Maths
Hollywell Primary School

Number and Place Value							
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value: Counitng	Count reliably with numbers from one to 20	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count numbers to 100 in numerals; count in multiples of twos, fives and tens	Count in steps of 2, 3 and 5 from 0, and in tens from any number forward and backward	Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number	Count in multiples of 6, 7, 9, 25 and 1000 Count backwards through zero to include negative numbers	Count forwards or backwards in steps of powers of 10 for any given number up to 1,000 000 Count forwards and backwards with positive and negative whole numbers including through zero	
Place Value: Represent		Identify and represent numbers using objects and pictorial representations Read and write numbers to 100 in numerals Read and write numbers from 1 to 20 in numerals and words	Read and write numbers to at least 100 in numerals and in words Identify, represent and estimate numbers using different representations, including the number line	Identify, represent and estimate numbers using different representations Read and write numbers up to 1000 in numerals and in words	Identify, represent and estimate numbers using different representations Read Roman numerals to 100	Read, write, (order and compare) numbers to at least 1,000 000 Read Roman numerals to 1000 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
Place Value: Compare	Say which number is one more or one less than a given number to 20 Place 0-20 in order	Given a number, identify one more and one less	Recognise the place value of each digit in a two-digit number (tens, ones) Compare and order numbers from 0 up to 100 use <, > and = signs	Recognise the place value of each digit in a three-digit number Compare and order numbers up to 1000	Find 1000 more or less than a given number Recognise the place value of each digit in a 4-digit number Order and compare numbers beyond 1000	(Read, write) order and compare numbers to at least 1,000 000 and determine the value of each digit	(Read, write), order and compare numbers up to 10,000 000 and determine the value of each digit

Rounding					Round any number to the nearest 10, 100 or 1000	Interpret negative numbers in context Round any number up to 1,000 000 to the nearest 10, 100, 1000, 10,000 and 100,000	Round any whole number to a required degree of accuracy Use negative numbers in context, and calculate intervals across zero
Problem Solving			Use place value and number facts to solve problems	Solve number problems and practical problems involving these ideas	Solve number and practical problems that involve all the above and with increasingly large positive numbers	Solve number problems and practical problems that involve all of the above	Solve number and practical problems that involve all of the above

Addition and Subtraction							
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recall, Represent, Use		Read, write and interpret mathematical statements involving addition, subtraction and equals signs Represent and use number bonds and related subtraction facts within 20	Recall and use addition and subtraction to 20 fluently, and derive and use related facts up to 100 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	Estimate the answer to a calculation and use inverse operations to check answers	Estimate and use inverse operations to check answers to calculations	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	

Calculations	Use quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer	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	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	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	Add and subtract with numbers up to 4-digits using the formal written methods of columnar addition and subtraction where appropriate	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	Perform mental calculations, including with mixed operations and large numbers Use their knowledge of the order of operations to carry out calculations involving the four operations
Solving Problems		Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	Solve problems including missing number problems, using number facts, place value, and more complex addition and subtraction	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	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 and a combination of these, including understanding the meaning of the equals sign	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Multiplication and Division							
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recall, Represent, Use		Count in multiples of twos, fives and tens	Count in steps of 2, 3 and 5 from 0 and in tens from any number, forward or backward Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	Count from 0 in multiples of 4, 8, 50 and 100 Recall and use multiplication and division facts for the 3 4 and 8 multiplication tables	Count in multiples of 6, 7, 9, 25 and 1000 Recall multiplication and division facts for multiplication tables up to 12 x 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 Estimate and use inverse operations to check answers to calculations	Count forwards or backwards in steps of powers of 10 for any given number up to 1000000 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 (non-prime) numbers 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 and cubed	Identify common factors, common multiples and prime numbers Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

Calculations			Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication, division and equals signs	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	Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout	Multiply numbers up to 4 digits by one-or two-digit number using a formal written method, including ling multiplication for two-digit numbers Multiply and divide numbers mentally drawing upon known facts Divide numbers up to 4 digits by one-digit number using the formal written methods of short division and interpret remainders appropriately for the context Multiply and divide whole numbers and those involving decimals by 10,100 and 1,000	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

Solving Problems	Solve problems including doubling, halving and sharing	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	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts	Solve problems including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n problems are connected to m objects	Solve problems involving multiplying and adding, including using the distributive law to multiply 2-digit numbers by 1-digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	Solve problems involving addition, subtraction, multiplication and division
Combined Operations						Solve problems involving addition, subtraction, multiplication and division and a combination of these including understanding the meaning of the equals sign	Use their knowledge of the order of operations to carry out calculations involving the four operations

Fractions, Decimals and Percentages (including Ratio and Proportion)							
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions: recognise and write		Recognise, find and name a half as one of two equal parts of an object, shape or quantity Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	Recognise, find, name and write fractions 1/3, ¼ , 2/4, and ¾ of a length, shape, set of objects or quantity	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	Count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10	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 for to the other and write mathematical statements > 1 as a mixed number	
Fractions: compare			Recognise the equivalence of 2/4 and ½	Recognise and show, using diagrams, equivalent fractions with small denominators Compare and order unit fractions, and fractions with the same denominators	Recognise and show, using diagrams, families of common equivalent fractions	Compare and order fractions whose denominators are all multiples of the same number	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination Compare and order fractions, including fractions > 1

Fractions: calculations			Write simple fractions	Add and subtract fractions with the same denominator within one whole	Add and subtract fractions with the same denominator	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	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 Divide proper fractions by whole numbers
Fractions: solve problems				Solve problems that involve all of the above	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		
Decimals: recognise and write					Recognise and write decimal equivalents of any number of tenths or hundredths Recognise and write decimal equivalents to ¼ , ½ , ¾	Read and write decimal numbers as fractions Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	Identify the value of each digit in numbers given to three decimal places

Decimals: compare					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	Round decimals with two decimal places to the nearest whole number and to one decimal place Read, write, order and compare numbers write up to three decimal places	
Decimals: calculation and problems					Find the effect of dividing a 1 or 2-digit number by 10 and 100 Identifying the value of digits in the answer as ones, tenths and hundredths	Solve problems involving number up 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

Fractions, decimals and percentages					Solve simple measure and money problems involving fractions and decimals to 2 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 ½, ¼, 1/5, 2/5, 4/5 and those 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 Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

Ratio and proportion							Solve problems involving the relate sizes of two quantities where missing values can be found by using integer multiplication and division facts Solve problems involving the calculation of percentages 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

Algebra							
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Algebra		Solve one-step problems that involve addition and subtraction using concrete objects and pictorial representations, and missing problems	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	Solve problems, including missing number problems			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

Measurement							
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Using measure	Use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems	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/height Capacity and volume time	Choose and use appropriate standard units to estimate and measure length/ height in any direction, mass, temperature, capacity to the nearest appropriate unit, using rulers, scales, thermometer and measuring vessels Compare and order lengths, mass, volume/ capacity and record the results using <, > and =	Measure, compare, add and subtract: Lengths (m/cm/mm) Mass (kg/g) Volume/ capacity (l/ml)	Convert between different units of measure Estimate, compare and calculate different measures	Convert between different units of metric measure Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints Use all four operations to solve problems, involving measure using decimal notation, including scaling	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 up to 3 decimal places Convert between miles and kilometres

Money		Recognise and know the value of different denominations of coins and notes	Recognise and use symbols for pounds and pence; combine amounts to make a particular 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 or the same unit, including giving change	Add and subtract amounts of money to give changing, using both £ and p in practical contexts	Estimate, compare and calculate different measures, including money in pounds and pence	Use all four operations to solve problems involving measure (for example, money)	

Time		Sequence events in chronological order using language (for example, 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 fact to show these times	Compare and sequence 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	Tell and write the time from an analogue clock, including Roman numbers 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, a.m./p.m., 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	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	Solve problems involving converting between units of time	Use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa

Perimeter, Area, Volume				Measure the perimeter of simple 2-D shapes	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Find the area of rectilinear shapes by counting squares	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres and square metres and estimate the area of irregular shapes Estimate volume (including cubes) and capacity	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 and cuboids using standard units, including cubic centimetres and cubic metres, and extending to other units

Geometry							
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
2-D shapes	Explore characteristics of everyday objects and shapes and use mathematical language to describe them	Recognise and name common 2-D shapes	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line Identify 2-D shapes on the surface of 3-D shapes Compare and sort common 2-D shapes and everyday objects	Draw 2-D shapes	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes Identify lines of symmetry in 2-D shapes presented in different orientations	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles Use the properties of rectangles to deduce related facts and find missing lengths and angles	Draw 2-D shapes using given dimensions and angles Compare and classify geometric shapes based on their properties and sizes Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
3-D shapes		Recognise and name common 3-D shapes	Recognise and name common 3-D shapes Compare and sort common 3-D shapes and everyday objects			Identify 3-D shapes, including cubes from other cuboids, from 2-D representations	Recognise, describe and build simple 3-D shapes, including making nets

Angles & lines				Recognise angles as a property of shape or a description of a turn Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn, three make three quarters of a turn and four 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	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 presented in different orientations Complete a simple symmetric figure with respect to a specific line of symmetry	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 one whole turn Angles at a point on a straight line and ½ a turn (total 180 degrees) Other multiples of 90 degrees	Find unknown angles in any triangles, quadrilaterals, and regular polygons Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
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 three-quarter turns		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 of translation, using the appropriate language, and know that the shape has now changed	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

Statistics							
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Present and interpret			Interpret and construct simple pictograms, tally charts, block diagrams and simple tables	Interpret and present data using bar charts, pictograms and tables	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	Complete, read and interpret information in tables, including timetables	Interpret and construct pie charts and line graphs and use these to solve problems
Solve problems			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	Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables	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	Calculate and interpret the mean as an average