

Year 8 Maths Curriculum Map

Sequencing of topics	What knowledge will students develop? (Including key terminology)	What skills will students develop? (Including literacy & numeracy)	Assessment opportunities	Homework opportunities	Personal development (Ursuline Values, Catholic Social Teaching, Cultural Capital, Cross-curricular, Careers)	Curriculum links
Autumn Term 1						
<i>Proportional Reasoning</i>	<ul style="list-style-type: none"> • Ratio • Direct proportion • Conversion graphs • Currencies • Similar shapes • Scale factors • Scale diagrams • Interpret maps • Fractions • Algebraic fractions 	<ul style="list-style-type: none"> • Make connections between number relationships, and their algebraic and graphical representations • Use scale factors, scale diagrams and maps • Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction • Divide a given quantity into two parts in a given part: part or part: whole ratio; express the division of a quantity into two parts as a ratio • Solve problems involving direct and inverse proportion • Extend and formalise their knowledge of ratio and 	<ul style="list-style-type: none"> ○ End of topic assessment ○ End of term assessment 	<p>Mathswatch/ CorbettMaths/Mathsbox/MathsGenie/MyMaths/Quiziz</p> <p>These include:</p> <ol style="list-style-type: none"> 1. Videos 2. Practice questions 3. Past exam questions 4. Differentiated activities. 5. Opportunities for flipped learning <p>Research opportunities:</p> <ol style="list-style-type: none"> 1. The use of ratios and conversion graphs in everyday life. 2. Scale diagrams-applied in the end of year 8 project. 3. The use of different currencies when going on holiday etc. 	<p>Grateful and Generous: Care for and importance of each other.</p> <p>Discerning and joyful</p> <p>Truth and Integrity</p> <p>Option for the Poor and Vulnerable</p> <p>Stewardship</p>	<p>Basis for techniques to be explored in GCSE Mathematics</p>

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		<p>proportion in working with measures and in formulating proportional relations algebraically</p> <ul style="list-style-type: none"> • Interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning • Use scale factors, scale diagrams and maps • Solve problems involving direct and inverse proportion, including graphical and algebraic representations • Move freely between different numerical, algebraic, graphical and diagrammatic representations • Consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals and fractions • Select and use appropriate calculation strategies to solve increasingly complex problems 			<p>Knowledge of mathematical concepts</p> <ul style="list-style-type: none"> • Science • Geography • Physical Education • Mathematician • Data Analyst • Teacher • Medicine • Engineering • Architecture • Engineering • Photography • Cartographer 	
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		<ul style="list-style-type: none"> Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative 				
Autumn Term 2 / Spring Term 1						
<p><i>Representations & Algebraic techniques</i></p>	<ul style="list-style-type: none"> Coordinates Straight line graphs Scatter graphs Correlation Data Frequency tables Sample spaces Two-way tables Venn diagrams Possible outcomes Expand Factorise Sequences Indices 	<ul style="list-style-type: none"> Move freely between different numerical, algebraic, graphical and diagrammatic representations Develop algebraic and graphical fluency, including understanding linear (and simple quadratic) functions Make connections between number relationships, and their algebraic and graphical representations substitute numerical values into formulae and expressions recognise, sketch and produce graphs of linear functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane Construct and interpret appropriate tables, charts, and diagrams, including 	<ul style="list-style-type: none"> End of topic assessment End of term assessment 	<p>Mathswatch/ CorbettMaths/Mathsbox/MathsGenie/MyMaths/Quizizz</p> <p>These include:</p> <ol style="list-style-type: none"> Videos Practice questions Past exam questions Differentiated activities. <p>Opportunities for flipped learning</p> <p>Research opportunities:</p> <ol style="list-style-type: none"> Scatter graphs showing trends of the usage of social media platforms How this data is used to make an analysis on student results. 	<ul style="list-style-type: none"> Science Geography Physical Education Mathematician Data Analyst Teacher Medicine Engineering Scientist Actuary 	<p>Basis for techniques to be explored in GCSE Mathematics</p>

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		<p>frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data</p> <ul style="list-style-type: none">• Describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs• Use language and properties precisely to analyse probability and statistics• Record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale• Generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities.				
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		<ul style="list-style-type: none"> Use language and properties precisely to analyse probability and statistics 				
Spring Term 2						
Developing number	<ul style="list-style-type: none"> Fractions, decimals and percentages Standard form Round numbers Error interval Order of operations Money Metric measures Time and the calendar 	<ul style="list-style-type: none"> Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics Work interchangeably with terminating decimals and their corresponding fractions Define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100% Interpret fractions and percentages as operators Use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact 	<ul style="list-style-type: none"> End of topic assessment End of term assessment 	<p>Mathswatch/CorbettMaths/Mathsbox/MathsGenie/MyMaths/Quizizz</p> <p>These include:</p> <ol style="list-style-type: none"> Videos Practice questions Past exam questions Differentiated activities. <p>Opportunities for flipped learning</p> <p>Research and cross-curricular links:</p> <ol style="list-style-type: none"> Conversion of units with regards to cooking. DT – Measurements Physics: Distance of planets etc given in standard form. Plan a trip using live bus/train timetables 	<p>Listening and attentive</p> <p>Courageous and resilient</p> <p>Option for the Poor and Vulnerable</p> <p>Stewardship</p> <p>Knowledge of mathematical concepts</p> <p>Critical thinking</p> <ul style="list-style-type: none"> Science Geography Physical Education Religious Education ICT 	<p>Basis for techniques to be explored in GCSE Mathematics</p>

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		<p>representations of roots and their decimal approximations</p> <ul style="list-style-type: none"> • Interpret and compare numbers in standard form $A \times 10^n$, $1 \leq A < 10$, where n is a positive or negative integer or zero • use standard units of mass, length, time, money and other measures, including with decimal quantities • Round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures] • Use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation $a < x \leq b$ • Use a calculator and other technologies to calculate results accurately and then interpret them appropriately. 			<ul style="list-style-type: none"> • Mathematician • Data Analyst • Teacher • Medicine • Engineering • Architecture • Engineering • Photography • Banker • Accountant • Surveyour 	
<p>Summer Term 1</p>						

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<p>Developing Geometry</p>	<ul style="list-style-type: none"> • Angles • Parallel lines • Constructions • Properties of quadrilaterals • Angles in polygon • Geometric facts • Angle bisector 	<ul style="list-style-type: none"> • Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles • Understand and use the relationship between parallel lines and alternate and corresponding angles • Derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons • Use the standard conventions for labelling the sides and angles of triangle ABC • Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies • Derive and use the standard ruler and compass constructions (H only) • Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia • Calculate and solve problems involving: perimeters of 2-D 	<ul style="list-style-type: none"> ○ End of topic assessment ○ End of term assessment 	<p>Mathswatch/CorbettMaths/Mathsbox/MathsGenie/MyMaths/Quizizz</p> <p>These include:</p> <ol style="list-style-type: none"> 1. Videos 2. Practice questions 3. Past exam questions 4. Differentiated activities. <p>Opportunities for flipped learning</p> <p>Research opportunities:</p> <ol style="list-style-type: none"> 1. Interior designing 2. IKEA website- customise shelves etc 	<p>Determination and focused</p> <p>Grateful</p> <p>Option for the Poor and Vulnerable</p> <p>Knowledge of mathematical concepts</p> <ul style="list-style-type: none"> • Science • Geography • Physical Education • Mathematician • Data Analyst • Teacher • Engineering • Architecture • Engineering • Interior Designer • Urban Planner • 	<p>Basis for techniques to be explored in GCSE Mathematics .</p>
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		<p>shapes (including circles), areas of circles and composite shapes</p> <ul style="list-style-type: none"> Describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric Identify properties of, and describe the results of reflections applied to given figures 				
Summer Term 2						
Reasoning with Data	<ul style="list-style-type: none"> Statistical enquiry Questionnaires Pictograms Bar charts Pie charts Compare distributions Mean, median and mode Frequency table Outliers 	<ul style="list-style-type: none"> Describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers) Construct and interpret appropriate tables, charts, and diagrams, including frequency 	<ul style="list-style-type: none"> End of topic assessment End of term assessment 	<p>Mathswatch/ CorbettMaths/Mathsbox/MathsGenie/MyMaths/Quizizz</p> <p>These include:</p> <ol style="list-style-type: none"> Videos Practice questions Past exam questions Differentiated activities. <p>Opportunities for flipped learning</p> <p>Research opportunities:</p> <ol style="list-style-type: none"> Scatter graphs showing trends of the usage of social media platforms 	<p>Solidarity and the Common Good</p> <p>Option for the Poor and Vulnerable</p> <p>Stewardship</p> <p>Knowledge of mathematical concepts</p> <p>Cultural awareness</p>	<p>Basis for techniques to be explored in GCSE Mathematics</p>

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		<p>tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data</p> <ul style="list-style-type: none"> • Describe, interpret and compare observed distributions of a single variable through appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers) 		<ol style="list-style-type: none"> 2. How this data is used to make an analysis on student results. 3. Create a questionnaire, compile results, display results using different methods. Work out the averages. What does this tell us. 	<ul style="list-style-type: none"> • Science • Geography • Physical Education • Religious Education • IT • Mathematician • Data Analyst • Teacher • Medicine • Engineering • Environmental Scientist • Social Researcher • Epidemiologist 	
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