

Year 10 Foundation 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/Assessment opportunities	Personal development (Ursuline Values, Catholic Social Teaching, Cultural Capital, Cross-curricular, Careers)	Curriculum Links
Autumn Term						
Geometry and measures: Perimeter and area	<ul style="list-style-type: none"> • Rectangles • Compound shapes • Area of a triangle • Area of a parallelogram • Area of a trapezium • Circles • The area of a circle • Answers in terms of π 	<ul style="list-style-type: none"> • calculate the perimeter and area of a rectangle. • calculate the perimeter and area of a compound shape made from rectangles. • calculate the area of a triangle • use the formula for the area of a triangle. • calculate the area of a parallelogram • use the formula for the area of a parallelogram. • calculate the area of a trapezium • use the formula for the area of a trapezium. • recognise terms used for circle work • calculate the circumference of a circle. • calculate the area of a circle. • give answers for circle calculations in terms of π. 	<p>End of topic assessment</p> <p>End of term assessment</p>	<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. 5. Opportunities for flipped learning <p>Research opportunities:</p> <ol style="list-style-type: none"> 1. Importance of area and perimeter in building houses. 2. How can you use area to 	<p>Understanding shapes. Discerning and joyful</p> <p>Creation and Environment Shapes in nature</p> <p>Understanding the cultural significance of shapes and patterns in different communities.</p> <p>Science STEM Graphics</p> <p>Construction Building Engineering</p>	<p>Geometry and Measures Mensuration and calculation</p>

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				determine the materials required.		
Geometry and measures: Transformations	<ul style="list-style-type: none"> • Rotational symmetry • Translation • Reflections • Rotations • Enlargements • Using more than one transformation • Vectors 	<ul style="list-style-type: none"> • • work out the order of rotational symmetry for a 2D shape • • recognise shapes with rotational symmetry. • • translate a 2D shape. • • reflect a 2D shape in a mirror line. • • rotate a 2D shape about a point. • • enlarge a 2D shape by a scale factor. • • use more than one transformation. • represent vectors • add and subtract vectors. 		<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. 5. Opportunities for flipped learning <p>Research opportunities:</p> <ol style="list-style-type: none"> 1. How do modern wind farms use the wind's motion to turn their symmetric turbines. 	<p>Understanding shapes. Discerning and joyful</p> <p>Creation and Environment Shapes in nature</p> <p>Understanding the cultural significance of patterns in different communities.</p> <p>Familiarity with historical geometric patterns and designs, such as Islamic art's use of congruent shapes and symmetries.</p> <p>Familiarity with culturally significant patterns and designs, such as the intricate geometric motifs in Islamic architecture.</p> <p>Science STEM Graphics</p> <p>Construction Building Engineering Artists Craftspeople Choreographers</p>	<p>Geometry and Measures Properties and construction Vectors</p>

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					<p>Interior Designer Animator Fashion Designer Architect</p>	
<p>Probability: Probability and events</p>	<ul style="list-style-type: none"> Calculating probabilities Probability that an outcome will not happen Mutually exclusive and exhaustive outcomes Experimental probability Expectation Choices and outcomes 	<ul style="list-style-type: none"> use the probability scale and the language of probability <ul style="list-style-type: none"> calculate the probability of an outcome of an event. calculate the probability of an outcome not happening when you know the probability of that outcome happening. recognise mutually exclusive and exhaustive outcomes. calculate experimental probabilities and relative frequencies from experiments recognise different methods for estimating probabilities. predict the likely number of successful outcomes, given the 		<p>Mathswatch CorbettMaths Mathsbox MathsGenie MyMaths Quizizz</p> <p>These include:</p> <ol style="list-style-type: none"> Videos Practice questions Past exam questions Differentiate d activities. Opportunities for flipped learning <p>Research opportunities:</p> <ol style="list-style-type: none"> How is probability used to predict weather conditions. How do political forecasters use probability to 	<p>This topic combines pupils' understanding of experimental and theoretical probability and applies it in a real-life context.</p> <p>Discerning and joyful</p> <p>Solidarity Peace The option for the poor</p> <p>Understand the cross-cultural variability of probability judgement.</p> <p>Science Geography Psychology Computing Politics</p> <p>Statistician Government Services Medicine Nursing Meteorology Pharmaceutical research</p>	<p>Probability</p>

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		<p>number of trials and the probability of any one outcome.</p> <ul style="list-style-type: none"> • apply systematic listing and counting strategies to identify all outcomes for a variety of problems. 		<p>predict the chances that certain candidates will win various elections.</p>	<p>Risk Analysis</p>	
Spring Term						
<p>Geometry and measures: Volumes and surface areas of prisms</p>	<ul style="list-style-type: none"> • 3D shapes • Volume and surface area of a cuboid • Volume and surface area of a prism • Volume and surface area of cylinders 	<ul style="list-style-type: none"> • use the correct terms when working with 3D shapes. • calculate the surface area and volume of a cuboid. • calculate the volume and surface area of a prism. • calculate the volume and surface area of a cylinder. 	<p>End of topic assessment</p> <p>End of term assessment</p>	<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. 5. Opportunities for flipped learning <p>Research opportunities:</p> <ol style="list-style-type: none"> 1. How is volume and surface 	<p>Not understanding rules can cause confusion. Pupils also make mistakes with units. Pupils need to grasp that area is two-dimensional and volume is three-dimensional, and the effect this has on the formulae and units they will use.</p> <p>Grateful</p> <p>Creation and Environment Shapes in nature</p> <p>Understanding the cultural significance of shapes in different communities. Such as the pyramids in Egypt.</p> <p>Science</p>	<p>Geometry and Measures Mensuration and calculation</p>

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				<p>area of cuboids used in designing kitchens.</p> <p>2. How is volume and surface area used in pharmaceuticals.</p>	<p>Graphics STEM</p> <p>Engineering Architect Craftspeople Interior Designer Graphics Designer</p>	
Algebra: Linear equations	<ul style="list-style-type: none"> Solving linear equations Solving equations with brackets Solving equations with the variable on both sides 	<ul style="list-style-type: none"> solve linear equations such as $3x - 1 = 11$ where the variable only appears on one side use inverse operations and inverse flow diagrams solve equations by balancing solve equations in which the variable (the letter) appears in the numerator of a fraction solve equations where you have to first expand brackets. solve equations where the variable appears on both sides of the equals sign. 		<p>Mathswatch CorbettMaths Mathsbox MathsGenie MyMaths Quizizz</p> <p>These include:</p> <ol style="list-style-type: none"> Videos Practice questions Past exam questions Differentiate d activities. Opportunities for flipped learning <p>Research opportunities:</p> <ol style="list-style-type: none"> How can equations be used to 	<p>Courageous and resilient</p> <p>Peace</p> <p>Solidarity The word “Algebra” comes from the Arabic word “al jabr,” which translates to “reunion of broken parts.” Muhammad ibn Musa al-Khwarizmi, a 9th-century Persian mathematician, geographer, and astronomer, is regarded as “the father of algebra.”</p> <p>The common good</p> <p>Investigating how mathematical concepts have been applied in diverse cultural contexts.</p> <p>Economics</p>	Algebra Solving equations and inequalities

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				calculate speed of a moving object?	<p>Science Computing</p> <p>Budget Analysts Auditors Accountants Insurance underwriters Engineering</p>	
Ratio and proportion and rates of change: Percentages and compound measures	<ul style="list-style-type: none"> Equivalent percentages, decimals and fractions Calculating a percentage of a quantity Increasing and decreasing quantities by a percentage Expressing one quantity as a percentage of another Compound measures 	<ul style="list-style-type: none"> convert percentages to fractions and decimals and vice versa. calculate a percentage of a quantity. increase and decrease quantities by a percentage. express one quantity as a percentage of another work out percentage change. recognise and solve problems involving the compound measures of rates of pay, density and pressure. 		<p>Mathswatch CorbettMaths Mathsbox MathsGenie MyMaths Quizizz</p> <p>These include:</p> <ol style="list-style-type: none"> Videos Practice questions Past exam questions Differentiate d activities. Opportunities for flipped learning <p>Research opportunities:</p> <ol style="list-style-type: none"> How are percentages used in 	<p>Percentages are everywhere in real life. From bargains in the shops to taxes on payslips. It is important for pupils to be comfortable with calculating percentages to enable them to be functional in a modern society.</p> <p>United in Harmony</p> <p>Make sure that pupils are aware of the important words in a question, and the patterns of numbers in a table that indicate whether to use direct or inverse proportion.</p> <p>United in Harmony</p> <p>Common Good Solidarity</p>	Ratio, proportion and rates of change

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				<p>calculating bank interest rates.</p> <p>2. Explore Percentage gradients on roads.</p> <p>3. Explore traffic light food labels and the use of percentages.</p>	<p>Cultural capital in percentages, decimals and fractions can involve exploring diverse cultural approaches to numerical systems and different ways of representing percentages across various cultures.</p> <p>Science: Understanding percentages is relevant in scientific measurements, such as recording and interpreting data involving quantities, ratios, or fractions and decimals.</p> <p>Accounting Engineering Science and research Finance and banking Architecture and design</p>	
Summer Term						
Ratio and proportion and rates of change: Percentages and variation	<ul style="list-style-type: none"> Compound interest and repeated percentage change Reverse percentage 	<ul style="list-style-type: none"> calculate simple interest calculate compound interest solve problems involving repeated percentage change. 	<p>End of topic assessment</p> <p>End of term assessment</p>	<p>Mathswatch</p> <p>CorbettMaths</p> <p>Mathsbox</p> <p>MathsGenie</p> <p>MyMaths</p> <p>Quizizz</p> <p>These include:</p>	<p>Percentages are everywhere in real life. From bargains in the shops to taxes on payslips. It is important for pupils to be comfortable with calculating percentages to enable them to be</p>	Ratio, proportion and rates of change

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	<p>(working out the original value)</p> <ul style="list-style-type: none"> • Direct proportion • Inverse proportion 	<ul style="list-style-type: none"> • calculate the original amount, given the final amount, after a known percentage increase or decrease. • solve problems in which two variables have a directly proportional relationship (direct variation) • work out the constant of proportionality • recognise graphs that show direct variation. • solve problems in which two variables have an inversely proportional relationship (inverse variation) • work out the constant of proportionality. 		<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. How are percentages used in calculating bank interest rates. 	<p>functional in a modern society.</p> <p>United in Harmony</p> <p>Make sure that pupils are aware of the important words in a question, and the patterns of numbers in a table that indicate whether to use direct or inverse proportion.</p> <p>United in Harmony</p> <p>Common Good Solidarity</p> <p>Cultural capital in percentages, decimals and fractions can involve exploring diverse cultural approaches to numerical systems and different ways of representing percentages across various cultures.</p> <p>Science: Understanding percentages is relevant in scientific measurements, such as recording and interpreting data involving quantities, ratios, or fractions and decimals.</p>	
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					<p>Accounting Engineering Science and research Finance and banking Architecture and design</p>	
<p>Statistics: More complex statistics</p>	<ul style="list-style-type: none"> • Sampling • Pie charts • Scatter diagrams • Grouped data and averages 	<ul style="list-style-type: none"> • obtain a random sample from a population • collect unbiased and reliable data for a sample. • draw and interpret pie charts. • draw, interpret and use scatter diagrams • draw and use a line of best fit. • identify the modal group • calculate an estimate of the mean from a grouped table. 		<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. Differentiate d activities. 5. Opportunities for flipped learning <p>Research opportunities:</p> <ol style="list-style-type: none"> 1. Where are these charts used in everyday life? What kind of data do we 	<p>United in Harmony Understanding data Grateful</p> <p>Understanding the cultural significance of data representation in different communities.</p> <p>Business Studies: Understanding statistics, charts, tables, and averages is valuable in business decision-making, market analysis, and financial planning.</p> <p>These topics have applications in various careers, including market research, data analysis, financial analysis, actuarial science, economics, social sciences, and public health.</p>	<p>Statistics</p>

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				often see represented by them		
Geometry and measures: Construction s and loci	<ul style="list-style-type: none"> Constructing triangles Bisectors Defining a locus Loci problems 	<ul style="list-style-type: none"> construct accurate drawings of triangles, using a pair of compasses, a protractor and a straight edge. construct the bisectors of lines and angles construct angles of 60° and 90°. draw a locus for a given rule. solve practical problems using loci. 		Mathswatch CorbettMaths Mathsbox MathsGenie MyMaths Quizizz These include: <ol style="list-style-type: none"> Videos Practice questions Past exam questions Differentiated activities. Opportunities for flipped learning Research opportunities: <ol style="list-style-type: none"> How do bisectors and loci get used in real life construction of buildings? 	Courageous and resilient Common Good Understanding the cultural significance of use of construction in different countries. Exposure to historical and cultural architectural designs and their geometric principles. Stem Engineering Construction Government	Geometry and Measures