

Subject: Mathematics – Advent Term

	Progress objective 1 Number	Progress objective 2 Algebra	Progress objective 5: Probability and Statistics
Pathway 1	<ul style="list-style-type: none"> Understand the difference between Factors, Multiples and Primes Find all the factor pairs for any whole number Find the HCF and LCM of two numbers – extend to use this with real life problems Add, subtract, multiply and divide positive and negative numbers with mental and written strategies Divide a 3 digit integer by a single or 2 digit integer Use index notation for squares and square roots – extend to higher powers and other roots Carry out calculations involving squares, cubes, square roots and cube roots – extend to include higher powers Solve word problems using square roots and cube roots Estimate answers to complex calculations Compare and simplify fractions Write one number as a fraction of another Work out fractions of amounts Write an Improper fraction as a Mixed number Add and subtract fractions Work with equivalent fractions, decimals and percentages Use division to write a fraction as a decimal Divide an integer and a fraction by a fraction Multiply a fraction by a fraction Add and subtract Mixed numbers Enter time as a mixed number into a calculator Multiply and divide a mixed number by a fraction 	<ul style="list-style-type: none"> Simplify expressions by collecting like terms Construct expressions using the four operations Substitute into formulae – extend to include formulae from science etc Derive formulae from a description Expand expressions involving brackets – extend to expanding two brackets Substitute into expressions involving brackets Factorise an algebraic expression – extend to factorise polynomials 	<ul style="list-style-type: none"> Use two-way tables – extend to use two way tables as a method for word problems Interpret and draw dual bar charts Choose the most appropriate average for a set of data Find mode, median, mean and range for a set of data Compare sets of data using averages and the range Group discrete and continuous data Draw and interpret grouped frequency diagrams Interpret and draw line graphs Recognise when a graph is misleading Draw and interpret Pie Charts Interpret and draw Scattergraphs Describe correlation between two sets of data – extend to describe how variables are related Draw a line of best fit and use it to estimate values

KS3 Assessment – Year 7 Progress Grid

Pathway			
2	<ul style="list-style-type: none">• Use the priority of operations, including brackets• Use multiplication facts up to 10 x 10 and the laws of arithmetic to do mental multiplication and division• Multiply and divide by 10, 100 and 1000• Round whole numbers to the nearest 10, 100 and 1000• Make an estimate to check an answer• Use a written method to add and subtract whole numbers of any size• Use a written method to multiply whole numbers• Use a written method to divide whole numbers• Use inverse operations to check an answer• Round decimals to the nearest whole number• Interpret the display on a calculator in different contexts• Use a calculator to solve problems involving time and money• Order positive and negative numbers• Add and subtract positive and negative numbers• Begin to multiply with negative numbers• Use a calculator to explore divisibility• Find all the factor pairs for any number• Identify common factors, the highest common factor and the lowest common multiple• Recognise prime numbers• Recognise square numbers and triangle numbers• Use a calculator to find squares and square roots• Use the priority of operations, including powers• Use index notation for powers• Do mental calculations with squares and square roots• Measure and draw lines to the nearest millimetre• Write decimals in order of size• Round decimals to the nearest whole number and to one decimal place• Round decimals to make estimates and approximations of calculations• Convert measurements into the same units to compare them• Solve simple problems involving units of measurement in the context of length• Convert between metric units of length, mass and capacity• Read scales on a range of measuring equipment• Interpret the display of a calculator in different contexts• Interpret metric measures displayed on a calculator• Plot and read co-ordinates in all four quadrants• Multiply decimals mentally• Check a result by considering whether it is of the right order of magnitude	<ul style="list-style-type: none">• Find outputs of simple functions written in words and using symbols• Describe simple functions in words• Simplify simple linear algebraic expressions by collecting like terms• Use arithmetic operations with algebra• Use brackets with numbers and letters• Simplify more complicated expressions by collecting like terms• Write expressions from word descriptions using addition, subtraction and multiplication• Write expressions to represent function machines• Substitute positive integers into simple formulae written in words• Substitute integers into formulae written in letter symbols• Identify variables and use letter symbols• Write simple formulae using letter symbols• Identify formulae and functions• Identify unknowns in a formula and a function	<ul style="list-style-type: none">• Find the mode, median and range for a set of data• Find information from tables and diagrams• Display data using tally charts, tables, bar-charts and bar-line charts• Interpret simple charts for grouped data• Find the modal class for grouped data• Calculate the mean for a set of data• Compare sets of data using their ranges and averages• Understand and draw line graphs• Understand and draw dual and compound bar charts• Analyse and present data using spreadsheets

KS3 Assessment – Year 7 Progress Grid

Pathway 3

- Understand where to position the decimal point by considering equivalent calculations
- Add and subtract with decimals
- Multiply and divide decimals by single digit whole numbers
- Work out the perimeters of shapes
- Solve perimeter problems
- Find areas by counting squares
- Calculate the areas of squares and rectangles
- Calculate the areas of shapes made from rectangles
- Solve problems involving area
- Use metric and Imperial units

- Add numbers together in different ways
- Round to the nearest 10
- Approximate before adding
- Subtract numbers in different ways
- Approximate before subtracting
- Multiply numbers
- Recognise numbers
- Recognise square numbers
- Find roots of square numbers on a calculator
- Divide one number by another
- Use times tables to help you divide
- Use approximation to estimate division calculations
- Multiply and divide by 10, 100 and 1000
- Use addition, subtraction, multiplication and division
- Solve simple ratio and proportion problems
- Use simple negative numbers
- Continue a sequence

- Find outputs of simple functions
- Describe simple functions using words or symbols
- Simplify expressions
- Write expressions given a description in words
- Substitute positive integers into simple formulae written in words
- Substitute integers into simple formulae written in letter symbols
- Write simple formulae using words and letter symbols
- Read information from real life graphs
- Draw graphs to show change over time
- Write the co-ordinates of points on a grid
- Plot points from their co-ordinates
- Plot graphs of simple functions
- Read values from graphs
- Draw line graphs to show relationships between quantities
- Read values from science graphs

- Find information from tables and pictograms
- Find information from bar and bar-line charts
- Display data using bar and bar-line charts
- Organise data using a tally chart
- Understand and use frequency tables
- Understand and draw a grouped bar chart
- Find the mode of a set of data
- Find the modal class of a set of data
- Find the range and median of a set of data
- Compare sets of data using their range, mode and median
- Calculate the mean of a set of data