King Athelstan Maths Progression of Skills

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value	• Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). • Recite numbers past 5. • Say one number for each item in order: 1,2,3,4,5. • Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). • Show 'finger numbers' up to 5. • Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Experiment with their own symbols and marks as well as numerals. • Solve real world mathematical problems with numbers up to 5. • Compare quantities using language: 'more than', 'fewer than'.	• Count objects, actions and sounds. • Subitise. • Link the number symbol (numeral) with its cardinal number value. • Count beyond ten. • Compare numbers. • Understand the 'one more than/one less than' relationship between consecutive numbers. • Explore the composition of numbers to 10. • Automatically recall number bonds for numbers 0–5 and some to 10. **ELG** • Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5. • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.	• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens • given a number, identify one more and one less • identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least • read and write numbers from 1 to 20 in numerals and words.	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers using different representations, including the number line • compare and order numbers from 0 up to 100; use <, > and = signs • read and write numbers to at least 100 in numerals and in words • use place value and number facts to solve problems.	• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number • recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • compare and order numbers up to 1000 • identify, represent and estimate numbers using different representations • read and write numbers up to 1000 in numerals and in words • solve number problems and practical problems involving these ideas.	• count in multiples of 6, 7, 9, 25 and 1000 • find 1000 more or less than a given number • count backwards through zero to include negative numbers • recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • order and compare numbers beyond 1000 • identify, represent and estimate numbers using different representations • round any number to the nearest 10, 100 or 1000 • solve number and practical problems that involve all of the above and with increasingly large positive numbers • read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above • read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	• read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above.

Number Facts			• Number bonds to 10 and 20 • Count in 2s, 5s, 10s	• Recall addition/subtraction facts to 20 • 2,5,10 times tables	• 3,4,8 tables	• All tables to 12 x 12	• Factors, primes, derived facts, fluency with all operations	• Factors, primes, derived facts, fluency with all operations
Addition and Subtraction	• Solve real world mathematical problems with numbers up to 5. • Compare quantities using language: 'more than', 'fewer than'.	• Understand the 'one more than/one less than' relationship between consecutive numbers. • Explore the composition of numbers to 10. • Automatically recall number bonds for numbers 0–5 and some to 10. **ELG** • Automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.	• read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 20, including zero • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9	• using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	• add and subtract numbers mentally, including: • a three-digit number and ones • a three-digit number and tens • a three-digit number and hundreds • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction • estimate the answer to a calculation and use inverse operations to check answers • solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	• add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate • estimate and use inverse operations to check answers to a calculation • solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	• add and subtract whole numbers with more than 4 digits, including using formal written methods • add and subtract numbers mentally with increasingly large numbers • 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	• perform mental calculations, including with mixed operations and large numbers • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

Multiplication and Division	**Early foundations:** • Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern.	• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. **ELG** • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	• solve one-step problems involving multiplication and division, using concrete objects, pictorial representations and arrays • group and share small quantities, double numbers and quantities • make connections between arrays, number patterns, and counting in twos, fives and tens.	• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • calculate mathematical statements for multiplication and division within the multiplication tables and write them using × ÷ and = signs • show that multiplication of two numbers can be done in any order and division cannot • solve problems involving multiplication and division using materials, arrays, repeated addition, mental methods and multiplication and division facts	• recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • write and calculate mathematical statements for multiplication and division using the multiplication tables they know • solve problems, including missing number problems, involving multiplication and division including scaling and correspondence problems	• recall multiplication and division facts for multiplication tables up to 12 × 12 • use place value, known and derived facts to multiply and divide mentally • recognise and use factor pairs and commutativity in mental calculations • multiply two-digit and three-digit numbers by a one-digit number using formal written layout • solve problems involving multiplying and adding, including integer scaling problems and correspondence problems	• identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • know and use the vocabulary of prime numbers, prime factors and composite numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • multiply numbers up to 4 digits by a one- or two-digit number using a formal written method • divide numbers up to 4 digits by a one-digit number using short division • recognise and use square numbers and cube numbers • solve problems involving multiplication and division	• multiply multi-digit numbers up to 4 digits by a two-digit whole number using long multiplication • divide numbers up to 4 digits by a two-digit whole number using long division • divide numbers up to 4 digits by a two-digit number using short division where appropriate • identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the four operations
Fractions		• Explore and represent patterns within numbers up to 10, including double facts and how quantities can be distributed equally.	• recognise, find and name a half as one of two equal parts • recognise, find and name a quarter as one of four equal parts • finding simple fractions of objects, numbers and quantities.	• recognise, find, name and write 1/3, 1/4, 2/4 and 3/4 • write simple fractions • recognise equivalence of 2/4 and 1/2	• count up and down in tenths • recognise, find and write fractions of a discrete set of objects • recognise and use fractions as numbers • recognise and show equivalent fractions • add and subtract fractions with the same denominator • compare and order unit fractions and fractions with same denominators • solve problems involving all of the above	• recognise and show families of common equivalent fractions • count up and down in hundredths • solve problems involving increasingly harder fractions • add and subtract fractions with same denominator • recognise decimal equivalents • solve simple measure and money problems involving fractions and decimals	• compare and order fractions • identify equivalent fractions • recognise mixed numbers and improper fractions • add and subtract fractions • multiply fractions by whole numbers • read and write decimal numbers as fractions • recognise and use thousandths • recognise the per cent symbol and solve percentage problems	• use common factors to simplify fractions • compare and order fractions including fractions greater than one • add and subtract fractions with different denominators • multiply simple pairs of fractions • divide proper fractions by whole numbers • calculate decimal fraction equivalents • recall and use equivalences between fractions, decimals and percentages

Decimals and Percentages					• count up and down in tenths • recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10	• count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten • recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to 1/4, 1/2 and 3/4 • find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths • round decimals with one decimal place to the nearest whole number • compare numbers with the same number of decimal places up to two decimal places • solve simple measure and money problems involving fractions and decimals to two decimal places	• 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 • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places • solve problems involving number up to three decimal places • 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 percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and fractions with a denominator of a multiple of 10 or 25	• associate a fraction with division and calculate decimal fraction equivalents for a simple fraction • identify the value of each digit in numbers given to three decimal places • multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit numbers with up to two decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
Geometry position and direction	• Understand position through words alone. • Describe a familiar route. • Discuss routes and locations, using words like 'in front of' and 'behind'.	• Select, rotate and manipulate shapes in order to develop spatial reasoning skills.	• describe position, direction and movement, including whole, half, quarter and three-quarter turns	• order and arrange combinations of mathematical objects in patterns and sequences • use mathematical vocabulary to describe position, direction and movement	• (covered through angles and turns within shape objectives)	• describe positions on a 2-D grid as coordinates in the first quadrant • describe movements between positions as translations • plot specified points and draw sides to complete a given polygon •	• identify, describe and represent the position of a shape following a reflection or translation •	• describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane and reflect them in the axes

Geometry: Shape Angles Coordinates and Transformation	• Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. • Understand position through words alone – for example, "The bag is under the table," with no pointing. • Describe a familiar route. • Discuss routes and locations, using words like 'in front of' and 'behind'. • Make comparisons between objects relating to size, length, weight and capacity. • Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. • Combine shapes to make new ones – an arch, a bigger triangle etc.	• Select, rotate and manipulate shapes in order to develop spatial reasoning skills. • Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. • Continue, copy and create repeating patterns. **ELG** • Verbally count beyond 20, recognising the pattern of the counting system.	• recognise and name common 2-D shapes • recognise and name common 3-D shapes	• identify and describe properties of 2-D shapes, including number of sides and line symmetry in a vertical line • identify and describe properties of 3-D shapes, including number of edges, vertices and faces • identify 2-D shapes on surfaces of 3-D shapes • compare and sort common 2-D and 3-D shapes and everyday objects	• draw 2-D shapes and make 3-D shapes • recognise 3-D shapes in different orientations • recognise angles as a property of shape or a description of a turn • identify right angles • identify whether angles are greater than or less than a right angle • identify horizontal and vertical lines and pairs of perpendicular and parallel lines	• compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • identify acute and obtuse angles and compare and order angles up to two right angles by size • identify lines of symmetry in 2-D shapes • complete a simple symmetric figure	• identify 3-D shapes, including cubes and other cuboids, from 2-D representations • know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles • draw given angles and measure them in degrees • identify angles at a point, on a straight line and other multiples of 90° • use properties of rectangles to deduce related facts • distinguish between regular and irregular polygons	• draw 2-D shapes using given dimensions and angles • recognise, describe and build simple 3-D shapes, including making nets • compare and classify geometric shapes based on their properties and sizes and find unknown angles • illustrate and name parts of circles, including radius, diameter and circumference • recognise angles where they meet at a point, are on a straight line or are vertically opposite, and find missing angles
Measure Length Mass Capacity Money Time Perimeter Area Volume	• Make comparisons between objects relating to size, length, weight and capacity. • Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then…' • Make comparisons between objects relating to size, length, weight and capacity.	• Compare length, weight and capacity. **ELG** • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.	compare, describe and solve practical problems for: • lengths and heights • mass/weight • capacity and volume • time measure and begin to record the following: • lengths and heights • mass/weight • capacity and volume • time (hours, minutes, seconds) • recognise and know the value of different	• choose and use appropriate standard units to estimate and measure length/height (m/cm), mass (kg/g), temperature (°C), capacity (litres/ml) • compare and order lengths, mass, volume/capacity and record the results using >, < and = • recognise and use symbols for pounds (£) and pence (p); combine amounts to	• measure, compare, add and subtract lengths (m/cm/mm), mass (kg/g), volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change • tell and write the time from an analogue clock, including Roman numerals I to XII,	• convert between different units of measure • measure and calculate the perimeter of a rectilinear figure • find the area of rectilinear shapes by counting squares • estimate, compare and calculate different measures, including money in pounds and pence • read, write and convert time between analogue and digital	• convert between different units of metric measure • understand and use approximate equivalences between metric units and common imperial units • measure and calculate the perimeter of composite rectilinear shapes • calculate and compare the area of rectangles (including squares)	• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places • use, read, write and convert between standard units • convert between miles and kilometres • recognise that shapes with the same areas can have different perimeters and vice versa

			• denominations of coins and notes • sequence events in chronological order using language including before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening • recognise and use language relating to dates, including days of the week, weeks, months and years • tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	• make a particular value • find different combinations of coins that equal the same amounts • solve simple problems involving addition and subtraction of money including giving change • compare and sequence intervals of time • tell and write the time to five minutes, including quarter past/to the hour • know the number of minutes in an hour and the number of hours in a day	• and 12-hour and 24-hour clocks • estimate and read time to the nearest minute • know the number of seconds in a minute and days in each month, year and leap year • compare durations of events	• 12- and 24-hour clocks • solve problems involving converting hours to minutes, minutes to seconds, years to months, weeks to days	• estimate volume and capacity • solve problems involving converting between units of time • use all four operations to solve problems involving measure using decimal notation, including scaling	• recognise when it is possible to use formulae for area and volume of shapes • calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids
Statistics				• interpret and construct simple pictograms, tally charts, block diagrams and simple tables • ask and answer simple questions by counting and sorting categories • ask and answer questions about totalling and comparing categorical data	• interpret and present data using bar charts, pictograms and tables • solve one-step and two-step questions using information presented in scaled bar charts, pictograms and tables •	• interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs • solve comparison, sum and difference problems using information presented in graphs •	• solve comparison, sum and difference problems using information presented in a line graph • complete, read and interpret information in tables, including timetables •	• interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average •
Algebra	**Year 6** • use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables							
Ratio and proportion	**Year 6** • solve problems involving the relative sizes of two quantities where missing values can be found using multiplication and division facts • solve problems involving the calculation of percentages and percentages for comparison • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples							