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| **Year 7 Curriculum Overview [2024-2025]** **Mathematics**  |
|  **Autumn Term** | **Knowledge & Understanding** | **Literacy Skills****Opportunities for****developing** **literacy skills** | **Employability Skills****[if any]** | **Assessment Opportunities** |
| **Composites** | **Components****[KEY concepts & subject specific vocab]** | **Formal Retrieval****[if any]** |
| **HT1** | **Sequences** | * Describe and continue a sequence given diagrammatically
* Predict and check the next term(s) of a sequence
* Represent sequences in tabular and graphical forms
* Recognise the difference between linear and non-linear sequences
* Continue numerical linear sequences
* Continue numerical non-linear sequences
* Explain the term-to-term rule of numerical sequences in words
* **H - Find missing numbers within sequences**
 | * Retrieval in class starter
* Prior knowledge whiteboard questions
* End of Topic Unit Test Intervention lessons using knowledge organiser material
 | * Key Vocabulary in Retrieval starters
* Encourage use of subject language
* Questioning
* Pupil explanations and reasoning
* True and False Tasks
* Problem Solving Tasks
* Blooms Questioning Tasks
 | * Personal skills- Thinking and problem solving- Working together and communicating
* Fundamental skills- Using numbers effectively- Using language effectively
* Financial management – predicting financial models
* Nuclear engineers – prediction of radioactive models
 | * Baseline Assessment
* Plenary True and False Tasks
* Peer and self-assessment
* Feedback and reflective practise
* End of Topic Tests
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|  | **Understanding Algebraic Notation** | * Given a numerical input, find the output of a single function machine
* Use inverse operations to find the input given the output
* Use diagrams and letters to generalise number operations
* Use diagrams and letters with single function machines
* Find the function machine given a simple expression
* Substitute values into single operation expressions
* Find numerical inputs and outputs for a series of two function machines
* Use diagrams and letters with a series of two function machines
* Find the function machine given a two-step expression
* Substitute values into two-step expressions
* Generate sequences given an algebraic rule
* Represent one- and two-step functions graphically
 | * Retrieval in class starter
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|  | **Equality and Equivalence** | * Understand the meaning of equality
* Understand and use fact families, numerically and algebraically
* Solve one-step linear equations involving addition and subtraction using inverse operations
* Solve one-step linear equations involving multiplication and division using inverse operations
* Understand the meaning of like and unlike terms
* Understand the meaning of equivalence
* Simplify algebraic expressions by collecting the like term using the ≡ symbol
 | * Retrieval in class starter
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- Using a calculator effectively. | * Plenary True and False Tasks
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| **HT2** | **Place Value and Ordering Integers and Decimals** | * Recognise the place value of any digit in an integer up to one billion
* Understand and write integers up to one billion in words and figures
* Work out intervals on a number line
* Position integers on a number line
* Round intervals to the nearest power of 10
* Compare two numbers using =, ≠, <, >, ≤ and ≥
* Order a list of integers
* Find the range of a set of numbers
* Find the median of a set of numbers
* Understand place value for decimals
* Position decimals on a number line
* Compare and order any number up to one billion
* Round a number to 1 significant figure
* **H - Write 10, 100, 1000 etc as powers of 10**
* **H - Write positive integers in the form A x 10^n**
* **H - Investigate negative powers of 10**
* **H - Write decimals in the form A x 10^n**
 | * Retrieval in class starter
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- Using a calculator effectively.* Life skills
* Money Management
 | * Plenary True and False Tasks
* Peer and self-assessment
* Feedback and reflective practise
* End of Topic Tests
* End of Term Test
 |
|  | **Fraction, Decimals and Percentage Equivalence** | * Represent tenths and hundredths as diagrams
* Represent tenths and hundredths on number lines
* Interchange between fractional and decimal number lines
* Convert between fractions and decimals - tenths and hundredths
* Convert between fractions and decimals - fifths and quarters
* **H - Convert between fractions and decimals - eighths and thousandths**
* Understand the meaning of percentage using a hundred square
* Convert fluency between simple fractions, decimals and percentages
* Use and interpret pie charts
* Represent any fraction as a diagram
* Represent fractions on number lines
* Identify and use simple equivalent fractions
* Simplify fractions (no small step on this - but this is in the assessment)
* Understand fractions as division
* Convert fluently between FDP

**H - Explore fractions above one, decimals and percentages** | * Retrieval in class starter
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* Problem Solving Tasks

Blooms Questioning Tasks | * Personal skills- Thinking and problem solving- Working together and communicating
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- Using a calculator effectively. | * Plenary True and False Tasks
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* Feedback and reflective practise
* End of Topic Tests
 |
|  | **Solving Problems with Addition and Subtraction** | * Properties of addition and subtraction
* Mental strategies for addition and subtraction
* Use formal methods for addition of integers
* Use formal methods for addition of decimals
* Use formal strategies for subtraction of integers
* Use formal methods for subtraction of decimals
* Chose the most appropriate method mental, formal, calculator
* Solve problems in the context of perimeter
* Solve financial maths problems
* Solve problems involving tables and timetables
* Solve problems with frequency trees
* Solve problems with bar charts and line graphs

**H - Add and subtract numbers given in standard form** | * Retrieval in class starter
* Prior knowledge whiteboard questions
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 | * Personal skills- Thinking and problem solving- Working together and communicating
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- Using a calculator effectively.* Number skills involved in many areas of different work
 | * Plenary True and False Tasks
* Peer and self-assessment
* Feedback and reflective practise
* End of Topic Tests
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| **Catholicity across the curriculum:****Sequences Exploring the Beauty of Mathematics:** Encourage students to see the beauty and order in mathematical patterns, sequences, and structures, reflecting the Catholic view that creation is orderly and purposeful, topics like the Fibonacci sequence.**Algebraic notation a universal language:** Mirrors the concept of catholicity by fostering inclusivity and enabling people from diverse backgrounds to engage with mathematical ideas on a global scale. Just as catholicity unites individuals in faith across cultures and regions, algebraic notation connects learners worldwide in their pursuit of knowledge and problem-solving.**Place ordering integers and decimals** : Helping students develop a clear understanding of numerical relationships, a concept that can be applied universally, much like catholicity's call for unity across diverse communities. In real life, this skill allows individuals to make precise decisions in areas such as finance and measurement, reflecting how the inclusive nature of catholicity promotes careful attention to detail in both spiritual and practical matters. |
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| **Year 7 Curriculum Overview [2024-2025]** **Mathematics**  |
| **Spring****Term** | **Knowledge & Understanding** | **Literacy Skills****Opportunities for****developing** **literacy skills** | **Employability Skills****[if any]** | **Assessment Opportunities** |
| **Composites** | **Components****[KEY concepts & subject specific vocab]** | **Formal Retrieval****[if any]** |
| **HT3** | **Solving problems with Multiplication and Division** | * Properties of multiplication and division
* Understand and use factors
* Understand and use multiples
* Multiply and divide integers and decimals by powers of 10
* **H - Multiply by 0.1 and 0.01**
* Convert metric units
* Use formal methods to multiply integers
* Use formal methods to multiply decimals
* Use formal methods to divide integers
* Use formal methods to divide decimals
* Understand and use order of operations
* Solve problems using the area of rectangles and parallelograms
* Solve problems using the area of triangles
* **H - Solve problems using the area of trapezia**
* Solve problems using the mean
* **H - Explore multiplication and division in algebraic expressions**
 | * Retrieval in class starter
* Prior knowledge whiteboard questions
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- Using a calculator effectively. | * Plenary True and False Tasks
* Peer and self-assessment
* Feedback and reflective practise
* End of Topic Tests
 |
|  | **Fractions & Percentages of Amounts** | * Find a fraction of a given amount
* Use a given fraction to find the whole and/or other fractions
* Find a percentage of a given amount using mental methods
* Find a percentage of a given amount using a calculator
* **H - Solve problems with fractions greater than 1 and percentages greater than 100%**
 | * Retrieval in class starter
* Prior knowledge whiteboard questions
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 |
| **HT4** | **Operations and Equations with Directed Number** | * Understand and use representations of directed numbers
* Order directed numbers using lines and appropriate symbols
* Perform calculations that cross zero
* Add directed numbers
* Subtract directed numbers
* Multiplication of directed numbers
* Multiplication and division of directed numbers
* Use a calculator for directed number calculations
* Evaluate algebraic expressions with directed number
* Introduction to two-step equations
* Solve two-step equations
* Use order of operations with directed numbers
* **H - Understand that positive numbers have more than one square root**
* **H - Explore higher powers and roots**
 |  | * Key Vocabulary in Retrieval starters
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* End of Topic Tests
 |
|  | **Addition and Subtraction of Fractions** | * Understand representations of fractions
* Convert between mixed numbers and fractions
* Add and subtract unit fractions with the same denominator
* Add and subtract fractions with the same denominator
* Add and subtract fractions from integers expressing the answer as a single fraction
* Understand and use equivalent fractions
* Add and subtract fractions where denominators share a simple common multiple
* Add and subtract fractions with any denominator
* Add and subtract improper fractions and mixed numbers
* Use fractions in algebraic contexts
* Use equivalence to add and subtract decimals and fractions
* **H - Add and subtract simple algebraic fractions**
 | * Retrieval in class starter
* Prior knowledge whiteboard questions
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 |
| **Catholicity across the curriculum:****Solving problems with multiplication and division:** Show how math is used to address social issues and relating this to career pathways with clear focus on careers and diversity. This connects with Catholic social teachings on justice, stewardship, and the responsibility to care for others.**Fractions and percentages of amounts:** Use budgeting lessons to discuss charitable giving and financial stewardship, fostering an understanding of generosity and responsibility.**Operations and Equations with Directed Number:** Use math problems that highlight fairness and equity, such as proportional distribution, probability, and understanding averages, to discuss how math can help us understand and work toward fairness in society. |  |
| **Year 7 Curriculum Overview [2024-2025]** **Mathematics**  |
| **Summer** **Term** | **Knowledge & Understanding** | **Literacy Skills****Opportunities for****developing** **literacy skills** | **Employability Skills****[if any]** | **Assessment Opportunities** |
| **Composites** | **Components****[KEY concepts & subject specific vocab]** | **Formal Retrieval****[if any]** |
| **HT5** | **Constructing, Measuring and Using Geometric Notation** | * Understand and use letter and labelling conventions including those for geometric figures
* Draw and measure line segments including geometric figures
* Understand angles as a measure of turn
* Classify angles
* Measure angles up to 180 degrees. Draw angles up to 180 degrees.
* Draw and measure angles between 180 and 360 degrees
* Identify parallel and perpendicular lines.
* Recognise types of triangle
* Identify polygons up to decagons.
* Recognise types of quadrilaterals
* Construct triangles using SSS
* Construct triangles using SSS, SAS and ASA
* Construct more complex polygons
* Interpret simple pie charts using proportion
* Interpret pie charts using a protractor
* Draw pie charts
 | * Retrieval in class starter
* Prior knowledge whiteboard questions
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- Using a calculator effectively.* Engineering and architecture and planning
 | * Plenary True and False Tasks
* Peer and self-assessment
* Feedback and reflective practise
* End of Topic Tests
 |
|  | **Developing Geometric Reasoning** | * Understand and use the sum of angles at a point
* Understand and use the sum of angles on a straight line
* Understand and use the equality of vertically opposite angles
* Know and apply the sum of angles in a triangle
* Know and apply the sum of angles in a quadrilateral
* Solve angle problems using properties of triangles and quadrilaterals
* Solve complex angle problems
* **H - Find and use the angle sum of any polygon**
* **H - Investigate angles in parallel lines**
* **H - Understand and use parallel line angle rules**
* **H - Use known facts to obtain simple proofs**
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 |
| **HT6** | **Developing Number Sense** | * Know and use mental addition and subtraction strategies for integers
* Know and use mental multiplication and division strategies for integers
* Know and use mental strategies for decimals
* Know and use mental strategies for fractions
* Use factors to simplify calculations
* Use estimation as a method for checking mental calculations
* Use known number facts to derive other facts
* Use known algebraic facts to derive other facts
* Know when to use a mental strategy, formal written method or a calculator
 | * Retrieval in class starter
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- Using a calculator effectively. | * Plenary True and False Tasks
* Peer and self-assessment
* Feedback and reflective practise
* End of Topic Tests
 |
|  | **Sets and Probability** | * Identify and represent sets
* Interpret and create Venn diagrams
* Understand and use the intersection of sets
* Understand and use the union of sets
* H - Understand and use the complement of sets
* Know and use the vocabulary of probability
* Generate sample spaces for single events
* Calculate the probability of a single event
* Understand and use the probability scale
* Know that the sum of probabilities of all possible outcomes is 1
 | * Retrieval in class starter
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|  | **Prime Numbers and proof** | * Find and use multiples
* Identify factors of numbers and expressions
* Recognise and identify prime numbers
* Recognise square and triangular numbers
* Find common factors of a set of numbers including the HCF
* Find common multiples of a set of numbers including the LCM
* Write a number as a product of its prime factors
* **H - Use a Venn diagram to calculate the HCF and LCM**
* Make and test conjectures
* Use counterexamples to disprove a conjecture
 | * Retrieval in class starter
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- Using a calculator effectively. | * Plenary True and False Tasks
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 |
| **Catholicity across the curriculum:****Constructing, Measuring and Using Geometric Notation:** When teaching statistics, emphasise ethical data collection, representation, and interpretation, highlighting the responsibility to present information truthfully and to consider the real-world impact of misrepresented data.**Developing Geometric Reasoning:** Fosters critical thinking and logical precision, which aligns with the Catholic tradition of seeking truth through reason and understanding of the world. **Developing Number Sense - Integrity in Calculations and Solutions:** Emphasize the importance of accuracy and honesty in mathematics. Encourage students to value truth in their work, aligning with Catholic values that uphold integrity and truthfulness in all pursuits.**Sets and probability:** Venn diagrams show how various subsets can intersect to form a universal set, mirroring the inclusivity of Catholicity, where different outcomes coexist within a larger framework of certainty. |