


**SUBJECT: MATHEMATICS – Higher Pathway (1 Higher Pathway only in Y7)**

| Year Group | Year 7   |  |  |  |   |   |
|------------|--|--|--|--|---|---|
| Rationale  | To build on skills developed at KS2 and consolidate through extension and problem solving. To be introduced to the ability to model and generalise through algebraic techniques. To begin to use a scientific calculator confidently.  |  |  |  |   |   |
| Topic/Unit | Autumn Term 1  | Autumn Term 2  | Spring Term 1  | Spring Term 2  | Summer Term 1   | Summer Term 2   |
| Knowledge  | <ul style="list-style-type: none"> <li>Calculations Checking &amp; Rounding</li> <li>Expressions Formulas &amp;</li> </ul>   | <ul style="list-style-type: none"> <li>Perimeter &amp; Area</li> <li>Brackets, Factorising &amp; Algebraic</li> </ul>  | <ul style="list-style-type: none"> <li>Factors, Multiples &amp; Primes</li> <li>Percentages</li> </ul>   | <ul style="list-style-type: none"> <li>Forming &amp; Solving Equations</li> <li>Sequences</li> </ul>   | <ul style="list-style-type: none"> <li>Linear Graphs (<math>y = mx + c</math>) &amp; Co-ordinate Geometry</li> <li>Fractions</li> </ul>   | <ul style="list-style-type: none"> <li>Decimals &amp; Place Value</li> <li>Product Rule for Counting</li> <li>Averages &amp;</li> </ul>   |
| Skills     | <p><b>Calculations, Checking &amp; Rounding</b><br/>Apply the four rules of arithmetic with positive, negative and decimal numbers. Round numbers to different levels of accuracy and use rounded values in estimation.</p> <p><b>Expressions, Formulas &amp; Substitution</b><br/>Define types of algebra. Write expressions and formulas from a range of situations. Substitute values into expressions and formulas. Manipulate expressions using the four rules of arithmetic in order to simplify</p> | <p><b>Perimeter &amp; Area</b><br/>Use formulae efficiently to find the perimeter and/or area of a range of 2D shapes, including estimating areas and working with composite shapes.</p> <p><b>Brackets, Factorising &amp; Algebraic Fractions</b><br/>Expand and simplify single brackets and multiple single brackets. Expand and simplify double brackets. Factorise linear and quadratic expressions into single or double brackets. Simplify and use the four rules of arithmetic with simple algebraic fractions. Solve 'show that' problems using algebraic skills.</p> | <p><b>Factors, Multiples &amp; Primes</b><br/>Define and identify factors, multiples and prime numbers. Write a number in prime factor form and use this and/or index notation to problem solve. Find common factors and multiples including the LCM and HCF and including the use of Venn diagrams. Solve problems using LCM and/or HCF. Simplify surds.</p> <p><b>Percentages</b><br/>Convert between fractions, decimals and percentages. Express one number as a percentage of another, including working with more than 100%.</p> <p>Find a percentage of an amount using calculator and non-calculator techniques.</p> | <p><b>Forming and Solving Equations</b><br/>Understand and use the <math>\neq</math> and <math>\equiv</math> symbols. Solve a range of linear equations, including the use of brackets, fractions, and negative numbers and when the unknown appears on either one or both sides of the equation. Form equations or formulae from given information or diagrams and then solve them in order to solve a problem.</p> <p><b>Sequences</b><br/>Recognise and continue simple sequences including odd, even, triangular, square, cube, and Fibonacci-type sequences. Describe a term-to-term rule for a sequence including use it to generate a sequence. Find the <math>n</math>th term of a linear sequence. Use the <math>n</math>th term to find a specific term within a sequence or to generate a whole sequence.</p> | <p><b>Linear Graphs &amp; Co-ordinate Geometry</b><br/>Identify and plot co-ordinates in all 4 quadrants. Find the co-ordinates of the midpoint of lines or missing co-ordinates on 2D shapes on a grid. Identify and/or draw horizontal and vertical graphs. Use a table of values to generate points on a linear graph. Plot and draw a range of linear graphs. Find the gradient and intercept from a linear graph and use them to define the equation of a graph. Interpret the gradient in context. Find approximate solutions to equations using a linear graph. Recognise parallel graphs have the same gradient.</p> <p><b>Fractions</b><br/>Express one value as a fraction of another. Simplify and find equivalent fractions</p> | <p><b>Decimals &amp; Place Value</b><br/>Multiply and divide decimals by decimals. Use place value and the properties of multiplying and dividing decimals to use one calculation to find the answer for another.</p> <p><b>Product Rule for Counting</b><br/>Use the product rule for counting in simple situations.</p> <p><b>Averages &amp; Range</b><br/>Find the mean, mode, median and range from small data sets. Find missing values in data sets given an average or the range. Recognise the advantages and disadvantages of different measures of the average in different contexts. Construct and find averages and the range from stem and leaf diagrams. Calculate averages and range from a frequency table. Calculate averages and range from a</p> |



|                     |                                     |  |   |  |   |   |
|---------------------|-------------------------------------|--|---|--|---|---|
|                     |                                     |  | Increase and decrease by a given percentage. Solve problems in real-life contexts using percentages, including comparisons. | Use the nth term to deduce whether a specific value appears in a sequence. | including to compare or order fractions. Find a fraction of an amount. Convert between mixed numbers and improper fractions. Use the four rules of arithmetic, including with mixed numbers. Find the reciprocal of an integer or a fraction. | grouped frequency table and recognise why the mean will be an estimate. |
| <b>Assess-ments</b> | Baseline Assessment<br>Assessment 1 |  | Assessment 2  |  | Assessment 3  | EOY Assessment  |


**SUBJECT: MATHEMATICS – Foundation Pathway (Upper)**

| Year Group | Year 7   |   |  |  |   |  |
|------------|--|---|--|--|---|--|
| Rationale  | To build on skills developed at KS2 and consolidate through extension and problem solving. To be introduced to the ability to model and generalise through algebraic techniques. To begin to use a scientific calculator confidently.  |   |  |  |   |  |
| Topic/Unit | Autumn Term 1  | Autumn Term 2   | Spring Term 1  | Spring Term 2  | Summer Term 1   | Summer Term 2  |
| Knowledge  | <ul style="list-style-type: none"> <li>▪ Integers &amp; Place Value</li> <li>▪ Expressions, Formulas &amp; Substitution</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Perimeter &amp; Area</li> <li>▪ Brackets &amp; Factorising</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Factors, Multiples &amp; Primes</li> <li>▪ Percentages &amp; Conversions</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Forming &amp; Solving Equations</li> <li>▪ Sequences</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Linear Graphs &amp; Co-ordinate Geometry</li> <li>▪ Fractions</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Decimals &amp; Place Value</li> <li>▪ Averages &amp; Range</li> </ul>   |
| Skills     | <p><u>Integers &amp; Place Value</u><br/>Order positive and negative integers and decimals. Apply the four rules of arithmetic with positive, negative and decimal numbers. Multiply and divide numbers by powers of 10. Round numbers to different levels of accuracy and use rounded values in estimation.</p> <p><u>Expressions, Formulas &amp; Substitution</u><br/>Define types of algebra. Write expressions and formulas from a range of situations. Substitute values into expressions and formulas. Manipulate expressions using the four rules of arithmetic in order to simplify. Use basic index laws when manipulating algebra.</p> | <p><u>Perimeter &amp; Area</u><br/>Choose the appropriate unit of measurement for a range of situations. Make sensible estimate of a range of measures in everyday settings. Measure shapes to find perimeters and areas. Find the perimeter of rectangles, triangles, parallelograms, trapezia and composite shapes. Use formulae to find the area of rectangles and triangles and composite shapes.</p> <p><u>Bracket &amp; Factorising</u><br/>Multiply a single bracket. Simplify expressions involved repeated single brackets. Factorise a single bracket by taking out common numerical or algebraic factors. Show algebraic expressions are equivalent.</p> | <p><u>Factors, Multiples &amp; Primes</u><br/>List all numbers that can be made from given sets of digits. Define and identify factors, multiples and prime numbers. List all factors of a number systematically. List multiples of integers. Write a number in prime factor form including using index notation. Find common factors and common multiples of two numbers. Find the LCM and HCF including using Venn diagrams or listing.</p> <p><u>Percentages &amp; Conversions</u><br/>Convert between fractions, decimals and percentages. Recognise recurring decimals and convert fractions into recurring decimals. Express one number as a</p> | <p><u>Forming &amp; Solving Equations</u><br/>Use function machines, including to solve equations. Solve a range of linear equations, including the use of simple brackets or fractions, when the unknown appears on either one or both sides of the equation. Form equations or formulae from simple given information or diagrams and then solve them in order to solve a problem.</p> <p><u>Sequences</u><br/>Recognise and continue simple sequences including odd, even and Fibonacci-type sequences. Use function machines to generate terms in a sequence. Describe a term-to-term rule for a sequence including use it to generate a sequence. Find the nth term of a linear sequence. Use the nth term to find a specific term within a</p> | <p><u>Linear Graphs &amp; Co-ordinate Geometry</u><br/>Identify and plot co-ordinates in all 4 quadrants. Find the co-ordinates of the midpoint of line segments or missing co-ordinates on 2D shapes given on a grid. Use function machines with an input of x, to find the output, y. Identify and/or draw horizontal and vertical graphs. Use a table of values to generate points on a linear graph. Plot and draw a range of linear graphs. Draw, label and scale axes accurately.</p> <p><u>Fractions</u><br/>Write fractions to describe shaded parts of a diagram and use diagrams to compare or order fractions. Simplify and find equivalent fractions including to compare or order fractions. Express one value as a fraction of another.</p> | <p><u>Decimals &amp; Place Value</u><br/>Identify the value of digits in a decimal or integer. Compare and order decimals. Indicate given values on a scale, including decimals. Apply the four rules of arithmetic to decimal calculations, including money. Multiply and divide by a value between 0 and 1. Round numbers to the nearest integer, to a given number of decimal places and to a given number of significant figures. Estimate answers to calculations by rounding to 1 sig. fig. Use one calculation to find the answer to another, in simple cases.</p> <p><u>Averages &amp; Range</u><br/>Find the mean, mode, median and range from small data sets. Find the mode and range from a bar chart.</p> |



|                     |                                     |  |   |   |   |   |
|---------------------|-------------------------------------|--|---|---|---|---|
|                     |                                     |  | percentage of another.<br>Find a percentage of a quantity without a calculator for 50%, 25% and multiples of 10% and 5%.<br>Find a percentage of a quantity with a calculator.<br>Increase or decrease by a percentage.<br>Solve problems in real-life contexts using percentages, including comparisons. | sequence or to generate a whole sequence.<br>Use the nth term to deduce whether a specific value appears in a sequence. | Convert between mixed numbers and improper fractions.<br>Use the four rules of arithmetic, including with mixed numbers.<br>Find a fraction of an amount.<br>Find the reciprocal of an integer or a fraction. | Calculate the total frequency from a frequency table and identify the greatest and least values leading to finding the range.<br>Find the mode/modal value from a frequency table or grouped frequency table. |
| <b>Assess-ments</b> | Baseline Assessment<br>Assessment 1 |  | Assessment 2  |   | Assessment 3  | EOY Assessment  |


**SUBJECT: MATHEMATICS – Foundation Pathway (Lower)**

| Year Group | Year 7   |   |  |  |  |  |
|------------|--|---|--|--|--|--|
| Rationale  | To consolidate skills developed at KS2 with progression to problem solving techniques. To be introduced to the ability to model and generalise through algebraic techniques. To ensure numerical skills are well practised throughout. To begin to use a scientific calculator confidently.  |   |  |  |  |  |
| Topic/Unit | Autumn Term 1  | Autumn Term 2   | Spring Term 1  | Spring Term 2  | Summer Term 1  | Summer Term 2  |
|            | Topic/Unit:  | Topic/Unit:   | Topic/Unit:  | Topic/Unit:  | Topic/Unit:  | Topic/Unit:  |
| Knowledge  | <ul style="list-style-type: none"> <li>Integers &amp; Place Value</li> <li>Expressions, Formulas &amp;</li> </ul>  | <ul style="list-style-type: none"> <li>Perimeter &amp; Area</li> <li>Factors, Multiples &amp; Primes</li> </ul>   | <ul style="list-style-type: none"> <li>Brackets &amp; Factorising</li> <li>Basic Percentages &amp; Conversion</li> </ul>   | <ul style="list-style-type: none"> <li>Forming &amp; Solving Equations</li> <li>Sequences</li> </ul>   | <ul style="list-style-type: none"> <li>Basic Linear Graphs &amp; Co-ordinate Geometry</li> <li>Fractions</li> </ul>  | <ul style="list-style-type: none"> <li>Decimals &amp; Place Value</li> <li>Averages &amp; Range</li> </ul>   |
| Skills     | <p><u>Integers &amp; Place Value</u><br/>Order positive and negative integers and decimals. Apply the four rules of arithmetic with positive and negative integers. Recall and use multiplication facts up to 12 x 12 and use them to support division. Multiply and divide numbers by powers of 10. Check answers by rounding or using inverse operations.</p> <p><u>Expressions, Formulas &amp; Substitution</u><br/>Simplify algebraic expressions by collecting like terms with addition and subtraction. Multiply algebraic terms. Simplify division expressions by cancelling. Substitute values into simple expressions and formulas. Write expressions and formulas from a range of simple situations.</p> | <p><u>Perimeter &amp; Area</u><br/>Choose the appropriate unit of measurement for a range of situations. Make sensible estimate of a range of measures in everyday settings. Convert between simple metric measurements. Measure shapes to find perimeters and areas. Find the perimeter of rectangles, triangles, parallelograms, trapezia and simple composite shapes. Use formulae to find the area of rectangles and triangles and simple composite shapes made from rectangles and triangles.</p> <p><u>Factors, Multiples &amp; Primes</u><br/>List all 3-digit numbers that can be made from given sets of digits. Define and identify factors, multiples and prime numbers.</p> | <p><u>Bracket &amp; Factorising</u><br/>Multiply a single number term over a bracket. Simplify simple expressions involved repeated single brackets. Factorise a single bracket by taking out common numerical or algebraic factors.</p> <p><u>Basic Percentages &amp; Conversions</u><br/>Understand that a percentage is a fraction in hundredths. Convert between simple fractions, decimals and percentages. Express one number as a percentage of another. Find a percentage of a quantity without a calculator for 50%, 25% and multiples of 10% and 5%. Find a percentage of a quantity with a calculator. Increase or decrease by a percentage. Solve simple problems in real-life contexts using percentages,</p> | <p><u>Forming &amp; Solving Equations</u><br/>Use function machines, including to solve equations. Solve a range of linear equations, including the use of simple brackets or fractions, when the unknown appears on either side of the equation (not both sides). Form basic equations or formulae from simple given information or diagrams and then solve them in order to solve a problem.</p> <p><u>Sequences</u><br/>Recognise and continue simple sequences including odd, even and Fibonacci-type sequences. Use function machines to generate terms in a sequence. Describe a term-to-term rule for a sequence and use it to find extra terms. Recognise patterns from diagrams and draw the next diagram. Generate sequence of</p> | <p><u>Basic Linear Graphs &amp; Co-ordinate Geometry</u><br/>Identify and plot co-ordinates in all 4 quadrants. Find the co-ordinates of the midpoint of line segments given on a diagram and axes. Use function machines with an input of x, to find the output, y. Identify and/or draw horizontal and vertical graphs. Use a table of values to generate points on a simple linear graph. Plot and draw a range of simple linear graphs. Draw, label and scale axes accurately.</p> <p><u>Fractions</u><br/>Write fractions to describe shaded parts of a diagram and use diagrams to compare or order fractions. Simplify and find equivalent fractions including to compare or order fractions. Express one value as a fraction of another.</p> | <p><u>Decimals &amp; Place Value</u><br/>Identify the value of digits in a decimal or integer. Compare and order decimals. Indicate given values on a scale, including decimals. Apply the four rules of arithmetic to decimal calculations, including money. Round numbers to the nearest integer, to a given number of decimal places and to a given number of significant figures. Estimate answers to calculations by rounding to 1 sig. fig.</p> <p><u>Averages &amp; Range</u><br/>Find the mean, mode, median and range from small sets of discrete data. Find the mode and range from a bar chart.</p> |

St Edmund Arrowsmith **Catholic** High School : Curriculum (2021-22)



|                     |                                     |   |                        |   |   |                |
|---------------------|-------------------------------------|---|------------------------|---|---|----------------|
|                     |                                     | List all factors of a number systematically.<br>List multiples of integers.<br>Find common factors and common multiples of two numbers.<br>Find the LCM and HCF of simple pairs of numbers using listing. | including comparisons. | numbers: arithmetic, square and cube numbers and triangular numbers, and those derived from sets of diagrams. | Convert between mixed numbers and improper fractions.<br>Add and subtract fractions.<br>Find a fraction of an amount. |                |
| <b>Assess-ments</b> | Baseline Assessment<br>Assessment 1 |   | Assessment 2           |   | Assessment 3  | EOY Assessment |