: SP7 – Advanced Probability **Key concepts**: Predict outcomes of experiments using tendencies to theoretical	**Topic**: A15 – Functions and Advanced Graphs **Key concepts**: Reading/writing function notation, find inverse and composite functions, plot and interpret cubic/reciprocal/exponential functions, plot/sketch/interpret trig graphs/equation of a circle, estimate solutions, sketch/interpret transformation of graphs. **Topic**: A16 – Pre-Calculus **Key concepts**: Find and estimate instananeous and average rates of change and find and estimate areas under curves and interpret these in real contexts.	**Topic**: A17 – Advanced Algebra Skills and Proof **Key concepts**: 4 operations with algebraic fractions, rearranging formulae with fractions, solving involving algebraic fractions, algebraic proof, algebraic sequences and proof of formulae (sine/cosine/quadratic/pythagoras etc.) **Topic**: GM11 – Solving Geometric PProblems **Key concepts**: Drawing and reading scale drawings/loci/bearings, solving angle problems with reasoning, solving with the		

is linear and one is quadratic. **Topic:** NP16 – Numerical and Algebraic Representations of Proportion and Change **Key concepts:** Direct proportion, square and cubic proportion, inverse proportion, compound interest, exponential growth and decay and advanced ratio work.	probabilities, draw/interpret tree diagrams for independent/dependent events. And complex "given that" problems.		SUVAT formulae, proving congruence and proving circle theorems.		

Important Note – The Maths GCSE is split into Foundation and Higher in year 10 and so not all content will be covered by all students from each section.