Glenthorne Community Primary School
Maths – Progression of Skills

	Year 1 – Progression of Skills	Year 2 – Progression of Skills	Year 3 – Progression of Skills	Year 4 – Progression of Skills	Year 5 – Progression of Skills	Year 6 – Progression of Skills
Number – Number and place value	- 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 2s, 5s and 10s. -Given a number, identify 1 more and 1 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 10s from any number, forward and backward. -Recognise the place value of each digit in a two-digit number (10s, 1s). -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 3-digit number (100s, 10s, 1s). Compare and order numbers up to 1,000. -Identify, represent and estimate numbers using different representations. -Read and write numbers up to 1,000 in numerals and in words. -Solve number problems and practical problems involving these ideas.	-Count in multiples of 6, 7, 9, 25 and 1,000. -Find 1,000 more or less than a given number. -Count backwards through 0 to include negative numbers. -Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s). -Order and compare numbers beyond 1,000. -Identify, represent and estimate numbers using different representations. -Round any number to the nearest 10, 100 or 1,000. -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 0 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 0. -Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000. -Solve number problems and practical problems that involve all the above. -Read Roman numerals to 1,000 (M) and recognise years written in.	-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 0. -Solve number and practical problems that involve all the above.

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Number - Addition and subtraction	-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 0. -Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 =? – 9.	-Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures and 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 1s, a two-digit number and 10s, 2 two-digit numbers and adding 3 one-digit numbers. -Show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot. -Recognise and use the	-Add and subtract numbers mentally, including: a three-digit number and 1s a three-digit number and 10s a three-digit number and 100s. -Add and subtract numbers with up to 3 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 (columnar addition and subtraction). -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.	**Including Multiplication and division** -Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. -Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. -Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. -Perform mental calculations, including with mixed operations and large numbers. -Identify common factors, common multiples and

		inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.				prime numbers. -Use their knowledge of the order of operations to carry out calculations involving the 4 operations. Solve addition and subtraction multistep 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.

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Number – Multiplication and division	-Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	-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 the multiplication (×), division (÷) and equals (=) signs. -Show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot. -Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	-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 that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. -Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	-Recall multiplication and division facts for multiplication tables up to 12 × 12. -Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers. -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 using the distributive law to multiply two-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	-Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers. -Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) 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, including long multiplication for two-digit numbers. -Multiply and divide numbers mentally, drawing upon known facts. -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. -Multiply and divide whole	**See addition and subtraction strand.**

					numbers and those involving decimals by 10, 100 and 1,000. -Recognise and use square numbers 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. -Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. -Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	

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Number - Fractions (including decimals and percentages)	-Recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity. -Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity.	-Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity. -Write simple fractions, for example 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	-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. -Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. -Recognise and show, using diagrams, equivalent fractions with small denominators. Add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7]. -Compare and order unit fractions, and fractions with the same denominators -Solve problems that involve all of the above.	-Recognise and show, using diagrams, families of common equivalent fractions. -Count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10. -Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. -Add and subtract fractions with the same denominator. -Recognise and write decimal equivalents of any number of tenths or hundreds. 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 1 decimal place to the nearest	-Compare and order fractions whose denominators are all multiples of the same number. -Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. -Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5]. -Add and subtract fractions with the same denominator, and denominators that are multiples of the same number. -Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. -Read and write decimal numbers as fractions [for example, 0.71 = 71/100].	-Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. -Compare and order fractions, including fractions >1. -Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. -Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 × 1/2 = 1/8]. -Divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6]. -Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8]. -Identify the value of each digit in numbers

				whole number. -Compare numbers with the same number of decimal places up to 2 decimal places. -Solve simple measure and money problems involving fractions and decimals to 2 decimal places.	-Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. -Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place. -Read, write, order and compare numbers with up to 3 decimal places. Solve problems involving number up to 3 decimal places. -Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction. -Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5 and 4/5 and those fractions with a denominator of a multiple of 10 or 25.	given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places. -Multiply one-digit numbers with up to 2 decimal places by whole numbers. -Use written division methods in cases where the answer has up to 2 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.

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Measurement	-Compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] mass/weight [for example, heavy/light, heavier than, lighter than] capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] time [for example, quicker, slower, earlier, later]. -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 denominations of coins and notes. -Sequence events in chronological order using language [for example, before and	-Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. -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 make a value. -Find different combinations of coins that equal the same amounts of money. -Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. -Compare and sequence	-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, using both £ and p in practical contexts. -Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. -Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight. -Know the number of seconds in a minute and the number of days in each month, year and leap year. -Compare durations of events [for example, to	-Convert between different units of measure [for example, kilometre to metre; hour to minute]. -Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. -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 12- and 24- hour clocks. -Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days.	-Convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre]. -Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. -Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. -Calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) and square metres (m^2), and estimate the area of irregular shapes. -Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]. -Solve problems involving	-Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate. -Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places. -Convert between miles and kilometres. -Recognise that shapes with the same areas can have different perimeters and vice versa. -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

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	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.	intervals of time. -Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. -Know the number of minutes in an hour and the number of hours in a day.	calculate the time taken by particular events or tasks].		converting between units of time. -Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].

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Geometry - Properties of shape	-Recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles]. 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]	-Identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line. -Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. -Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]. -Compare and sort common 2-D and 3-D shapes and everyday objects.	-Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. -Recognise angles as a property of shape or a description of a turn. -Identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; 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 2 right angles by size. -Identify lines of symmetry in 2-D shapes presented in different orientations. -Complete a simple symmetric figure with respect to a specific line of symmetry.	-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 and 1 whole turn (total 360°) angles at a point on a straight line and half a turn (total 180°) other multiples of 90°. -Use the properties of rectangles to deduce related facts and find missing lengths and angles. -Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	-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 in any triangles, quadrilaterals, and regular polygons. -Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. -Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

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Geometry – Position and direction	-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, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and threequarter turns (clockwise and anti-clockwise).	**Covered within properties of shape.**	-Describe positions on a 2- D grid as coordinates in the first quadrant. -Describe movements between positions as translations of a given unit to the left/right and up/down. -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, using the appropriate language, and know that the shape has not changed.	-Describe positions on the full coordinate grid (all 4 quadrants). -Draw and translate simple shapes on the coordinate plane and reflect them in the axes.

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Geometry – Position and direction	-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, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and threequarter turns (clockwise and anti-clockwise).	**Covered within properties of shape.**	-Describe positions on a 2- D grid as coordinates in the first quadrant. -Describe movements between positions as translations of a given unit to the left/right and up/down. -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, using the appropriate language, and know that the shape has not changed.	-Describe positions on the full coordinate grid (all 4 quadrants). -Draw and translate simple shapes on the coordinate plane and reflect them in the axes.

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Statistics		-Interpret and construct simple pictograms, tally charts, block diagrams and tables. -Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. -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 [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and 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 bar charts, pictograms, tables and other 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.

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Ratio and proportion	-Solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts. -Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of 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.

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	Year 6 – Progression of Skills
Algebra	-Use simple formulae. -Generate and describe linear number sequences. -Express missing number problems algebraically. -Find pairs of numbers that satisfy an equation with 2 unknowns. -Enumerate possibilities of combinations of 2 variables.