



# **NUMERACY**

## **EXPECTATIONS:**

### Early Learning Goals

The principal focus of Mathematics in the Early Years is to ensure that children have a secure understanding of numbers to 20, understand the relationships and patterns between those numbers.

At this stage, pupils will have opportunities to develop the key principles of Number Sense which will then allow them to develop their spatial reasoning skills across all areas of Mathematics including shape, space and measure.

### Key Stage 1 National Curriculum Expectations

The principal focus of Mathematics in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value.

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

### Key Stage 2 National Curriculum Expectations

The principal focus of Mathematics in Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers, fractions, decimal place value and arithmetic, and problems demanding efficient written and mental methods of calculation.

Pupils should read, spell and pronounce mathematical vocabulary correctly.



## **STATEMENTS OF: INTENT**

We believe Mathematics is taught in order to equip pupils with a uniquely powerful set of tools to understand and to operate in everyday life. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways. Mathematics is a creative subject, which should provide interest and enjoyment. Pupils will develop investigative and problem-solving skills through studying Mathematics. We give pupils the opportunity to find things out, develop ideas, obtain and present evidence and share ideas as well as learn crucial information. Pupils will be exposed to high quality teaching and deep subject knowledge of Mathematics in every lesson. In EYFS, children will develop a solid foundation for cardinality and counting to enable students to have a secure understanding of numbers up to 20. Every Maths lesson enables children to develop mathematical vocabulary, fluency, mathematical reasoning and competence when problem solving. These key areas are embedded throughout all strands of the National Curriculum.

## **IMPLEMENTATION**

Our implementation is developed through deep understanding and high-quality teaching of the curriculum. When teaching Mathematics, we follow the National Curriculum (2014). Each week, a range of number, using and applying and measure or geometry lessons are covered. Every Maths lesson is a continuous progression where pupils have the opportunity to build on previous knowledge and apply this in new context. We place strong emphasis on pupils developing reasoning skills and providing their own explanations using Mathematical vocabulary. Every pupil in EYFS has an individual number sense journey which is monitored to ensure that all gaps and understanding can be addressed early on. Maths lessons at Riverside Primary School are engaging and challenging for every pupil and follows a clear cycle of detailed planning. Careful half term and weekly planning ensures that children progress when they display a readiness and secure understanding. At Riverside, there is an ethos of daily conversations about subject knowledge and sharing good practice. Teachers are also provided with regular opportunities for CPD, team-teaching/planning with colleagues and a specialist Maths teacher.

## **IMPACT**

Secure and deep mathematical understanding is demonstrated across all year groups. Children can use a variety of tools to solve a range of complex problems using efficient and appropriate mental and written methods for their year group. At the end of Key Stage 2, children have accumulated enough exposure to approach tasks logically, creatively and effectively. There is evidence of pupils using their prior knowledge to solve calculations and problems, including reasoning, linked to different strands of Maths, using appropriate mathematical vocabulary. Teachers demonstrate secure subject knowledge by planning a sequence of lessons which show clear progression and provide enough challenge. Children demonstrate good understanding of topics taught in Maths and consistently show good engagement with a positive learning attitude to the subject.



# SUBJECT OVERVIEW

## PROGRESSION:

	Number	All four operations	Fractions/Percentages/Decimals	Measurement	Geometry	Statistics
N	<ul style="list-style-type: none"> <li>Use some number names accurately in play</li> <li>Recognises and discuss numerals in the environment including numerals of personal significance (reasoning)</li> <li>Recite numbers in order to 20</li> <li>Begins to make comparisons between quantities using language such as 'more' and 'a lot'</li> <li>Count up to 4 objects saying number name for each item</li> <li>Know that numbers identify how many objects are in a set</li> <li>Represent numbers using fingers</li> <li>Experiments and represent ideas of numbers using marks or symbols/pictures</li> <li>Match numeral/quantity correctly to 5</li> </ul>	<ul style="list-style-type: none"> <li>Separate a group of 3/4 objects in different ways</li> <li>Knows that a group of things changes in quantity when something is added or taken away</li> <li>Recognise when the total number of objects in a group are the same</li> <li>Begins to solve simple number problems in the environment</li> </ul>		<ul style="list-style-type: none"> <li>Use everyday language related to money</li> <li>Begins to recognise specific time-based events such as meal times or home time.</li> <li>Know everyday language related to time (before, later and soon)</li> <li>Identify 2 items by length or height [long/short]</li> <li>Identify 2 items by weight [heavy/light]</li> <li>Identify 2 items by length or height [long/short]</li> </ul>	<ul style="list-style-type: none"> <li>Notices simple shapes in pictures.</li> <li>Make and talk arrangements with shapes</li> <li>Notices simple patterns in pictures.</li> <li>Talk about shapes of everyday objects [e.g. round/tall]</li> <li>Show awareness of similarities of shapes in the environment</li> <li>Select a named shape [square, rectangle, triangle, circle]</li> <li>Describe relative position [in front, behind, above, below]</li> </ul>	



# SUBJECT OVERVIEW

	<ul style="list-style-type: none"> <li>• Know not only objects can be counted [e.g. steps, claps, jumps]</li> <li>• Compare two groups of objects saying when they have the same number</li> <li>• Recognise some arrangements on a dice without counting</li> </ul>				
<b>R</b>	<ul style="list-style-type: none"> <li>• Count objects to 10 whilst tagging each object with one number word</li> <li>• Select correct numeral to represent 1-10 objects including an irregular arrangement and from different starting points</li> <li>• Estimate and checks irregular arrangement of up to 10 objects by arranging them in a line</li> <li>• Count out up to 6 objects from larger group</li> <li>• Recognise quantities without counting up to 5</li> <li>• Explore and represent odd and even numbers up to 10.</li> <li>• Recognise some odd and even numbers to 10.</li> <li>• Begin to count objects beyond 10</li> <li>• Count reliably with numbers from 1-20</li> <li>• Place numbers from 1-20 in order</li> </ul>	<ul style="list-style-type: none"> <li>• Compare quantities up to 10 in different contexts</li> <li>• To recognise when one quantity is greater than, less than or the same as the other quantity</li> <li>• Knows that a set of objects or number does not change if rearranged as long as nothing is added or taken away</li> <li>• Find one less and one more from a group of up to 10 objects</li> <li>• Say which number is one more/less than a given number to 20</li> <li>• Beginning to use the vocabulary associated with addition and subtraction in practical activities e.g. "total" "altogether" and 'take away'</li> <li>• Solve practical problems involving combining groups</li> <li>• Find the total number of items in two groups by counting all of them</li> <li>• Add two single-digit numbers by counting on by using quantities and objects</li> <li>• Subtract two single-digit numbers by counting back by using quantities and objects</li> <li>• Recall number bonds to 5, including subtraction facts.</li> <li>• Know the composition of different numbers to 10.</li> </ul>	<ul style="list-style-type: none"> <li>• Solve problems involving halving quantities/objects to 10</li> <li>• Solve problems involving halving quantities/objects to 20</li> </ul>	<ul style="list-style-type: none"> <li>• Use everyday language related to money [pay, how much</li> <li>• Use everyday language related to money [pound, pence, coins, notes]</li> <li>• Use everyday language related to money [change, cost, price]</li> <li>• Compare 2 items by length or height [longer than/shorter than]</li> <li>• Order 3 items by length or height [longer than/shorter than]</li> <li>• Compare 2 items by weight [heavier than/lighter than]</li> <li>• Compare 2 items by capacity [full, empty, half full]</li> <li>• Use everyday language related to time [day, night, morning, afternoon]</li> <li>• Order/sequence familiar events [first, then, after, later]</li> </ul>	<ul style="list-style-type: none"> <li>• Use mathematical names for 2D shapes [square, rectangle, triangle, circle]</li> <li>• Use mathematical names for 3D shapes (cube, cone, cylinder, sphere)</li> <li>• Begin to use mathematical vocabulary to describe 2D and 3D shapes (e.g. flat, solid)</li> <li>• Use familiar objects and common shapes to create and re-create patterns</li> <li>• Describe relative position [in front of, behind, next to, above, below]</li> </ul>



# SUBJECT OVERVIEW

	<ul style="list-style-type: none"> <li>Know the value of each digit in numbers up to 20</li> <li>To count beyond 20 by recognising the pattern of the counting system</li> <li>Recognises some numbers beyond 20 (up to 100)</li> <li>Record own work using marks and symbols</li> </ul>	<ul style="list-style-type: none"> <li>Know some number bonds to 10, including subtraction facts</li> <li>Explore and represent doubles to 5</li> <li>Solve problems involving doubling numbers to 5.</li> <li>Explore and represent doubles up to 10</li> <li>Solve problems involving doubling numbers to 10, where the answers do not exceed 20.</li> <li>Know some doubling facts to 10.</li> <li>Explore and represent how quantities can be distributed equally</li> <li>Solve problems involving sharing to 10</li> <li>Use language "more" and "fewer" to compare two sets of 10 objects</li> <li>Solve problems involving sharing to 20</li> </ul>				
Yr1	<ul style="list-style-type: none"> <li>Count, read and write numbers up to 100</li> <li>To begin to understand the place value of numbers to 100</li> <li>Count in 2,5 and 10s</li> </ul>	<ul style="list-style-type: none"> <li>To know number bonds within 10</li> <li>To represent and know number bonds and relate to subtraction facts to 20</li> <li>Add and subtract one-digit and two-digit numbers to 20 including 0</li> <li>Solve one step problems involving multiplication and division using pictorial and concrete representations</li> <li>Solve simple missing number problems</li> </ul>	<ul style="list-style-type: none"> <li>Recognise and find a half and a quarter as one of two/four equal parts of an object, shape or quantity</li> </ul>	<ul style="list-style-type: none"> <li>Compare, describe length and heights [long/short, longer/shorter, tall/short, double/half]</li> <li>Compare, describe mass/weight [heavy/light, heavier than, lighter than]</li> <li>Compare, describe capacity /volume ( full/empty, more than/less than)</li> <li>Measure and begin to record lengths and heights using manageable common standard units with a ruler</li> <li>Measure and begin to record mass/weight using manageable common standard units with scales</li> <li>Measure and begin to record capacity/volume using manageable</li> </ul>	<ul style="list-style-type: none"> <li>Recognise and name common 2-D shapes [rectangles (including squares), circles, triangles] in different orientations and sizes and in everyday objects.</li> <li>Recognise and name common 3-D shapes [cuboids (including cubes), pyramids, spheres] in different orientations and sizes and in everyday objects.</li> <li>Describe position, using the language of position and direction including: left/right, top/middle/ bottom, on top of, in front of, above, between, around, near, close/far</li> <li>Describe direction and movement, including whole and half turns</li> </ul>	



# SUBJECT OVERVIEW

				<p>common standard units with graduated containers</p> <ul style="list-style-type: none"> <li>Recognise and know the value of different denominations of coins and notes</li> <li>sequencing events in chronological order using language [before/after, next, first, today, yesterday, tomorrow, morning, afternoon, evening).</li> <li>Recognise and use language related to dates including days of the week, months and years</li> <li>Tell the time to half past the hour using language of half past. Draw the hands on a clock face to show these times (including telling time throughout the day)</li> </ul>		
<b>Yr2</b>	<ul style="list-style-type: none"> <li>Compare and order numbers from 0 to 100 and use the following symbols &lt; = &gt;</li> <li>Recognise the place value of each digit in a 2-digit number</li> <li>Count in steps of 2, 3 and 5 from 0 and in 10s from any number forwards and backwards</li> <li>Use place value and number facts to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>Recall and use addition facts to 20 fluently and derive related facts up to 100.</li> <li>Add and subtract a 2-digit number and ones, a 2-digit number and tens, two 2-digit numbers, 3-digit numbers using concrete and pictorial representations and starting to develop mental strategies for addition and subtraction.</li> <li>Show that the order of any addition problem can be done in any order and subtraction cannot.</li> <li>Recognise and start to make links between inverse relationships in addition and subtraction and use that to check their calculations</li> </ul>	<ul style="list-style-type: none"> <li>Recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{2}{4}</math>, <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity.</li> <li>Start making links between simple equivalent fractions such as <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math></li> </ul>	<ul style="list-style-type: none"> <li>Choose and use appropriate standard units to estimate and measure length, height, mass, temperature and capacity to the nearest appropriate unit.</li> <li>Recognise and use symbols for pounds and pence.</li> <li>Begin to combine amounts to make a particular value (keep within the same units. E.g.: pence and pence. Pounds added to pounds).</li> <li>Compare and sequence intervals of time (hours, minutes and seconds)</li> <li>Tell/write the time to five minutes. Draw hands on clock face to show these times.</li> <li>Tell/write the time including quarter past/to the hour. Draw hands on clock face to show these times.</li> </ul>	<ul style="list-style-type: none"> <li>Identify and describe the properties of 2D and 3D shapes</li> <li>Identify a 2D shape on a surface of a 3D shape</li> <li>Order and arrange combinations of mathematical objects in patterns and sequences</li> <li>Use mathematical vocabulary to describe position and direction including in a straight line</li> <li>Describe rotation including quarter, half and three-quarter turns, clockwise and anticlockwise</li> </ul>	<ul style="list-style-type: none"> <li>Interpret simple pictograms, tally charts, block diagrams and simple tables</li> <li>Ask and answer simple questions linked to these</li> </ul>



# SUBJECT OVERVIEW

<b>Yr3</b>	<ul style="list-style-type: none"> <li>Compare and order numbers up to 1000</li> <li>Read and write numbers up to 1000 in numerals and words</li> <li>Recognise the place value of each digit in a 3-digit number</li> <li>Count from 0 in multiples of 4, 8, 50 and 100</li> <li>Find 10 or 100 more or less than a given number</li> </ul>	<ul style="list-style-type: none"> <li>Add and subtract numbers mentally (a 3-digit number and ones, 3-digit number and tens, 3-digit number and hundreds).</li> <li>Add and subtract numbers with up to 3 digits using formal written methods of column addition and subtraction</li> <li>Know how to use the column method appropriately</li> <li>Estimate the answers to a calculation and use inverse operations to check answers</li> <li>Recall and use multiplication and division facts for the 3, 4, and 8 times tables</li> <li>Develop efficient mental methods for division and multiplication by deriving related facts (<math>3 \times 2 = 6</math>; <math>30 \times 2 = 60</math>, <math>60 \div 3 = 20</math>; <math>30 = 60 \div 2</math>) using times tables that they know</li> <li>Develop efficient mental methods for multiplication of one and two digit numbers using commutativity and associativity (for example <math>4 \times 12 \times 5 = 5 \times 4 \times 12 = 20 \times 12 = 12 \times 10 \times 2 = 240</math>) using times tables that they know</li> <li>Once mental methods are established, start to progress onto formal written methods</li> </ul>	<ul style="list-style-type: none"> <li>Recognise, find and write unit and non-unit fractions of a discrete set of objects</li> <li>Recognise and show fractions with small denominators using diagrams</li> <li>Add and subtract fractions with the same denominator within a whole</li> <li>Compare and order unit fractions and fractions with the same denominator</li> <li>Count up and down in 10s</li> <li>Recognise that a tenth arise from dividing an object into ten equal parts and dividing 1-digit numbers or quantities by 10</li> </ul>	<ul style="list-style-type: none"> <li>Know how to calculate change of the same unit and find different combinations of coins that equal the same amount of money</li> <li>Add and subtract lengths (m/cm/mm), mass (kg/g), volume/capacity (l/ml).</li> <li>Know simple equivalences of length (1m = 100cm), mass (1kg = 1000g), capacity and volume (1L = 1000ml).</li> <li>Add and subtract amounts of money to give change using both pounds and pence in practical contexts but record their answer as mixed units (£1 and 25 pence)</li> <li>Tell and write the time from a 12-hour analogue clock using Roman numerals from I to XII</li> <li>Estimate, compare and record durations of events [e.g. to calculate the time taken by particular events or tasks] in seconds, minutes and hours</li> <li>Tell and write the time using 12-hour and 24 digital clocks</li> <li>Tell and write the time from a 12-hour analogue clock to the nearest minute</li> <li>Know the seconds in a minute, the number of days in a month and leap year</li> </ul>	<ul style="list-style-type: none"> <li>Draw 2D shapes and make 3D shapes using modelling materials</li> <li>Recognise 3D shapes in different orientations</li> <li>Measure perimeter of a simple 2D shape</li> <li>Recognise angles as a property of a shape</li> <li>Identify right angles and link them to a description of a turn (E.g. two right angles make a half-turn, three make three quarters of a turn and four a complete turn)</li> <li>Know horizontal and vertical lines, parallel lines, perpendicular lines</li> </ul>	<ul style="list-style-type: none"> <li>Solve one step and two step questions using information presented in scales, bar charts, pictograms and tables</li> </ul>
<b>Yr4</b>	<ul style="list-style-type: none"> <li>Recognise the place value of each digit in a four-digit number</li> <li>Find 1000 more or less than a given number</li> </ul>	<ul style="list-style-type: none"> <li>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</li> <li>To use mental and written methods appropriately and explain choices</li> </ul>	<ul style="list-style-type: none"> <li>Recognise and show, using diagram, families of common equivalent fractions</li> <li>Recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten.</li> </ul>	<ul style="list-style-type: none"> <li>Convert between different units of measure (km to m, kg to g, l to ml)</li> <li>Convert time between analogue and digital 12- and 24- hour clocks</li> <li>Solve problems involving converting from hours to minutes, minutes to</li> </ul>	<ul style="list-style-type: none"> <li>Measure and calculate the perimeter of rectilinear figure in cm and m</li> <li>Compare and classify geometric shapes, including quadrilaterals [parallelogram,</li> </ul>	<ul style="list-style-type: none"> <li>Interpret and present discrete and continuous data using bar charts using a greater range of scales in representations</li> <li>Solve sum and difference problems using information presented in bar charts,</li> </ul>



# SUBJECT OVERVIEW

	<ul style="list-style-type: none"> <li>Count backwards through zero to include negative numbers</li> <li>Order and compare numbers beyond 1000</li> <li>Round any number to the nearest 10, 100 or 1000</li> <li>Read Roman numerals to 100</li> <li>Count in multiples of 6, 7, 9, 25 and 1000</li> </ul>	<ul style="list-style-type: none"> <li>Recall multiplication and related division facts for multiplication tables up to 12x12</li> <li>Use place value, known and derived facts</li> <li>To use factor pairs and commutativity in mental calculations</li> <li>Multiply two-digit and three-digit numbers by a one-digit number using formal written layout [short multiplication]</li> <li>Solve two-step problems involving multiplying and adding</li> <li>To become fluent in using the associative law] (e.g. <math>48 \times 5 = 8 \times 5 \times 6</math> or <math>4 \times 10 \times 6</math>)</li> <li>To become fluent in using the distributive law <math>39 \times 7 = 30 \times 7 + 9 \times 7</math></li> <li>Become fluent in formal written method of short division with exact answers</li> </ul>	<ul style="list-style-type: none"> <li>Solve problems involving increasingly harder fractions to calculate quantities, including non-unit fractions where the answer is a whole number</li> <li>Add and subtract fractions with the same denominator</li> <li>Know that decimals and fractions are different ways of expressing numbers and proportions by representing decimals in several ways (link tenths and hundredths)</li> <li>Recognise and write decimal equivalents to <math>\frac{1}{4}</math>; <math>\frac{1}{2}</math>; <math>\frac{3}{4}</math></li> <li>Find the effect of dividing two-digit numbers by 10 and 100, identify the value of the digits in the answer as ones, tenths and hundredths</li> <li>Round decimals with one decimal place to the nearest whole number</li> <li>Compare numbers with the same number of decimal places up to two decimal places</li> </ul>	<p>seconds, weeks to days, years to months</p> <ul style="list-style-type: none"> <li>Begin to use decimal notation related to money (e.g. <math>\pounds 1.45 = 145p</math>)</li> <li>To add simple amounts of money without hundredths and regrouping using knowledge of place value (<math>\pounds 2.40 + \pounds 1.30</math>)</li> <li>Solve simple money problems involving decimals to two decimal places</li> </ul>	<p>rhombus, trapezium] based on their properties and sizes</p> <ul style="list-style-type: none"> <li>Identify acute and obtuse angles</li> <li>Compare and order angles up to <math>180^\circ</math></li> <li>Identify lines of symmetry in 2D shapes presented in different orientations</li> <li>Complete a simple symmetric figure with respect to a specific line of symmetry</li> <li>Describe positions on a 2D grid as coordinates in the first quadrant</li> <li>Describe movements between positions as translations of a given unit to the left/right and up/down</li> <li>Plot specified points and draw sides to complete a given polygon</li> </ul>	<p>pictograms, tables and other graphs</p>
Yr5	<ul style="list-style-type: none"> <li>Read/write/order/compare numbers to at least 1,000,000 and determine the value of each digit</li> <li>Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000</li> <li>Interpret negative numbers in context.</li> </ul>	<ul style="list-style-type: none"> <li>Add/subtract whole numbers with more than 4 digits using formal written methods (columnar)</li> <li>Add/subtract numbers mentally with increasingly large numbers</li> <li>Use rounding to check answers to calculations and, in the context of a problem, levels of accuracy</li> <li>Solve + and - multi-step problems in contexts, deciding which operations/methods to use and why</li> <li>Identify multiples and factors</li> </ul>	<ul style="list-style-type: none"> <li>Add and subtract fractions with denominators that are multiples of the same number</li> <li>Identify/name/write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</li> <li>Recognise mixed numbers and improper fractions and convert from one form to another using images and diagrams and write</li> </ul>	<ul style="list-style-type: none"> <li>Convert between different units of metric measure (kilometre/metre, metre/centimetre, centimetre/millimetre, kilogram/gram, litre/millilitre)</li> <li>Understand/use equivalences between metric units and common imperial units (e.g. inches, pounds and pints)</li> </ul>	<ul style="list-style-type: none"> <li>Measure/calculate the perimeter of composite rectilinear shapes in centimetres and metres</li> <li>Identify 3D shapes, including cubes and other cuboids, from 2D representations</li> <li>Know angles are measured in degrees. Draw given angles, and measure them in degrees (<math>^\circ</math>) using a protractor.</li> </ul>	<ul style="list-style-type: none"> <li>Solve comparison, sum and difference problems using information presented in a line graph</li> <li>Complete information in tables, including timetables</li> </ul>





# SUBJECT OVERVIEW

	<ul style="list-style-type: none"> <li>Count forwards/backwards using positive/negative numbers through 0</li> <li>Round any number up to 1,000,000 to nearest 10/100/1,000/10,000/100,000</li> <li>Read Roman numerals to 1,000 (M).</li> <li>Recognise years written in Roman numerals</li> </ul>	<ul style="list-style-type: none"> <li>Find all factor pairs of a number</li> <li>Find common factors of 2 numbers including prime factors ( e.g. 5 and 7 are prime factors of 35)</li> <li>Understand and use the terms/vocabulary of factor, multiple, prime, non-prime, composite, square and cube numbers</li> <li>Establish whether a number up to 100 is prime</li> <li>Recall prime numbers up to 19</li> <li>Multiply numbers up to 4 digits by a one-digit number using a formal written method (including long multiplication for 2-digit numbers)</li> <li>Multiply and divide numbers mentally, drawing upon known facts to make larger calculations</li> <li>Divide numbers to 4 digits by a one-digit number using the formal written method [short division]</li> <li>Interpret remainders for context including fractions, decimals, rounding [e.g. <math>98 \div 4 = 98/4 = 24 \text{ r } 2 = 24 \frac{1}{2} = 24.5 \approx 25</math>]</li> <li>Recognise/use square and cubed numbers and notation for squared (<math>^2</math>) and cubed (<math>^3</math>).</li> <li>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</li> <li>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000</li> </ul>	<p>mathematical statements [e.g. <math>2/5 + 4/5 = 6/5 = 1 \frac{1}{5}</math>]</p> <ul style="list-style-type: none"> <li>Add and subtract fractions with denominators that are multiples of the same number</li> <li>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li> <li>Read and write numbers with up to 3 decimal places and relate to fraction equivalents</li> <li>Recognise/use thousandths and relate them to tenths/hundredths</li> <li>Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place</li> <li>Order and compare numbers with up to 3 decimal places</li> <li>Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100'</li> <li>Write percentages as a fraction with denominator 100 and as a decimal</li> <li>Solve problems which require knowing percentage/decimal equivalents of those fractions with a denominator of a multiple or a factor of 10 or 25 (e.g. <math>1/5 = 2/10 = 5/25</math>)</li> </ul>	<ul style="list-style-type: none"> <li>Use all four operations to solve problems [e.g. length using decimal notation, including scaling]</li> <li>Estimate volume [e.g. using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [e.g. using water]</li> <li>Solve problems involving converting between units of time [e.g. days to weeks, expressing the answer as weeks and days]</li> </ul>	<ul style="list-style-type: none"> <li>Identify angles at a point on a straight line and half a turn [total 180°]</li> <li>Identify other multiples of 90°</li> <li>Use the properties of rectangles to deduce related facts and find missing lengths and angles</li> <li>Distinguish between regular and irregular polygons based on reasoning about equal edges and angles</li> <li>Identify/describe the position of a shape in the first quadrant following a reflection using appropriate language; know the shape has not changed (reflection should be in lines that are parallel to the axes)</li> </ul>	
Yr6	<ul style="list-style-type: none"> <li>Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit</li> </ul>	<ul style="list-style-type: none"> <li>Perform more complex mental calculations with addition and subtraction, including with mixed operations with increasingly large numbers and decimals</li> </ul>	<ul style="list-style-type: none"> <li>Use common factors to simplify fractions</li> <li>Compare and order fractions, including fractions &gt;1</li> </ul>	<ul style="list-style-type: none"> <li>Solve length, mass and capacity problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate</li> </ul>	<ul style="list-style-type: none"> <li>Recognise shapes with the same area can have different perimeters and vice versa</li> </ul>	<ul style="list-style-type: none"> <li>Interpret/construct line graphs and pie charts and use those to solve problems.</li> </ul>



# SUBJECT OVERVIEW

	<ul style="list-style-type: none"> <li>Round any whole number to required degree of accuracy [e.g. to the nearest 10, 20, 50 etc]</li> <li>Use negative numbers in context and calculate intervals across zero</li> <li>Solve number and practical problems, using the whole number system</li> <li>Use simple formulae</li> <li>Generate/describe linear number sequences</li> <li>Enumerate all possibilities of combinations of 2 variables ( e.g. what two numbers can add up to)</li> <li>Express missing number problems algebraically including understanding of equivalent expressions (<math>a+b=b+c</math>; <math>2a=a+a</math>)</li> <li>Find pairs of numbers that satisfy an equation with 2 unknowns</li> </ul>	<ul style="list-style-type: none"> <li>Add/subtract large numbers using formal written methods (columnar)</li> <li>Add/subtract decimal numbers using formal written methods (columnar)</li> <li>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</li> <li>Solve addition and subtraction multi-step problems in contexts, deciding which operations to use and why</li> <li>Divide numbers up to 4 digits by a two-digit whole number using the formal written method [long division]</li> <li>Identify common factors, common multiples and prime numbers</li> <li>Use knowledge of order of operations to carry out calculations involving the four operations</li> <li>To multiply and divide numbers with up to two decimal places by one digit and two-digit whole numbers (initially in a context of money and measures)</li> <li>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method [long multiplication]</li> <li>Interpret remainders as whole number remainders, fractions/decimals or by rounding, as appropriate for context</li> <li>Solve problems involving relative sizes of 2 quantities where missing values can be found using integer multiplication and division facts and begin to use notation (a:b) to record ratio/proportion</li> <li>Solve problems involving similar shapes where scale factor is known or can be found.</li> <li>Develop connections between multiplication and division unequal sharing (ratio) using multiples and factors</li> </ul>	<ul style="list-style-type: none"> <li>Add and subtract fractions with different denominators and mixed numbers, using concept of equivalent fractions</li> <li>Multiply simple pairs of proper fractions, writing the answer in its simplest form</li> <li>Divide proper fractions by whole numbers [e.g. <math>1/3 \div 2 = 1/6</math>]</li> <li>Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction. (e.g. <math>0.375=3/8</math> )</li> <li>Recall/use equivalences between simple fractions, decimals and percentages, including in different contexts</li> <li>Solve problems involving the calculation of percentages [e.g. 15% of 360] and use percentages for comparison</li> </ul>	<ul style="list-style-type: none"> <li>Use, read, write and convert between standard units, converting measures of length, mass, volume and time from a smaller unit to a larger unit, and vice versa, using decimal notation to 3 decimal places</li> <li>Convert between miles and kilometres (links with graphical representation)</li> <li>Recognise when to use formulae for volume of shapes</li> <li>Using formulae calculate estimate and compare volume of cubes and cuboids using centimetre cubed (<math>cm^3</math>) and compare volume of cubes and cuboids using cubic metres (<math>m^3</math>)</li> </ul>	<ul style="list-style-type: none"> <li>Recognise when to use formulae for area of shapes</li> <li>Calculate the area of parallelograms and triangles using related area of rectangles and understanding/using formulae ( in word and symbols)</li> <li>Draw 2D shapes using given dimensions and angles using conventional markings and labels for lines and angles</li> <li>Compare/classify geometric shapes based on properties/sizes</li> <li>Recognise and describe and build simple 3D shapes, including making nets</li> <li>Illustrate/name parts of circles, (radius, diameter and circumference) Know diameter is twice the radius</li> <li>Recognise where angles are on a straight line, meet at a point or are vertically opposite; find missing angles.</li> <li>Describe positions on the full co-ordinate grid (all four quadrants)</li> <li>Draw and translate simple shapes [rectangles including squares, parallelograms and rhombi] on the co-ordinate plane (all four quadrants)</li> </ul>	<ul style="list-style-type: none"> <li>Calculate/interpret the mean as an average knowing when it is appropriate to find mean of a data set</li> </ul>
--	---	---	--	---	--	--



## SUBJECT OVERVIEW

		<ul style="list-style-type: none"><li>• Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places</li></ul>				
--	--	---	--	--	--	--