Our Lady Queen of Peace
Catholic High School

Curriculum Overview

YEAR 9 Mathematics

Careers		
Local Market Information	**Skills**	**Jobs**
Logistics and distribution, manufacturing, engineering, construction, retail, health and social care, business and administration, digital technology, public services.	Problem solving, logical reasoning, critical thinking, resilience, communication, teamwork, numeracy, financial awareness, algebraic thinking, data interpretation, decision making, estimation, accuracy, measuring, analytical thinking.	Engineer, Architect, Surveyor, Electrician, Quantity Surveyor, Data Analyst, Accountant, Computer Programmer, Healthcare Professional, Logistics Coordinator, Warehouse Manager, Construction Manager, Financial Adviser, Scientist, Teacher.

	Knowledge & Understanding			Subject Specific Literacy Development	Cultural Capital / Enrichment Opportunities
	Topics (Bigger Picture)	**Knowledge (Key Concepts)**	**Recall & Retrieval Practice Focus**	**Key Vocabulary**	
Half Term 1	**Integers Place Value and Rounding**	Add, subtract, multiply and divide decimals and integers Use one calculation to find the answer to another Use the product rule for counting to determine numbers of outcomes Round to the nearest integer, to a given number of decimal places and to a given number of significant figures Estimate answers to calculations	Key skills from Y8 HT6 Class specific based on Y8 Summer assessment feedback	Product Significant figures	Astronomy and space exploration: distances in space are ideal for standard form and scale of particles from the LHC.
	Factors, Multiples and Primes	Identify factors, multiples and prime numbers Find the prime factor decomposition of positive integers Find common factors and common multiples of two numbers. Find the LCM and HCF of two numbers		Factor Multiple Prime Factorisation	

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	Topics (Bigger Picture)	**Knowledge (Key Concepts)**	**Recall & Retrieval Practice Focus**	**Key Vocabulary**	
		Solve problems using HCF and LCM, and prime numbers			
	Standard Form and Surds	Convert large and small numbers into standard form and vice versa Add, subtract, multiply & divide numbers in standard form Understand surd notation Simplify surd expressions involving squares		Surd Standard Form	
	Algebra Skills	Select an expression/equation/formula/identity from a list Simplify algebraic expressions by collecting 'like' terms. Substitute positive and negative numbers into a formula (use links here to science equation sheet) Multiply together two simple algebraic expressions Simplify expressions by cancelling Use index laws in algebra Expand & factorise simple expressions Expand the product of two linear expressions Factorise quadratic expressions		Expression Factorising Expand	
	Rearranging and Solving Equations	Set up simple equations from word problems Solve linear equations, including when the unknown appears on both sides of the equation Derive a formula and solve these equations, interpreting the solution in the context of the problem Change the subject of a simple formula, including cases where the subject is on both sides of the original formula, or involving fractions and small powers of the subject		Change of subject Iteration Coefficient	
Half Term 2	**Sequences**	Generate specific terms in a sequence using the position-to-term rule and term-to-term rule Find and use the nth term of an arithmetic sequence;	Key skills from HT1 alongside key content from	Term Quadratic	Expressing real-life scenarios using algebra and sequences, i.e.

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		Use the nth term of an arithmetic sequence to decide if a given number is a term in the sequence Continue a quadratic sequence and generate terms Continue geometric progression and find term to term rule, including negative, fraction and decimal terms Solve problems involving sequences from real life situations.	Year 8 to be revisited		mobile phone contracts, delivery costs, bills, streaming plans.
	Averages and the Range	Calculate mean & range, find median & mode from small data set. Recognise the advantages and disadvantages between measures of average. Construct and interpret two way tables & stem and leaf diagrams Calculate the mean, mode, median and range from a frequency table Construct and interpret grouped frequency tables (modal class, mean and median) Compare the mean and range of two distributions, or median or mode as appropriate:		Quantitative Mean Median Mode Discrete	
	Representing and Interpreting Data	Produce and interpret composite and dual bar charts Produce and interpret pie charts Produce and interpret frequency polygons for grouped data Produce and interpret histograms with equal class intervals Produce line graphs Construct and interpret time–series graphs Compare the mean and range of two distributions, or median or mode as appropriate		Histogram Class Interval	

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Half Term 3	**Fractions**	Convert a fraction to a recurring decimal and vice versa Express a given number as a fraction of another Find equivalent fractions Find a fraction of a quantity, including within a context Convert a fraction to a decimal Convert between mixed numbers and improper fractions Add, subtract, multiply and divide fractions, including mixed numbers Understand and use reciprocal of an integer, decimal or fraction	Class specific based on Key skills from HT1 & 2	Recurring Terminating Reciprocal	Data science: digital marketing, sports analysis
	Percentages	Convert between fractions, decimals and percentages Express a given number as a percentage of another number Find a percentage of a quantity Calculate percentage increase and decrease including: simple interest and percentage profit or loss Use a multiplier to increase or decrease by a percentage Find the original amount Describe percentage increase/decrease with fractions		Multiplier Profit	
Half Term 4	**Maths and Money**	Understanding a bank account Value added tax Ways to pay Ways to save Jobs and pay	Class specific based on Key skills from HT1 to 3	Budget Interest Income Expenditure Credit	Wages, taxes, and inequality.

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		Investments Borrowing (buying a house) Running a house or a business) Budgeting Borrowing (loans) Spending Overseas (currency conversions & taxes) Insurance	Areas identified from Mid-Year Assessment feedback		
	Ratio and Proportion	Write a ratio as a linear function Identify direct proportion from a table of values, by comparing ratios of values Use a ratio to compare a scale model to real-life object		Ratio	
Half Term 5	**Polygons, Angles and Parallel Lines**	Recall and use basic angle facts (on a straight line, around a point, in a triangle) Understand and use the angle properties of parallel lines and find missing angles using the properties of corresponding and alternate angles, giving reasons Calculate and use the sums of the interior angles of regular and irregular polygons Use the sum of the exterior angles of any polygon is 360° Use the sum of the interior angles of an n-sided polygon Use the sum of the interior angle and the exterior angle is 180° Calculate the angles of regular polygons and use these to solve problems	Class specific based on Key skills from HT1 to 4	Polygon Interior Angle Exterior Angle Parallel Lines Transversal	Land surveying: Use the angle of elevation and trigonometry to calculate the height of mountains and buildings. Could use a clinometer to test this practically
	Pythagoras' Theorem and Trigonometry	Understand, recall and use Pythagoras' Theorem in 2D Justify if a tringle is right-angled or not; Calculate the length of a line segments Understand, use and recall the trigonometric ratios sine, cosine and tan, and apply them to find angles in general triangles in 2D Use the trigonometric ratios to solve 2D problems		Hypotenuse Elevation Depression Opposite Adjacent	

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	Topics (Bigger Picture)	**Knowledge (Key Concepts)**	**Recall & Retrieval Practice Focus**	**Key Vocabulary**	
		Find angles of elevation and depression			
	Perimeter, Area and Circles	Recall and use the formulae for the area of a triangle, rectangle, trapezium and parallelogram Calculate the area of compound shapes Find the perimeter of the 2D shapes above, including compound shapes Recall and use formulae for the circumference of a circle and the area enclosed by a circle Calculate perimeters and areas of composite shapes made from circles and parts of circles Calculate arc lengths, angles and areas of sectors of circles; Form equations involving more complex shapes and solve these equations.		Composites Arc Sector	
Half Term 6	**Constructions, Loci and Bearings**	Understand and draw front and side elevations and plans of shapes made from simple solids and given the elevations draw the 3D solid. Read and construct scale drawings Understand, draw and measure bearings Calculate bearings and solve bearings problems, including on scaled maps Bisect a given angle, construct a perpendicular to a given line from/at a given point; perpendicular bisector of a line segment Use constructions to solve loci problems including with bearings	Class specific based on Key skills from HT1 to 5 including areas identified from Summer Assessment series	Elevation Perpendicular Loci Bearing	Navigation, maps and orienteering (DoE link).

Key Assessments			
When	**What will be assessed?**	**Why is this being assessed?**	**How will results be stored & students receive feedback?**
HT1	Integers Rounding Estimating Multiples, factors and primes Standard form Surds	To assess the students understanding of, and their retention of the topics taught. This information will be used to inform the topics that make up the Remember More part of the Recall and Retrieval starter activity	Scores will be stored on SIMS and student feedback will be through class teacher reviewing the assessment via the visualiser
HT2	Algebra Solving equations Sequences Averages	To assess the students understanding of, and their retention of the topics taught. This information will be used to inform the topics that make up the Remember More part of the Recall and Retrieval starter activity	Scores will be stored on SIMS and student feedback will be through class teacher reviewing the assessment via the visualiser
HT3	Mid Year Assessment (Summative Assessment)	Check how well students can remember and apply what they know to a wide range of questions – can they identify the skills needed to answer questions from topics taught in yr 7 and the first part of yr 8	Scores will be stored on SIMS and student feedback will be through class teacher reviewing the assessment via the visualiser
HT4	Maths and Money Ratio and proportion	To assess the students understanding of, and their retention of the topics taught. This information will be used to inform	Scores will be stored on SIMS and student feedback will be through class teacher reviewing the

		the topics that make up the Remember More part of the Recall and Retrieval starter activity	assessment via the visualiser
HT 5	Polygons Pythagoras' theorem Trigonometry Area and perimeter.	To assess the students understanding of, and their retention of the topics taught. This information will be used to inform the topics that make up the Remember More part of the Recall and Retrieval starter activity	Scores will be stored on SIMS and student feedback will be through class teacher reviewing the assessment via the visualiser
HT 6	Summer Assessment (Summative Assessment)	Check how well students can remember and apply what they know to a wide range of questions – can they identify the skills needed to answer questions from topics taught in yr 7 and the yr 8	Scores will be stored on SIMS and student feedback will be through class teacher reviewing the assessment via the visualiser