Hartford Church of England High School – Year 9 – Maths

Year 9	HT1	HT2	HT3	HT4	HT5	HT6
Topic(s)	Index Laws, Standard Form, HCF and LCM, Error Intervals	Fractions, Decimals and Percentages	Algebraic Manipulation, Solving Equations, Graphs	Shape, Area and Perimeter, Angles, Constructions, Transformations, Pythagoras and Trigonometry	Ratio and Proportion	Averages, Presenting and interpreting data, Probability, Sequences
Focus	Use index laws to simplify and calculate the value of numerical expressions involving multiplication and division of integer powers, fractions, negative powers, and powers of a power. Convert large and small numbers into standard form and vice versa. Add, subtract, multiply and divide numbers in standard form. Find the HCF and LCM of two numbers, by listing, Venn diagrams and using prime factors: include finding HCF and LCM given the prime factorisation of two numbers. Solve problems using LCM and HCF in context. Reverse HCF and LCM problems. Use inequality notation to specify simple error	Recognise recurring decimals and convert fractions into recurring decimals. Compare and order fractions, decimals and percentages using inequality signs. Find a fraction of an amount and problem solve with the four operations of fractions including mixed numbers. Calculate percentage of an amount and increase/decrease with, using decimal multipliers, and without a calculator. Use percentages to solve problems in real-life situations. Express a given number as a percentage of another number in more complex situations. Make calculations involving repeated percentage change,	Expand two sets of brackets and simplify by collecting like terms. Recognise factors of algebraic terms involving single brackets and simplify expressions by factorising. Expand double brackets. Factorise quadratic expressions of the form $x^2 + bx + c$. Factorise a quadratic expression using the difference of two squares. Solve and rearrange linear equations and inequalities, which include brackets, fractions and unknowns on both sides. Solve double sided inequalities and represent on a number line.	Describe 3D shapes using the terms face, edge, and vertex. Identify, name, and draw parts of a circle. Problem solve with area and perimeter of 2D shapes (including trapezia and circle) including forming and solving equations. Use angle properties including parallel lines and interior/exterior angles to solve problems, including those that involve forming equations. Calculate and solve problems using bearings including back bearings. Make accurate scale drawings. Construct perpendicular and angle bisectors using a compass. Understand loci and solve locus problems including bearings.	Solve ratio problems in context including three-part ratios, comparing ratios, and finding one quantity when the other is known. Write ratios in form 1:m or m:1 (involving fractions and decimals). Use proportion to solve problems involving recipes, better buys, measures, currency, and rates of pay. Understand, recognise, and solve problems involving direct/inverse proportion.	Compare distributions using an appropriate choice of average and range. Calculate the mode, median, mean and range from frequency tables. Draw and interpret stem and leaf diagrams, two-way tables, and frequency trees. Construct pie charts and compare and solve problems involving pie charts. Recognise and use properties of mutually exclusive events to calculate probabilities. Calculate, use, and compare experimental and theoretical probabilities. List all outcomes for combined events and use and draw sample space diagrams. Find the nth term for a pattern and arithmetic sequence.

	intervals due to truncation or rounding. Calculate the lower and upper bounds of calculations.	including simple and compound interest.	Solve quadratic equations by factorizing. Plot and draw graphs of straight lines of the form y = mx + c and ax + by = c without a table of values. Find the equation of a straight line from a graph in the form y = mx + c and ax + by = c. Find the equation of a line through one point with a given gradient.	Describe and perform translations, reflections, rotations, and enlargements. Use Pythagoras to calculate the length of the hypotenuse and shorter sides of a right-angled triangle. Use Trigonometry to find lengths and angles in a right-angled triangle.		Use the n^{th} term to generate terms and decide if given numbers are in a sequence. Extend geometric and quadratic sequences and find the term-to-term rule.
Vocabulary	Evaluate, Square, Index, Indices, Product, Factor, Multiple, Integer	Percentage, Compound Interest, Calculate, Estimate,	Expand, Factorise, Plot, Sketch, Simplify, Solution, Solve, Express, Input, Output	Perpendicular, Parallel, Bisector, Angle, Regular, Pythagoras, Trigonometry	Share, Relationship, Scale, Equal parts, Divide, Ratio, Proportion, Convert	Horizontal, Vertical, Axis, Origin, Graph, Frequency, Mean, Median, Mode, Chart, Label, Range, Interpret
Assessment	Mid Stakes 1: Topic Test Mid Stakes 2: Topic Test	Mid Stakes 3: Topic Test Mid Stakes 4: Topic Test	Mid Stakes 5: Topic Test High Stakes 1: Topic Test	Mid Stakes 6: Topic Test Mid Stakes 7: Topic Test	Mid Stakes 8: Topic Test High Stakes 2: Topic Test	Mid Stakes 9: Topic Test Mid Stakes 10: Topic Test
Curriculum Thread	Number	Number	Algebra	Geometry and Measures	Ratio, Proportion and Rates of Change	Algebra, Probability and Statistics
Wider Reading	Sparx Maths – Go to 'Independent Learning' - Index rules with positive indices (M608) - Finding the HCF and LCM using prime factor decomposition (M365)	Sparx Maths – Go to 'Independent Learning' - Coverting fractions to recurring decimals (M922) - Finding original values in percentage calculations (M528)	Sparx Maths – Go to 'Independent Learning' - Changing the subjects of formulae with two or more steps (M983) - Interpreting equations of straight-line graphs (M888)	Sparx Maths – Go to 'Independent Learning' - Using Pythagoras' theorem in 3D (M147) - Constructing loci (M253)	Sparx Maths – Go to 'Independent Learning' - Sharing amounts in a given ratio (M525) - Constructing direct proportion equations (M472)	Sparx Maths – Go to 'Independent Learning' - Choosing suitable averages and solving problems (M440) - Position-to-term rules for quadratic sequences (M418)