Year 7 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						
Algebraic Thinking	• Sequence • Linear and non-linear sequences • Function machine • Inverse operations • Substitution • Equality and equivalence	• Move freely between different numerical, algebraic, graphical and diagrammatic representations • Make and test conjectures about patterns and relationships • Use a calculator and other technologies to calculate results accurately and then interpret them appropriately • Generate terms of a sequence from a term-to-term rule • Recognise arithmetic sequences • Recognise geometric sequences and appreciate other sequences that arise	○ Mid-topic assessment ○ End of topic 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 sequences: patterns made when tiling floors; seating people around a table; the rate of change of a population; the spread of a virus etc.	Grateful for different Mathematicians' contributions to the world. The dignity of work – through looking at important financial issues. United in Harmony **Option for the Poor and Vulnerable** **Stewardship** Knowledge of mathematical concepts and problem-solving skills • Science • Geography • Physical Education	Basis for techniques to be explored in GCSE Mathematics

		• Use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships. • Model situations or procedures by translating them into algebraic expressions • Substitute values in expressions, rearrange and simplify expressions • Use and interpret algebraic notation • Simplify and manipulate algebraic expressions to maintain equivalence by collecting like terms • Use approximation through rounding to estimate answers • Use algebraic methods to solve linear equations in one variable			• Mathematician • Data Analyst • Teacher • Engineering • Architecture • Engineering • Photography • Computer Scientist • Operations Research	
Autumn Term 2 / Spring Term 1						
Place Value and Proportion	• Place value • Integers and figures • Number line • Rounding • Inequality notations	• Consolidate their understanding of the number system and place value to include decimals	o Mid-topic assessment	Mathswatch/ CorbettMaths/Mathsbox/MathsGenie/MyMaths/Quizizz These include:	Listening and attentive. Family and Community	Basis for techniques to be explored in GCSE Mathematics

	• Order integers • Range • Median • Compare numbers • Significant figure • Powers of 10 • Standard form • Fractions and decimals • Percentages • Algebraic fractions	• Understand and use place values for decimals, measures and integers of any size • Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers • Work interchangeable with terminating decimals and their corresponding fractions • Round numbers to an appropriate degree of accuracy • Describe, interpret and compare observed distributions of a single variable through the median and the range • Interpret and compare numbers in standard form • Consolidate their understanding of the number system and place value to include decimals and fractions • Move freely between different numerical representations	o End of topic assessment	1. Videos 2. Practice questions 3. Past exam questions 4. Differentiated activities. 5. Opportunities for flipped learning	**Community and social justice** **Option for the Poor and Vulnerable** **Stewardship** **Knowledge of mathematical concepts** • Science • Geography • Physical Education • Religious Education • History • Design & Technology • Mathematician • Data Analyst • Teacher • Medicine • Engineering • Architecture • Engineering • Photography • Actuary • Economist	

		• Extend their understanding of the number system; make connections between number relationships • Express one quantity as a fraction of another • Define percentage as a 'number of parts per hundred' • Compare two quantities using percentages • Work with percentages greater than 100% • Interpret pie charts			• Market Research Analyst •	
Spring Term 2						
Applications of Number	• Addition and subtraction • Perimeter • Financial maths • Tables and timetables • Frequency trees • Bar charts and line charts • Standard form • Multiplication and division • Factors • Multiples • Powers of 10 • Convert metric units	• Use formal written methods, applied to positive integers and decimals • Recognise and use relationships between operations including inverse operations derive and apply formulae to calculate and solve problems involving: perimeter • Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts and	o Mid-topic assessment o End of topic 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. Planning a trip using tables/timetables. 2. Negative numbers in temperature.	Serviam Generous Grateful Intellectual curiosity and pursuit of knowledge **Option for the Poor and Vulnerable** **Stewardship**	Basis for techniques to be explored in GCSE Mathematics

• Order of operations • Area • Mean • Algebraic expressions • Fraction of a given amount • Percentage • Directed numbers • Use of a calculator • Algebraic expressions • Equations • Order of operations • Powers and roots • Fractions	pictograms for categorical data, and vertical line (or bar) charts for ungrouped numerical data • Use formal written methods, applied to positive integers and decimals • Select and use appropriate calculation strategies to solve increasingly complex problems • Recognise and use relationships between operations including inverse operations • Use the concepts and vocabulary factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple • Change freely between related standard units [time, length, area, volume/capacity, mass] • Derive and apply formulae to calculate and solve problems involving: perimeter		3. HCF/LCM – Planning events 4. Charts and graphs to represent data collected by students on various topics of interest. E.g. social media platforms.	**Knowledge of mathematical concepts** • Science • Geography • Physical Education • Religious Education • History • ICT • Mathematician • Data Analyst • Teacher • Medicine • Engineering • Architecture • Engineering • Photography • Actuary • Economist • Market Research Analyst • Accountant • Architect • Scientist • Surveyor •

		and area of triangles, parallelograms, and trapezia (H) • Substitute numerical values into formulae and expressions, including scientific formulae use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement) describe, interpret and compare observed distributions of a single variable through the mean • Solve problems involving tables and timetables • Solve problems with frequency trees • Solve problems with bar charts and line charts • Add and subtract numbers given in standard form				
Summer Term 1						
Directed Number and	• Using symbols • Directed numbers • Use a calculator	• Select and use appropriate calculation strategies	○ Mid-topic assessment	Mathswatch/ CorbettMaths/Mathsbox/Ma thsGenie/MyMaths/Quizizz	**Option for the Poor and Vulnerable**	Basis for techniques to be explored in GCSE Mathematics

| Fractional Thinking | • Algebraic expressions
• Equations
• Order of operations
• Powers and roots
• Mixed numbers
• Fractions
• Decimals
• Algebraic fractions | to solve increasingly complex problems
• Use the four operations, including formal written methods, applied to integers, both positive and negative
• Recognise and use relationships between operations including inverse operations
• Use square and square roots
• Use a calculator and other technologies to calculate results accurately and then interpret them appropriately
• Substitute numerical values into formulae and expressions, including scientific formulae
• Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors
• Simplify and manipulate algebraic | o End of topic assessment | These include:
1. Videos
2. Practice questions
3. Past exam questions
4. Differentiated activities.
5. Opportunities for flipped learning
Research opportunities:
1. Directed numbers-temperature | **Knowledge of mathematical concepts**

• Science
• Geography
• Physical Education
• Religious Education
• History
• ICT
• Mathematician
• Data Analyst
• Teacher
• Medicine
• Engineering
• Architecture
• Engineering
• Photography
• Economist
• Market Research Analyst
• Computer Scientist | |

		expressions to maintain equivalence • Understand and use standard mathematical formulae • Move freely between different numerical, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals] • Express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1 • Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, , ≤, ≥ • Select and use appropriate calculation strategies to solve increasingly complex problems • Use the four operations, including				

		formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative • Work interchangeably with terminating decimals and their corresponding fractions				
Summer Term 2						
Lines and Angles	• Draw and measure line segments • Angles • perpendicular and parallel lines • Quadrilaterals • Polygons • Construction • Pie charts • Proofs • Mental arithmetic • Venn diagrams • Sample spaces • Probability scale • Multiples • Factors • Prime numbers • Square and triangular numbers • HCF	• Use language and properties precisely to analyse 2-D shapes • Begin to reason deductively in geometry including using geometrical constructions • Draw and measure line segments and angles in geometric figures, including interpreting scale drawings • describe, sketch and draw using conventional terms and notations points, lines, parallel lines, perpendicular lines, right-angles, regular polygons, and other	o Mid-topic assessment o End of topic 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. Tessellation 2. Use of venn diagrams in the business world.	Truth & Justice Tolerance & Peace Service & Sacrifice **Option for the Poor and Vulnerable** **Knowledge of mathematical concepts** • Science • Geography • Physical Education • Religious Education • History	Basis for techniques to be explored in GCSE Mathematics

	• LCM	polygons that are reflectively and rotationally symmetric • Use the standard conventions for labelling sides and angles • Construct and interpret pie charts for categorical, ungrouped and grouped numerical data • Identify and construct triangles • Use language and properties precisely to analyse 2-D shapes, • begin to reason deductively in geometry including using geometrical constructions • 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			• ICT • Design and Technology • Mathematician • Data Analyst • Teacher • Medicine • Engineering • Architecture • Computer Scientist	

		- Use the standard conventions for labelling sides and angles - Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures (for example, equal lengths and angles] using appropriate - language and technologies apply the properties of angles at a point angles at a point on a straight line, vertically opposite angles apply angle facts, triangle similarity and properties of quadrilaterals to derive results about angles and sides, and use known results to obtain simple proofs - Understand and use the relationship between parallel lines and alternate and corresponding angles (H) - 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 (H) • Consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots • Select and use appropriate calculation strategies to solve increasingly complex problems • Begin to reason deductively in number and algebra • 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				

		- Understand that the probabilities of all possible outcomes sum to 1 - Enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams - Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple prime factorisation, including using product notation and the unique factorisation property - Use integer powers and associated real roots (square, cube and higher), recognise powers of 2,3,4,5 - Make and test conjectures about patterns and relationships; look for proofs or counterexamples			

		• Begin to reason deductively in number and algebra				