Our Lady Queen of Peace
Catholic Engineering College

Curriculum Overview

Year 7 Mathematics

	Knowledge & Understanding			Subject Specific Literacy Development		Cultural Capital / Enrichment Opportunities
	Composites (Bigger Picture)	**Components (Key Concepts)**	**Recall & Retrieval Practice Focus**	**Read Like A... Focus**	**Key Vocabulary**	
Half Term 1	**Algebraic Notation & Substitution**	Understand algebraic notation Form expressions – coefficients as fractions included Substitute positive integers into expressions & formulae Substitute negative integers, positive fractions & decimals into expression & formula Use formulae to find unknown variables Making links to BIDMAS	KS2 number and algebraic skills.	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Expression Variable Substitution	Urban planning project: students use area and perimeter to design a town shopping centre and park on grid paper.
	Area, Perimeter and Volume	Using formula for area and perimeter of squares, rectangles, triangles, parallelograms and trapeziums Extending knowledge of area and perimeter to composite shapes Finding the volume of cubes, cuboids and other prisms			Perpendicular Trapezium Parallelogram Cuboid Cube Prism Composite	

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Half Term 2	**Working with Ratio**	Understand what ratios are and be able to write quantities in a ratio Simplification of ratios Knowledge of equivalence between ratios, fractions and decimals Conversion between ratios and fractions Share a quantity into a given ratio Calculate the total or a part of a ratio when only given a ratio and one part	Algebraic Notation Area and perimeter KS2 Reasoning Remember More FDP Equivalence Long Division	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Equivalent Simplify	Ratio in recipes: explore recipes from different cultures (e.g. jollof rice, carbonara, etc.). Scale the recipes up or down using rations and calculate the average nutritional values per dish.
	Averages & spread	Calculate mean, median, mode from a list Calculate the range from a list Generate lists of numbers given constraints including range, median, mean Use an appropriate average and range to compare data sets Calculate averages from bar charts Calculate the mean from a frequency table Calculate mean & modal class from grouped frequency tables			Mean – A calculated average of a set of numbers Mode – The most frequent appearing value Median – The middle of a sorted list of numbers Range – The difference between the lowest and highest value.	
Half Term 3	**Working with Directed Numbers & Decimals**	Understand and use place value for decimals and integers of any size Use the knowledge of place value to order integers and decimals Add & Subtract decimals Divide decimals by integers Understand the idea of a “negative number” Be able to order positive and negative numbers Multiply & divide negative numbers Multiply decimals together Divide decimals by other decimal numbers	Key skills from HT1 & 2 Class specific based on QLA	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Integer – A whole number Inequality – Compares two values that may or may not be equal	Temperatures around the world and elevation above/below sea level (travel and geography links).

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	Algebraic Manipulation	Understand key terminology, expression, equation, inequality, term Simplification by adding & subtracting like terms Expand & simplify single brackets Factorise an expression with a term as the HCF Expand & simplify double brackets Factorise quadratics using the product & sum method			Expand – To remove brackets using multiplication Factorise – To find a common factor of an algebraic expression	
Half Term 4	**Units of Measurement**	Identify the correct unit of measurement for mass, length, area, capacity, time and money Convert between standard units of mass, length, capacity and time Use of compound units (speed distance density) Convert between units of area & volume	Key skills from HT2 & 3 Class specific based on QLA	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Units – A quantity used in measurement. Capacity – The amount that something can hold.	Egyptian structures and pyramid building.
	Properties of Shapes & Angles	Derive and illustrate properties of 2D shapes State and draw lines of symmetry and rotations for regular and irregular polygons Know and be able to determine the amount of faces, edges and vertices for 3D shapes Apply properties of angles at a point, on a straight line and vertically opposite angles to find missing values Draw lines and angles accurately Use properties of parallel lines including corresponding, alternative and co-interior angles			Faces – The sides of a 3D shape Vertices – A corner of a shape Edges – A line joining two vertices	
Half Term 5	**Working with Fractions**	Identify fractions of shapes and recognise fractions that are less than or greater than 1 Be able to find equivalent fractions and use this to order them by size Be able to simplify fractions Conversion between improper fractions and mixed numbers Calculate fractions of quantities Apply the four operations to fractions less than 1 Express one quantity as a fraction of another	Key skills from HT2 & 3 Class specific based on QLA	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Numerator – The top number in a fraction Denominator – The bottom number in a fraction Improper – Where the numerator is larger than the denominator	Probability in films: Doctor Strange “1 in 14 million” chance.

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	Working with Probability	Use the language of probability to describe events and place them on a probability scale Record and analyse the outcomes of a probability experiment Calculate the probability of an event happening Create sample space diagrams and lists to find all outcomes of an experiment and use this to calculate the probability of an event happening including two-way tables Understand that all probabilities must add to 1 and use this to find missing probabilities or the probability of an event not happening			Outcome – A possible result of an experiment Sample – A small part taken from a large group Events – One or more outcomes of an experiment.	
Half Term 6	Working with Sequences	Recognise special sequences including square numbers, cube numbers, triangular numbers and the Fibonacci sequence Recognise sets of infinite numbers including real, integers and rational numbers Describe the sequence in terms of the term-to-term rule Use the term-to-term rule to generate a sequence or continue a sequence Understand the purpose of a position to term rule and use this to generate terms of a sequence Calculate the position to term rule (nth term) for linear sequences	Key skills from HT2 & 3 Class specific based on QLA	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Term – The values that make up a sequence Linear – A sequence that changes by a common difference	Statistics in the news and media: how can they be misleading and how can we tell?
	Representing Data visually	Be able to draw and interpret stem and leaf diagrams. Be able to draw and interpret bar charts, including dual bar charts. Be able to draw and interpret frequency tables. Be able to draw and interpret pictograms. Be able to draw pie charts			Stem and Leaf – Diagram to represent numerical data. Pictogram – Represents data using pictures Frequency – How often something happens (total of the tally's)	

Key Assessments			
When	**What will be assessed?**	**Why is this being assessed?**	**How will results be stored & students receive feedback?**
HT1	Algebraic Notation and Substitution	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 recall and retention starter activities to help aid student progression.	Scores will be stored on SIMS and student feedback will be through action feedback questions. Class based understanding will be monitored through a QLA to compare outcomes for classes.
HT2	Area, perimeter and volume Working with Ratio		
HT3	Averages & Spread Working with Directed Numbers & Decimals Mid-Year Assessment		
HT4	Algebraic Manipulation Units of Measurement		
HT5	Properties of Shape Working with Fractions		
HT6	End of Year Assessment – will assess content from across the Scheme of Work delivered in Y7.		