Long Term Plan – Maths (2024-25)

Vision: Mathematics is essential to everyday life by providing a foundation for understanding the world around us. The aim of our mathematics curriculum is to give our students every opportunity to exceed in the real world. Our students will be able to reason and communicate mathematically, solve problems in a wide range of contexts and develop mathematical curiosity. The mathematics curriculum will enable students to take their transferrable skills to explore various subjects and prepare for future careers.

	HT1 (7)	HT2 (6)	HT3 (6)	HT4 (6)	HT5 (5)	HT6 (8)	Year End Points
Year 7	• Sequences(2) • Understand & Use algebraic notation(2) • Equality & equivalence(2)	• Place value & ordering integers & decimals(3) • Fraction, decimal & percentage • Equivalence(3)	• Solving problems with addition and subtraction(2) • Solving problems with multiplication & division(3) • Fraction & percentages of amounts(2)	• Operations & equations with directed number(3) • Addition & subtraction of fractions(3)	• Constructing, measuring & using geometric notation(3) • Developing geometric reasoning(3)	• Developing number sense(2) • Set & probability(2) • Prime numbers & proof(2)	**By the end of Year 7 student should be able to u**se their knowledge of the number system to compare, order, estimate, and round positive and negative numbers appropriately for different contexts. They will understand and convert between fractions, decimals, and percentages, recognizing their equivalence, and explore how these number skills overlap, demonstrating their interrelated nature. In geometry, students will use mathematical equipment to construct triangles and apply their prior knowledge of angles, triangles, quadrilaterals, and polygons. They will know how to label lines and angles correctly and calculate missing angles in problems. Venn diagrams will be explored as a representation of data, with students understanding their function and associated notation. They will be able to interpret and calculate probabilities using appropriate terminology. Additionally, students will explore and compare numerical and graphical sequences, making connections between pictorial and numerical sequences and investigating pattern progression. They will be introduced to algebraic notation, forming equations, solving, and substitution, learning how algebra can provide solutions to various problems.
Year 8	• Ratio and scale(2) • Multiplicative change(2) • Multiplying and dividing fractions(2)	• Working in the Cartesian plane(3) • Representing data(2) • Tables & Probability(1)	• Brackets, equations and inequalities(4) • Sequences(1) • Indices(1)	• Fractions and percentages(4) • Standard index form(1.5) • Number sense(1.5)	• Angles in parallel lines and polygons(3) • Area of trapezia and circles(2) • Line symmetry and reflection(1)	• The data handling cycle(4) • Measure of location(2)	**By the end of Year 8 student should be able to** extend their knowledge of the number system by learning how to present numbers in standard form. They understand the importance of this in contexts such as scientific calculations involving the Solar System. They can convert, compare, and order numbers in standard form and perform calculations both with and without a calculator. Their understanding of percentages has advanced to include evaluating increases and decreases and expressing numbers as percentages of each other. In geometry, students can calculate interior and exterior angles of polygons, such as triangles and quadrilaterals, find angles in parallel lines, and prove geometric facts. They have extended their area calculations from simpler shapes studied in Year 6 to more complex 2D shapes like trapezia, circles, and compound shapes. Students have explored the relationship between direct proportion and straight-line equations and graphs. They have studied plotting and interpreting straight-line graphs in depth and can manipulate ratios and fractions, understanding their notation, simplification, and connections to multiplication. They can determine the most appropriate forms for data sets, interpret the information, and calculate probabilities. Data representation skills have been developed further by drawing and interpreting comparative and composite data in bar charts. They can now write comparative analyses. Scatter graphs are analysed, interpreted, and plotted, demonstrating the interconnectedness of mathematics with other subjects such as science and geography. Building on their Year 7 knowledge, students have investigated representing equivalent expressions in expanded and factorised forms. They can solve equations involving brackets, understand and apply their knowledge to inequalities, and distinguish between inequalities and equations. Sequences now include brackets and squared terms.
Year 9	• Straight line graphs(2)	• 3D shapes(3)	• Numbers(2) • Using percentages(2)	• Deduction(2)	• Enlargement & similarity(2)	• Probability(2)	**By the end of Year 9 student should be able to** build on Year 8 content where students plotted simple straight-line graphs, they will now understand the

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	• Forming & solving equations(2) • Testing conjectures(2)	• Constructions & congruency(3)	• Maths & money(2)	• Rotation & translation(2) • Pythagoras' theorem(3)	• Solving ratio & proportion problems(2) • Rates (2)	• Algebraic Representation(1) • Revision(4)	meaning of m (gradient) and c (y-intercept) in the equation of a straight line, y = mx + c. They will further develop their skills in solving linear equations and inequalities, and reason through testing conjectures regarding patterns and relationships. Students will enhance their understanding of identifying properties and names of 2D and 3D shapes, applying formulae to solve related problems, and using mathematical tools for accurate constructions. Their knowledge of the number system will expand to include rational and real numbers, performing operations with integers, decimals, fractions, and percentages. They will strengthen their understanding of standard form, including conversions between ordinary numbers and standard form, and tackle reverse percentage problems. The study of angles will extend to solving angle-related problems involving algebra. Building online symmetry and reflection from Year 8, students will now rotate and translate shapes and apply Pythagoras' Theorem to right-angled triangles. Their understanding of transformations will include constructing similar shapes through enlargement. Students will solve ratio problems, linking them to direct proportion and graphs. They will use compound units such as speed, unit pricing, and density to solve problems. Their knowledge of probability will expand to calculating frequency and expected outcomes of events. Additionally, students will interpret and create various graphs, including quadratic graphs.
Year 10 F	• Straight line graphs(2) • Algebraic Representation(2) • Congruence, similarity & enlargement(3)	• Rates(2) • Working with circles(2) • Pythagoras' theorem(2)	• Trigonometry(3) • Simultaneous equations(3)	• Vectors(2) • Probability(2) • Probability(2)	• Ratios & fractions(2) • Percentages & Interest(2) • Non-calculator methods(2)	• Indices & roots(2) • Manipulating expressions(2) • Revision focus on EoY Test •	**By the end of Year 10 student should be able to** divide a quantity into 2 or 3 parts based on a given ratio and understand proportionality to work out missing values of ingredients. They explore percentage change and profit to understand the impact of percentage calculations. Building on previous years, they calculate areas of semi-circles and quarter circles and use different methods to find shaded areas. They extend their knowledge from Year 9 to calculate the volume and surface area of cylinders and cones and solve problems involving compound measures, applying concepts of speed, density, and pressure, which are transferable to science subjects.
Year 10 H	• Straight line graphs(2) • Algebraic Representation(2) • Congruence, similarity & enlargement(3)	• Testing conjectures(2) • Solving ratio & proportion problems(2) • Working with circles(2)	• Trigonometry(3) • Simultaneous equations(3)	• Vectors(2) • Probability(2) • Probability(2)	• Ratios & fractions(2) • Percentages & Interest(2) • Collecting, representing & interpreting data(4)	• Non-calculator methods(2) • Indices & roots(2) • Manipulating expressions(2)	
Year 11 F	• Gradients & lines(2) • Non-linear graphs(2) • Using graphs(2)	• Expanding & factorising(2) • Changing the subject(2) • Functions(2)	• Multiplicative reasoning(1) • Geometric reasoning(2) • Algebraic reasoning(2)	• Vector(2) • Transforming & constructing(1) • Listing & describing(1)	• Show that(2) • Revision	• examinations	**By the end of Year 11 student should be able to** manipulate algebraic terms by applying the laws of indices and revisit standard form for complex calculations. They investigate comparative shapes to understand the difference between congruency and similarity, learning the rules of congruency and using scale factors to find missing sides in similar shapes. They explore and apply the relationship between scale factor and area/volume in similar shapes, deepening their understanding of how scale factors relate to units of measure. Column vectors are introduced and linked to translation, allowing students to apply and interpret vector geometry, including adding and subtracting vectors. They revisit key topics, recall facts, and practice problem-solving in preparation for PPEs and the final GCSE exam.
Year 11 H	• Gradients & lines(2) • Non-linear graphs(2) • Using graphs(2)	• Expanding & factorising(2) • Changing the subject(2) • Functions(2)	• Multiplicative reasoning(1) • Geometric reasoning(2) • Algebraic reasoning(2)	• Vector(2) • Transforming & constructing(1) • Listing & describing(1)	• Show that(2) • Revision	• examinations	

Topics moved from previous year. Changed order