Year 11 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 opportunities	Personal development (Ursuline Values, Catholic Social Teaching, Cultural Capital, Cross-curricular, Careers)	Curriculum Links
Autumn Term						
Curved shapes and pyramids	• Sectors • Pyramids • Cones • Spheres	• Calculate the length of an arc • Calculate the area and angle of a sector. • Calculate the volume and surface area of a pyramid. • Calculate the volume and surface area of a cone. • Calculate the volume and surface area of a sphere.	End of topic assessment	Textbook (Collins) Mathswatch PixiMaths MathsmadeEasy Other online resources These include: • Videos • Practice questions • Past exam questions • Differentiated activities. Research opportunities: • Solving problems involving curved shapes and their properties, such as	Creation Reflective and Contemplative Committed to Justice and Peace Intentional and Prophetic Stewardship of Creation Care for God's Creation Option for the Poor and Vulnerable Solidarity Familiarity with famous curved shapes, such as circles, ellipses, and parabolas, and their significance in art, architecture, and design. Understanding the use of pyramids in geometry and their application in calculating volumes and surface areas. Art (visual arts). Physics History Geography Architect	3D shapes

				finding the area of a sector or the volume of a curved solid.	Industrial Designer Archaeologist Civil Engineer	
Number and sequences	• Patterns in number • Number sequences • Finding the nth term of a linear sequence • Special sequences • General rules from given patterns	• Recognise patterns in number sequences. • Recognise how number sequences are built up • Generate sequences, given the nth term. • Find the nth term of a linear sequence. • Recognise and continue some special number sequences • Understand how prime, odd and even numbers interact in addition, subtraction and multiplication problems. • Find the nth term from practical problems involving sequences.	End of topic assessment	Textbook (Collins) Mathswatch PixiMaths MathsmadeEasy Other online resources These include: • Videos • Practice questions • Past exam questions • Differentiated activities. Research opportunities: • Assignments involving identifying, extending, or analyzing	**Reflective and Contemplative**: Sequences in mathematics require reflection and contemplation to recognize patterns and make connections between terms. **Committed to Justice and Peace**: It helps develop logical thinking and problem-solving skills, which can contribute to creating a more just and peaceful society. **Common Good**: It can help make predictions and informed decisions for the benefit of the common good. **Solidarity**: It can foster a sense of solidarity by appreciating the interconnectedness of mathematical concepts. Knowledge of famous mathematical sequences, such as	Algebra Calculus

				sequences can deepen understanding and develop problem-solving skills. • Conducting research on specific types of sequences, investigating their properties, or exploring their applications in various fields.	the Fibonacci sequence, which has cultural significance in fields like art, architecture, and nature. Science (DNA) Computer Science (Algorithm design, coding, and data analysis) Data Analyst Financial Analyst	
Right-angled triangles	• Pythagoras' theorem • Calculating the length of the shorter side • Applying Pythagoras' theorem in real-life situations • Pythagoras' theorem and isosceles triangles • Trigonometric ratios • Calculating lengths and angles using trigonometry	• Know what Pythagoras' theorem is • Calculate the length of the hypotenuse in a right-angled triangle. • Calculate the length of a shorter side in a right-angled triangle.	End of topic assessment	Textbook (Collins) Mathswatch PixiMaths MathsmadeEasy Other online resources These include: • Videos	**Holistic Education**: It promotes a holistic understanding of geometry and its applications in real-world contexts. **Respect for the Individual**: It encourages individual exploration, critical thinking, and problem-solving skills.	Trigonometry Coordinate Geometry

	• Trigonometry without a calculator • Solving problems using trigonometry • Trigonometry and bearings • Trigonometry and isosceles triangles.	• Solve problems using Pythagoras' theorem. • Use Pythagoras' theorem in isosceles triangles. • Define, understand and use the three trigonometric ratios. • Use trigonometric ratios to calculate a length and an angle in a right-angled triangle. • Work out and remember trigonometric values for angles of 30°, 45°, 60° and 90°. • Solve practical problems using trigonometry • Solve problems using an angle of elevation or an angle of depression. • Solve bearing problems using trigonometry. • Use trigonometry to solve problems		• Practice questions • Past exam questions • Differentiated activities. Research opportunities:	**Dignity of the Human Person**: It can contribute to the development of logical reasoning and mathematical literacy, enhancing the dignity of individuals. **Care for Creation**: It can lead to an appreciation for the order and beauty in the natural world. Knowledge of famous right-angled triangles, such as the Pythagorean triplets, which have cultural and historical significance in mathematics and architecture. Physics (forces, motion, and vectors). Design and Technology (architectural design, construction, and measurement). Engineering Surveying	

		involving isosceles triangles.				
Congruency and Similarity	• Congruent triangles • Similarity	• Demonstrate that two triangles are congruent. • Recognise similarity in any two shapes • Show that two shapes are similar • Work out the scale factor between similar shapes.	End of topic assessment Mock Exams	Textbook (Collins) Mathswatch PixiMaths MathsmadeEasy Other online resources These include: • Videos • Practice questions • Past exam questions • Differentiated activities. Research opportunities: • Assignments involving identifying congruent or similar shapes can reinforce geometric concepts and visual	Excellence Justice Community Solidarity Option for the Poor and Vulnerable Common Good Care for Creation Familiarity with historical geometric patterns and designs, such as Islamic art's use of congruent shapes and symmetries. Familiarity with culturally significant patterns and designs, such as the intricate geometric motifs in Islamic architecture. Art (visual arts, such as tessellations and symmetry). Geography (scale models) Architecture Fashion Design Engineering Graphic Design	Geometry Trigonometry Proportional Reasoning

					perception skills.		
					• Investigating the applications of congruency and similarity in various fields, such as computer graphics, robotics, or urban planning.		

			Spring Term				
Combined events	• Combined events • Two-way tables • Probability and Venn diagrams • Tree diagrams	• Work out the probabilities when two or more events occur at the same time. • Read two-way tables and use them to work out probabilities. • Use Venn diagrams to solve probability questions. • Understand frequency tree diagrams and	End of topic assessment	Textbook (Collins) Mathswatch PixiMaths MathsmadeEasy Other online resources These include: • Videos • Practice questions • Past exam questions	Community Service Solidarity Option for the Poor and Vulnerable Understanding how different cultures organize and present data in tabular form. Geography Social Sciences Data Analysis	Probability Statistics

		- probability tree diagrams - Use probability tree diagrams to work out the probabilities involved in combined events.		- Differentiated activities. Research opportunities: - Assignments involving collecting and organizing data in two-way tables can develop data management and analysis skills. - Assignments involving constructing and interpreting tree diagrams can develop	Public Health	
Powers and standard form	- Powers (indices) - Rules for multiplying and dividing powers - Standard form	- Write a number as a power of another number - Use powers (also known as indices)	End of topic assessment End of term assessment	Textbook (Collins) Mathswatch PixiMaths MathsmadeEasy	Wisdom Excellence Solidarity Care for Creation	Logarithms Algebra

		• Multiply and divide by powers of 10. • Use rules for multiplying and dividing powers • Multiply and divide numbers by powers of 10. • Write a number in standard form • Calculate with numbers in standard form.		Other online resources These include: • Videos • Practice questions • Past exam questions • Differentiated activities. Research opportunities: • Assignments involving calculations with powers and standard form reinforce mathematical skills and problem-solving abilities.	Appreciating cultural diversity in number systems and numeral representations, such as the use of different symbols or counting systems in different cultures. Science Geography Engineering Finance and Economics	
Summer Term						
Simultaneous equations and linear inequalities	• Elimination and Substitution methods for simultaneous equations	• Solve simultaneous linear equations in two variables using the elimination and	End of topic assessment	Textbook (Collins) Mathswatch PixiMaths	Justice Community	Matrices Optimization

	• Balancing coefficients to solve simultaneous equations • Using simultaneous equations to solve problems • Linear inequalities	substitution methods. • Solve simultaneous linear equations by balancing coefficients. • Solve problems using simultaneous linear equations. • Solve a simple linear inequality and represent it on a number line.		MathsmadeEasy Other online resources These include: • Videos • Practice questions • Past exam questions • Differentiated activities. Research opportunities: • Assignments involving solving simultaneous equations and linear inequalities strengthen problem-solving skills and reinforce algebraic techniques.	Preferential Option for the Poor Common Good Appreciating the contributions of mathematicians from various cultural backgrounds in developing methods and techniques for solving systems of equations and inequalities. Economics Social Sciences Engineering Data Analysis	
Non-linear graphs	• Distance-time graphs • Velocity-time graphs	• Interpret distance–time graphs	End of topic assessment	Textbook (Collins)	United in Harmony Listening and Attentive	Calculus Algebra

	• Plotting quadratic graphs • Solving quadratic equations by factorisation • The significant points of a quadratic curve • Cubic and reciprocal graphs	• Draw a graph of the depth of liquid as a container is filled. • Read information from a velocity-time graph • Work out the acceleration from a velocity-time graph • Draw and read values from quadratic graphs. • Solve a quadratic equation by factorisation. • Identify the significant points of a quadratic function graphically • Identify the roots of a quadratic function by solving a quadratic equation • Identify the turning point of a quadratic function. • Recognise and plot cubic and reciprocal graphs.	GCSE Examinations	Mathswatch PixiMaths MathsmadeEasy Other online resources These include: • Videos • Practice questions • Past exam questions • Differentiated activities. Research opportunities: • Analysing real-world scenarios and creating distance-time and velocity-time graphs to understand and predict motion	Option for the Poor and Vulnerable Care for Creation Recognizing how different cultures represent and interpret motion and speed through visual representations and storytelling. Physics (speed, acceleration, and displacement). Physical Education (performance in various sports activities). Sports Science Transportation Planning	