William Gilbert Endowed Primary School and Nursery
Mathematics Progression Grid Year 6 to Year 7 including Year 5/6 Ready to Progress Criteria
(The Ecclesbourne School Mathematics School KS3 Curriculum)

Year 6 Ready to Progress Criteria	Identified KS2 Content (Ecclesbourne)	Ecclesbourne School Year 7 Mathematics Curriculum
6AS/MD–1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number.	Year 6 – Algebra: Continue numerical linear sequences. Explain the termto-term rule of numerical sequences in words.	**Topic 1 – 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 nonlinear sequences. Continue numerical linear sequences. Continue numerical non-linear sequences. Explain the term-to-term rule of numerical sequences in words. Find missing numbers within sequences
6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.	Year 6 – Algebra: Substitute values into two-step expressions.	**Topic 2 – Understand and use 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 machines given a two-step expression. Substitute values into two-step expressions. Generate sequences given an algebraic rule.
6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.	Year 6 – Algebra: Understand the meaning of equality.	**Topic 3 – Equality and equivalence** Understand and use fact families, numerically and algebraically. Solve one-step linear equations involving +/− using inverse operations. Solve one-step linear equations involving ×/÷ using inverse operations. Understand the meaning of like and unlike terms. Understand the meaning of equivalence. Simplify algebraic expressions by collecting like terms, using the ≡ symbol.
6NPV–2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and nonstandard partitioning 6NPV–3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.	Year 6 – Number & Place Value: Recognise the place value of any number in an integer up to one billion. Understand and write integers up to one billion in words and figures. Round integers to the nearest 10, 100 and 1000.	**Topic 4 – Place value** Work out intervals on a number line. Position integers on a number line. Round integers to the nearest power of ten. Compare two numbers using =, ≠, , ≤, ≥. 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. Write 10, 100, 1000 etc. as powers of ten.
6NPV–1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000). 6F–1 Recognise when fractions can be simplified, and use common factors to 6F–2 Express fractions in a common denomination and use this to compare fractions that are similar in value. 3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy	Year 6 – Fractions: Use decimal and fractional numberlines. Convert between simple fractions and decimals. Identify equivalent fractions.	**Topic 5 – Fraction, decimal 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. Convert between fractions and decimals – eighths and thousandths. Understand the meaning of percentage using a hundred square. Convert fluently between simple fractions, decimals and percentages. Represent any fraction as a diagram. Represent fractions on number lines. Identify and use simple equivalent fractions. Understand fractions as division. Convert fluently between fractions, decimals and percentages.

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6AS/MD–1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number.	Year 6 – Number: solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	**Topic 6 – 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 methods for subtraction of integers. Use formal methods for subtraction of decimals. Choose the most appropriate method: mental strategies, formal written or 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 charts.
5MD–1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size 5MD–2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors. 4MD–3 Understand and apply the distributive property of multiplication. 5MD–3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method. 5MD–4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.	Year 6 – Number: formal methods to multiply and divide integers. Understand and use the order of operations.	**Topic 7 – 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. 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 mean. Explore multiplication and division in algebraic expressions.
5F–1 Find non-unit fractions of quantities.	Year 6 – Fractions: find a percentage of a given amount using mental methods.	**Topic 8 – Fractions and 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. Solve problems with fractions greater than 1 and percentages greater than 100%.
6NPV–3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.	Year 6 – Number & place value: ordering directed numbers and performing calculations that cross over zero.	**Topic 9 – 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.

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6F–1 Recognise when fractions can be simplified, and use common factors to simplify fractions 6F–2 Express fractions in a common denomination and use this to compare fractions that are similar in value. 6F–3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.	Year 6 – Fractions: add and subtract fractions with any denominator. Understand equivalent fractions.	**Topic 10 – Fractional thinking** 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. Add and subtract simple algebraic fractions.
6G–1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems. 5G–1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.	Year 6 – Statistics and measurement: Draw and measure line segments including geometric figures. Interpret simple pie charts using proportion. Interpret pie charts using a protractor.	**Topic 11 – Construction and measuring** 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°. Draw angles up to 180°. Draw and measure angles between 180° and 360°. Identify perpendicular and parallel lines. Recognise types of triangle. Recognise types of quadrilateral. Identify polygons up to a decagon. 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.
6G–1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems. 5G–1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.	Year 6 – Properties of shapes: 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.	**Topic 12 – Geometrical Reasoning** Solve complex angle problems. Find and use the angle sum of any polygon.
6AS/MD–1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number. 6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.	Year 6 – Number: Know and use mental addition and subtraction strategies for integers. Know and use mental multiplication and division strategies for integers. Use factors to simplify calculations. Use estimation as a method of checking. Know when to use different strategies for calculation.	**Topic 13 – Developing number sense** Know and use mental arithmetic strategies for decimals. Know and use mental arithmetic 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.

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	Not explicitly covered at KS2 but students will have used Venn diagrams for sorting in various contexts.	**Topic 14 – 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. Understand and use the complement of a set. 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.
5MD–2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.	Year 5 – Number: Identify factors, multiples and primes. Recognise square and cube numbers.	**Topic 15 – 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. Use a Venn diagram to calculate the HCF and LCM.