Our Lady Queen of Peace

Catholic Engineering College

Curriculum Overview

Year 8 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	**Multiples, Factors and Prime Factorisation**	Identify multiples, factors, prime numbers and square numbers. Calculate the LCM and HCF. Prime Factorisation.	Key skills from Y7 HT6 Class specific based on Y7 AC3 QLA	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Prime Factorisation Multiples Factors	Cybersecurity and prime numbers: how prime numbers underpin modern encryptions (RSA).
	Approximation and rounding	Round to the nearest integer, 10, 100 and 1000. Round to decimal places and significant figures. Use a calculator to answer complex calculations. Use estimation to answer calculations. Calculate bounds and error intervals.			Estimation Significant Figures	
Half Term 2	**Percentages**	Percentages of Shapes Convert between FDP Percentages of Amounts One quantity as a percentage of another Percentage Increase and Decrease Percentage Change as a fraction or decimal Simple and Compound Interest Expressing one quantity as a fraction of another	Multiples, Factors and Primes Approximation	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Interest	Consumer maths: compare supermarket prices using ratios (£/100g).
	Ratio	Simplifying Ratio Calculating missing parts in a ratio when one part is given Converting currencies Combining two ratios			Convert	
	Recipes Direct/Inverse Proportion	Scale up and down recipes using scale factors Solve direct and inverse proportion problems using the unitary method Solve work rate problems			Proportion Unitary	

	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 3	**Representing Data**	Be able to plot points on scatter graphs, describe correlation and interpolate using a line of best fit. Be able to draw and interpret bar charts. Be able to draw an interpret stem and leaf diagrams, including calculating averages. Be able to draw and interpret pie charts. Be able to draw and interpret cumulative frequency curves, including calculating the IQR. Be able to draw and interpret boxplots, including calculating the IQR.	Key skills from HT1 & 2 Class specific based on QLA	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Correlation Quartiles Interpolate	Algebra in ancient cultures: solving equations geometrically like the Babylonians.
	Algebraic Equations & Rearranging Formula	Use function machines to calculate missing inputs and outputs. Introduce the term 'Equation' Solve linear equations; one step, two step, inclusion of brackets and when the variable appears on both sides. Be able to form and solve linear equations. Be able to change the subject of basic mathematical formula.			Equation Solve Rearrange	
Half Term 4	**Algebraic Inequalities**	Use inequality notation. Represent an inequality on a number line. Solve linear inequalities, including the use of a negative variable. Solve linear inequalities with both one and two inequality signs. Form and solve linear inequalities.	Key skills from HT2 & 3 Class specific based on QLA	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Inequality	Sequences in music: explore how arithmetic and geometric sequences appear in music scales and rhythmic patterns.
	Sequences	Identify special number sequences such as square numbers, triangular numbers, Fibonacci sequence. Describe the position-to-term rule for an arithmetic sequence. Generate a sequence using the position-to-term rule. Evaluate if a number is in a sequence using the position-to-term rule. Introduce quadratic sequences.			Quadratic Term	

	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 5	**Plotting and Sketching Graphs**	Plot co-ordinates in all four quadrants. Plot and identify horizontal and vertical lines. Recognise y=mx+c for straight lines and identify the gradient and the y-intercept including changing from ax + by = c Draw a straight line graph in the form y=mx+c by using a table of values. Work out the equation of a straight line by calculating the gradient and y-intercept. Plotting quadratic graphs and use graphs to estimate solutions	Key skills from HT2 & 3 Class specific based on QLA	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Gradient Y-Intercept	Using a map and scaled diagrams to find the shortest distance between two points (DoE link).
	Similarity	Define and identify congruent and similar shapes. Calculate missing sides in similar shapes by using a scale factor. Investigate the link between area and volume scale factors and use this on basic examples.			Congruent Similar	
	Pythagoras	Recall Pythagoras' theorem. Apply Pythagoras' theorem to calculate the length of any missing side. Apply Pythagoras' theorem to worded problems.			Hypotenuse Theorem	
Half Term 6	**Introduction to Circles**	Construct circles with pairs of compasses Identify and label parts of circles Understand that Pi is the ratio of circumference to diameter Calculate area given either radius or diameter Calculate circumference given either radius or diameter	Key skills from HT2 & 3 Class specific based on QLA	Multi-step reasoning problems. Draw and interpret mathematical diagrams.	Radius Diameter Circumference	Explore Islamic tiling patterns and recreate traditional geometric patterns using compass constructions and transformations.
	Transformations	Identify lines of symmetry and the order of rotational symmetry for 2D shapes. Describe and transform reflections. Describe and transform rotations. Describe and transform translations, including the use of vectors. Describe and transform enlargements, using a positive integer or fractional scale factor, including from a given point.			Scale Factor Vector Translation Rotation Reflection Enlargement	

Key Assessments			
When	**What will be assessed?**	**Why is this being assessed?**	**How will results be stored & students receive feedback?**
HT1	Mathematical Reasoning Multiples, Factors and Primes Approximation	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 Weekly Skills and 4L's.	Scores will be stored on SIMS and student feedback will be through individualised Fix IT Questions. Class based understanding will be monitored through a QLA to compare outcomes for classes.
HT2	Percentages Ratio Recipes		
HT3	Direct and Inverse Proportion Representing Data Mid-Year Assessment		
HT4	Algebraic Equations and Rearranging Formula Algebraic Inequalities		
HT5	Sequences Straight Line Graphs (y = mx + c)		
HT6	End of Year Assessment – will assess content from across the Scheme of Work delivered in Y8.		