Symphony Assessment System – **Mathematics** **Bold** = **end of KS Performance Descriptors** which are, other than in exceptional circumstances, deemed essential for a pupil to be assessed at that step
Bold and Underlined are essential but not end of KS performance descriptors

Year Group	**Year 5 (page 1 of 2)**		
Point	**31**	**33**	**35**
Grade	**5C**	**5B**	**5A**
Assessment Milestone	**Step 1**	**Step 2**	**Achieved Y5** ***Refer to non-statutory guidance for exemplification***
Number and Place Value	▪count in multiples of 7 ▪count forwards or backwards in steps of powers of 10 for any given number up to 10 000 ▪ identify, represent and estimate numbers up to 10 000 using different representations ▪read, write, order and compare numbers to at least 10 000 and determine the value of each digit ▪**order and compare negative numbers using >, < and =** ▪**round any number up to 10 000 to the nearest 10, 100 and 1000** ▪**read Roman numerals to 1000 (M)** ▪recognise and describe linear number sequences	▪count forwards or backwards in steps of powers of 10 for any given number up to 100 000 ▪read, write, order and compare numbers to at least 100 000 and determine the value of each digit using >,< and = ▪**round any number up to 10 000 to the nearest 10, 100 and 1000 ®** ▪**interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero** ▪**recognise and describe linear number sequences including fractions and decimals** ▪solve number problems and practical problems that involve all of the above	▪count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 ▪**read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit** ▪round any number up to 100 000 to the nearest 10, 100, 1000, and 10 000 ▪recognise years written in Roman numerals (i.e. read and write Roman numerals to at least 3000- MMM) ▪recognise and describe linear number sequences including fractions and decimals and find term to term rule in words
Addition and Subtraction	▪solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why; with four digit numbers and explain their reasoning	*(with numbers up to 10,000 and/or mixed numbers of digits)* ▪add and subtract numbers mentally with increasingly large numbers up to 10,000 ▪**add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)** ▪use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy ▪solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	*(with numbers up to 100,000 and/or mixed numbers of digits)* ▪add and subtract numbers mentally with increasingly large numbers up to 100,000 ▪**add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)** ▪use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy ▪solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why ▪use calculators to explore more complex number problems
Multiplication and Division	▪**instantly recall all facts for tables to 12x12 ®** ▪identify multiples and factors, including finding all factor pairs of a number ▪**multiply and divide numbers mentally drawing upon known facts** ▪use formal methods of short multiplication ▪divide numbers up to 4 digits by a one-digit number using the formal written method of short division without remainders in the context ▪solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects *(using appropriate times tables) see 4C for base example* ▪**multiply and divide whole numbers by 10, 100 and 1000** ▪**know and use the vocabulary of prime numbers** ▪recognise and use square numbers, and the notation for squared (^{2})	▪identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers ▪multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers ▪**divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context** ▪**solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign** ▪multiply and divide whole numbers and those involving decimals by 10, 100 ▪establish whether a number up to 100 is prime and **recall prime numbers up to 19** ▪recognise and use square numbers and cube numbers, and the notation for squared (^{2})	▪multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers ® ▪**divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context and express remainders as a fraction or decimal e.g. 98÷4=98/4 see guidance notes** ▪solve problems involving multiplication and division, including scaling [*multiplicative reasoning*] by simple fractions and problems involving simple rates ▪**multiply and divide whole numbers and those involving decimals (up to 3dp) by 10, 100 and 1000** ▪know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers ▪**recognise and use square numbers (up to at least 144)** and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) ▪solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes ▪begin to use letters to symbolise unknown numbers to help to solve missing number problems involving multiplication and division (with one unknown)
Problem Solving and Reasoning	**Pupils demonstrate mastery of the expectations of this year group by solving increasingly complex problems and reasoning mathematically, using the content above.**		

Year Group	**Year 5 (page 2 of 2)**		
Point	**31**	**33**	**35**
Grade	**5C**	**5B**	**5A**
Assessment Milestone	**Step 1**	**Step 2**	**Achieved Y5** ***Refer to non-statutory guidance for exemplification***
Fractions (incl. Decimals and Percentages)	■**identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths** ■compare and order fractions whose denominators are all multiples of the same number ■add and subtract fractions with the same denominator ■read, write, order and compare numbers with up to two decimal places ■round decimals with two decimal places to the nearest whole number ■**read and write decimal numbers as fractions [for example, 0.71 = $^{71}/_{100}$]** ■recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	■**add and subtract fractions with the same denominator and denominators that are multiples of the same number** ■**recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [e.g. $^{2}/_{5}$ + $^{4}/_{5}$= $^{6}/_{5}$ = $^{11}/_{5}$]** ■multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams ■**calculate simple fractions and percentages of whole numbers and quantities** ■read, write, order and compare numbers with up to three decimal places ■round decimals with two decimal places to the nearest whole number and to one decimal place ■**add and subtract decimal numbers (to at least 3dp) and round as required** ■**solve problems involving decimals with up to 3dp**	■**identify equivalent fractions, using common multiples to express fractions in the same denomination** ■**recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred',** and write percentages as a fraction with denominator 100, and as a decimal ■**solve problems which require knowing percentages and decimals e.g. ½ ¼ 1/5 2/5 4/5 and those fractions with a denominator of a multiple of 10 or 25**
Measurement	■**measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres** ■ begin to read (and apply to problem solving) labelled divisions for measure with both decimals (up to 3dp) and whole numbers up to 1,000,000 ■use all four operations to solve problems involving measure [for example, length, mass, money] using decimal notation, including scaling with appropriate numbers.	■**calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²)** and **estimate the area of irregular shapes (if necessary, by counting squares including fractions of squares)** ■ begin to read (and apply to problem solving) unlabelled divisions for measure with both decimals (up to 3dp) and whole numbers up to 1,000,000 ■convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) ■**solve problems involving converting between units of time (including problems involving the duration of events)** ■use all four operations to solve problems involving measure [for example, length, mass, money] using decimal notation, including scaling with appropriate numbers.	■ read labelled/unlabelled divisions for measure with both decimals (up to 3dp) and whole numbers up to 1,000,000 ■estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water] ■understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
Properties of Shapes	■**identify 3-D shapes, including cubes and other cuboids, from 2-D representations** ■distinguish between regular and irregular polygons based on reasoning about equal sides and angles ■**know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles** ■draw given angles, and measure them to the nearest 10°	■identify: □**angles at a point and one whole turn (total 360°)** □**angles at a point on a straight line and ½ a turn (total 180°)** □**angles at other multiples of 90°** ■draw given angles, and measure them to the nearest 5°	■use the properties of rectangles to deduce related facts and find missing lengths and angles. ■**draw given angles, and measure them to the nearest °**
Position and Direction		■**describe positions on a 2-D grid as coordinates in the first quadrant ®** ■identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	■describe positions on a 2-D grid as coordinates in the first two quadrants
Statistics	■solve comparison, sum and difference problems using information presented in a line graph ■solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	■complete, read and interpret information in tables, including timetables	
Problem Solving and Reasoning	**Pupils demonstrate mastery of the expectations of this year group by solving increasingly complex problems and reasoning mathematically, using the content above.**		