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						
Number: Basic number	• Solving real-life problems • Multiplication and division with decimals • Approximation of calculations • Multiples, factors, prime numbers, powers and roots • **Prime factors, LCM, HCF** • 1.6 Negative numbers	• Solve problems set in a real-life context. • Multiply a decimal number by another decimal number. • Divide by a decimal number. • Round to a given number of significant figures. • Estimate before calculating. • Round a calculation to give a reasonable answer. • Find multiples and factors. • Identify prime numbers. • Identify square and triangular numbers. • Find square roots. • Identify cubes and cube roots. • Identify prime factors. • Identify the least common multiple of two numbers. • Identify the highest common factor of two multiples. • Multiply and divide positive and negative numbers.	End of topic assessment End of term assessment	Mathswatch CorbettMaths Mathsbox MathsGenie MyMaths Quizizz These include: 1. Videos 2. Practice questions 3. Past exam questions 4. Differentiated activities. 5. Opportunities for flipped learning Research opportunities: 1. Real-life use of Number lines: -Recording temperature, distance above sea	Listening and Attentive: By actively listening and paying attention to the positional value of digits, students can develop a deeper understanding of place value Solidarity: The principle of solidarity emphasizes the interconnectedness of all people. Exposure to number systems and understanding place value in different cultures can broaden students' cultural capital by appreciating diverse ways of representing and understanding numerical concepts.	Decimal numbers and fractions. approximations and mental calculations.

				level, scales, measuring jugs. 2. Four rules of arithmetic: Calculate shopping bill, manage allowance.	This topic can be linked to cross-curricular opportunities in subjects like Science (for understanding scientific notations and measurements). careers such as accounting, banking, financial analysis, data analysis, engineering, architecture, and computer programming.	
Fractions, ratio and proportion	• One quantity as a fraction of another • Adding, subtracting and calculating with fractions • Multiplying and dividing fractions • Fractions on a calculator • Increasing and decreasing quantities by a percentage • 2.6 Expressing one quantity as a percentage of another	• Find one quantity as a fraction of another. • Add and subtract fractions with different denominators. • Multiply proper fractions and mixed numbers. • Divide by fractions. • Use a calculator to accurately solve problems involving fractions. • Increase and decrease quantities by a percentage. • Work out percentage change. • Express one quantity as a percentage of another.		Mathswatch CorbettMaths Mathsbox MathsGenie MyMaths Quizizz These include: 1. Videos 2. Practice questions 3. Past exam questions 4. Differentiated activities. 5. Opportunities for flipped learning	. Being united in harmony helps students see how different quantities relate to each other and work together to form a ratio. Dignity of the Human Person Care for God's Creation Understanding how different cultures approached these concepts can provide insights into their technological and scientific achievements.	Proportional reasoning Algebraic Concepts Graphs and charts

				Research opportunities: Cooking and Baking Financial Planning and Budgeting Scaling and Resizing Maps and Scale Drawings Mixing Solutions or Ingredients Sports Statistics and Analysis	Geography: Ratio and speed, distance, and time are relevant in analysing map scales, understanding population density, or studying transportation networks. Engineering Sports and athletics	
Statistical diagrams and averages	• 3.1 Statistical representation • 3.2 Statistical measures • 3.3 Scatter diagrams	• Draw and interpret bar charts and pie charts. • Draw and interpret line graphs. • Use averages to solve more complex problems. • Identify the advantages and disadvantages of each type of average and learn which one to use in different situations. • Work out and use the range of a set of data. • Calculate the mode, the median and the mean from a frequency table. • Identify the modal group. • Estimate the mean from a grouped frequency table. • Draw, interpret and use scatter diagrams.		Mathswatch CorbettMaths Mathsbox MathsGenie MyMaths Quizizz These include: 1. Videos 2. Practice questions 3. Past exam questions 4. Differentiated activities. 5. Opportunities for flipped learning Research:	Discovering these insights can bring joy and a sense of accomplishment in understanding the significance of the data and its implications. Common Good Preferential Option for the Poor and Vulnerable understanding the cultural significance of certain averages in different communities. Business Studies: Understanding statistics, charts, tables, and	Probability theory Data collection and sampling methods Statistical inference and hypothesis testing

| | | • Draw and use a line of best fit. | | Where are these charts used in everyday life? What kind of data do we often see represented by them | averages is valuable in business decision-making, market analysis, and financial planning.

These topics have applications in various careers, including market research, data analysis, financial analysis, actuarial science, economics, social sciences, and public health. | |
|---|---|---|---|---|---|---|
| 4: Number and sequences | 4.1 Patterns in number
4.2 Number sequences
4.3 Finding the nth term of a linear sequence
4.4 Special sequences
4.5 General rules from given patterns
4.6 The nth term of a quadratic sequence
4.7 Finding the nth term for quadratic sequences | Recognise patterns in number sequences.
Generate sequences, given the nth term.
Find the nth term of a linear sequence.
Recognise and continue some special number sequences such as square numbers.
Find the nth term of a sequence form a diagram or practical problem.
Generate the terms of a quadratic sequence from the nth term.
Work out the nth term of a quadratic sequence. | | Mathswatch
CorbettMaths
Mathsbox
MathsGenie
MyMaths
Quizizz

These include:
1.   Videos
2.   Practice questions
3.   Past exam questions
4.   Differentiated activities.
5.   Opportunities for flipped learning | Courageous and Resilient: Studying number and sequences requires perseverance and problem-solving skills to tackle complex patterns and concepts.

Solidarity
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Exposure to cultural number systems and counting methods from different cultures. | Algebra: Number patterns and sequences serve as a foundation for algebraic expressions and equations. |

				Research opportunities: -Seating people around a table -Patterns made when tiling floors. - Speed of an object -Curve of an object for designing.	English: Writing mathematical explanations and exploring the use of mathematical language. Science: Investigating patterns and sequences in scientific phenomena. Actuarial Science Data Analysis	
Spring Term						
5: Ratio and proportion	5.1 Ratio 5.2 Direct proportion problems 5.3 Best buys 5.4 Compound measures 5.5 Compound interest and repeated percentage change 5.6 Reverse percentage (working out the original amount)	Simplify a ratio. Express a ratio as a fraction. Divide amounts in given ratios. Complete calculations from a given ratio. Recognise and solve problems using direct proportion. Find either the cost per unit weight or the weigh per unit cost and use to identify the cheapest product. Recognise and solve problems involving the compound measures of rates of pay, speed, density and pressure. Calculate compound interest.	End of topic assessment End of term assessment	Mathswatch CorbettMaths Mathsbox MathsGenie MyMaths Quizizz These include: 1. Videos 2. Practice questions 3. Past exam questions 4. Differentiated activities.	Being united in harmony helps students see how different quantities relate to each other and work together to form a ratio. Dignity of the Human Person Care for God's Creation Understanding how different cultures approached these concepts can provide insights into their	Proportional reasoning Algebraic Concepts Graphs and charts

		Solve problems involving repeated percentage change. Calculate the original amount after a known percentage change.		5. Opportunities for flipped learning -Rates of pay -Cooking -Travelling -Money exchange	technological and scientific achievements. Geography: Ratio and speed, distance, and time are relevant in analysing map scales, understanding population density, or studying transportation networks. Engineering Sports and athletics	
6: Angles	6.1 Angle facts 6.2 Triangles 6.3 Angles in a polygon 6.4 Regular polygons 6.5 Angles in parallel lines 6.6 Special quadrilaterals 6.7 Scale drawings and bearings	To know the sum of the angles on a straight line, around a point, in a triangle and in a quadrilateral. To solve missing angle problems in triangles. To work out the sum of the interior angles in a polygon. To be able to calculate the size of the interior and exterior angles of any regular polygon. To solve problems involving alternate, corresponding, allied and opposite angles. To be able to calculate the size of angles in special quadrilaterals using their geometric properties. To be able to make a scale drawing to a given scale.		Mathswatch CorbettMaths Mathsbox MathsGenie MyMaths Quizizz These include: 1. Videos 2. Practice questions 3. Past exam questions 4. Differentiated activities. 5. Opportunities for flipped learning	Courageous and Resilient: Geometry requires students to approach problem-solving with courage and resilience. Solidarity Option for the Poor and Vulnerable. Cultural capital in understanding angles can involve exploring culturally significant practices that utilize specific angle measurements, such as the use of angles in traditional art forms,	Trigonometry Geometric transformations Coordinate geometry Geometric proofs 2D and 3D shapes

		To be able to convert measurements to calculate actual distances. To be able to read, interpret and draw bearings diagrams. To use the geometrical properties of a diagram to calculate a bearing.		Research opportunities: Soalr panels installation -Road maps -Architecture .	architectural traditions, or culturally specific tools that utilize angle measurements. Physics: Understanding angles is relevant in studying concepts such as projectile motion, reflection, refraction, and optics. Construction Carpentry Robotics Navigation Astronomy	
7: Transformations, constructions and loci	7.1 Congruent triangles 7.2 Rotational symmetry 7.3 Transformations **7.4 Combinations of transformations** 7.5 Bisectors 7.6 Defining a locus 7.7 Loci problems 7.8 Plans and elevations	Demonstrate that two triangles are congruent Find the order of rotational symmetry for a 2D shape Recognise shapes with rotational symmetry. Translate, reflect, rotate and enlarge a 2D shape. Combine transformations 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 Construct and interpret plans and elevations of 3D shapes.		Mathswatch CorbettMaths Mathsbox MathsGenie MyMaths Quizizz These include: 1.Videos 2.Practice questions 3.Past exam questions 4.Differentiated activities. 5.Opportunities for flipped learning	United in Harmony: Studying transformations, constructions, and loci involves working collaboratively, respecting different perspectives, and appreciating the harmony and symmetry in mathematical patterns. Option for the Poor and Vulnerable Stewardship	Coordinate Geometry

				Research opportunities: architecture -projections -Quilting	Exposure to historical and cultural architectural designs and their geometric principles. Art: Creating geometric artwork inspired by transformations, constructions, and symmetry. Architecture Engineering	
8: Algebraic manipulation	8.1 Basic algebra 8.2 Factorisation 8.3 Quadratic expansion 8.4 Expanding squares 8.5 More than two binomials 8.6 Quadratic factorisation 8.7 Factorising $ax^2 + bx + c$ 8.8 Changing the subject of a formula	Recognise expressions, equations, formulae and identities. Substitute into, manipulate and simplify algebraic expressions. Factorise an algebraic expression. Expand two binomials to obtain a quadratic expression. Expand the square of a binomial. Expand more than two binomials. Factorise a quadratic expression of the form $x^2 + ax + b$ into two linear brackets. Factorise a quadratic expression of the form $ax^2 + bx + c$ into two linear brackets. Change the subject of a formula.		Mathswatch CorbettMaths Mathsbox MathsGenie MyMaths Quizizz These include: 1. Videos 2. Practice questions 3. Past exam questions 4. Differentiated activities. 5. Opportunities for flipped learning	Discerning and Joyful: Learning expressions and formulae requires discernment in understanding the meaning and purpose behind mathematical symbols and notation. Option for the Poor and Vulnerable Solidarity investigating how mathematical concepts have been applied in diverse cultural contexts.	Algebraic Concepts Equations and Inequalities

| | | | | Research opportunities:

1. A variable is a number that does not have a fixed value. The picture and the list below show some real-life examples, where the value of a variable changes with the change in place and time.
2. The temperature in different places also change.
3. The height of a growing | physics: Expressions and formulae are essential for representing physical laws and mathematical models in physics, enabling students to understand the quantitative relationships between physical quantities.

Engineering
Data analysis and statistics
Finance and accounting
Scientific research
Computer programming and software development | |

				child changes with time. 4. The speed of a car changes with time. 5. The age of people keeps on increasing year by year.		
Summer Term						
9: Length, area and volume	9.1 Circumference and area of a circle 9.2 Area of a parallelogram 9.3 Area of a trapezium 9.4 Sectors 9.5 Volume of a prism 9.6 Cylinders 9.7 Volume of a pyramid 9.8 Cones 9.9 Spheres	Calculate the circumference and area of a circle. Calculate the area of a parallelogram. Calculate the area of a trapezium. Calculate the length of an arc. Calculate the area and angle of a sector. Calculate the volume of a prism. Calculate the volume and surface area of a cylinder. Calculate the volume 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 End of term assessment	MathsGenie MyMaths Quizizz These include: 1. Videos 2. Practice questions 3. Past exam questions 4. Differentiated activities. 5. Opportunities for flipped learning	Grateful and Generous: Understanding and applying concepts of length, area, and volume allow students to appreciate the importance of accurate measurements and to be generous in sharing their knowledge to solve real-world problems. Human Dignity Care for Creation	Geometry: Applying length, area, and volume formulas to solve geometric problems.

				Research opportunities: Measuring distances Determining sizes of objects Planning and designing spaces Construction and engineering Land surveying	Knowledge of historical measurement systems used in different cultures and civilizations. Science: Applying measurement concepts to scientific experiments and data analysis. Architecture Engineering	
10: Linear graphs	10.1 Drawing linear graphs from points 10.2 Gradient of a line 10.3 Drawing graphs by gradient-intercept and cover-up methods 10.4 Finding the equation of a line from its graph 10.5 Real-life uses for graphs 10.6 Solving simultaneous equations using graphs **10.7 Parallel and perpendicular lines**	Draw linear graphs by finding points. Find the gradient of a straight line. Draw a line with a certain gradient. Draw graphs using the gradient-intercept method. Draw graphs using the cover-up method. Find the equation of a line, using its gradient and intercept. Find the equation of a line given two points on the line. Convert from one unit to another unit by using a conversion graph. Use straight-line graphs to find formulae. Solve simultaneous linear equations using graphs. Draw linear graphs parallel or perpendicular to other lines and passing through a specific point.		Mathswatch/ CorbettMaths/Mathsbox/MathsGenie/MyMaths/Quizizz These include: 1. Videos 2. Practice questions 3. Past exam questions 4. Differentiated activities. 5. Opportunities for flipped learning Research opportunities:	By leading for justice, truth, and integrity, students approach linear graphs with honesty and fairness, making unbiased conclusions based on the evidence presented by the graph. Solidarity Care for God's Creation Cultural capital in linear graphs can involve exploring culturally significant applications of linear relationships in various fields, such as economics, engineering, or urban planning.	Algebraic Concepts Functions and Relations Algebraic Concepts Functions and Relations

				1. Straight line graphs are used in Chemistry and Biology. Straight line graphs are used to estimate whether our body weight is appropriate according to our height.	Science: Linear graphs can be applied in analysing scientific data, interpreting experimental results, or modelling relationships between variables. Data analysis and statistics Actuarial science	
11: Right-angled triangles	11.1 Pythagoras' theorem 11.2 Finding the length of the shorter side 11.3 Applying Pythagoras' theorem in real-life situations 11.4 Pythagoras' theorem and isosceles triangles **11.5 Pythagoras' theorem in three dimensions** 11.6 Trigonometric ratios 11.7 Calculating angles 11.8 Using the sine and cosine functions 11.9 Using the tangent function 11.10 Which ratio to use 11.11 Solving problems using trigonometry 11.12 Trigonometry and bearings	Calculate the length of the hypotenuse in a right angled triangle. Calculate the length of a shorter side in a right angled triangle. Solve practical problems involving Pythagoras' theorem. Use Pythagoras' Theorem and isosceles triangles Use Pythagoras' theorem to solve problems involving three dimensions. Use the three trigonometric ratios. Use the trigonometric ratios to calculate an angle. Find lengths of sides and angles in right-angled triangles using the sine and cosine functions. Find lengths of sides and angles in right-angled triangles using the tangent function.		Mathswatch/ CorbettMaths/Mathsbox/MathsGenie/MyMaths/Quizizz These include: 6. Videos 7. Practice questions 8. Past exam questions 9. Differentiated activities. 10. Opportunities for flipped learning Research opportunities:	United in Harmony: Studying Pythagoras and Trigonometry involves understanding and applying mathematical relationships that create harmony and balance in geometric structures. Common Good Option for the Poor and Vulnerable Familiarity with cultural applications of trigonometry, such as in navigation, astronomy, and architecture.	Algebra: Applying trigonometric identities and Pythagorean theorem in algebraic equations. Calculus: Using trigonometric functions and Pythagorean theorem in calculus applications.

| | 11.13 Trigonometry and isosceles triangles | Decide which trigonometric ratio to use in a right-angled triangle. Solve practical problems using trigonometry. Solve problems using an angle of elevation or an angle of depression. Solve bearing problems using trigonometry. Find the length x in this isosceles triangle.

Calculate the area of the triangle. | | construction and architecture. two-dimensional navigation to find the shortest distance. survey the steepness of the slopes of mountains or hills. To calculate the length of staircase required to reach a window. | Physics: Applying Pythagoras and Trigonometry to analyse forces, motion, and waves.
Engineering
Architecture | |