



Autumn Term 1		Autumn Term 2	
Number & Place Value	Addition & Subtraction	Multiplication & Division	Geometry – Shapes/Angles
<p>-Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.</p> <p>-Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.</p> <p>-Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.</p> <p>-Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</p> <p>-Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.</p> <p>-Solve number problems and practical problems that involve all of the above.</p>	<p>-Add and subtract numbers mentally with increasingly large numbers.</p> <p>-Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</p> <p>-Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</p> <p>- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p>	<p>-Multiply and divide numbers mentally drawing upon known facts.</p> <p>-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.</p> <p>-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.</p> <p>-Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers.</p> <p>-Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.</p> <p>-Solve problems involving multiplication and division including using their knowledge of factors and multiples.</p> <p>-Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</p> <p>-Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p>	<p>-Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.</p> <p>- Use the properties of rectangles to deduce related facts and find missing lengths and angles.</p> <p>-Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</p> <p>-Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.</p> <p>-Draw given angles, and measure them in degrees (o).</p> <p>- Identify:                      *angles at a point and one whole turn (total 360o)                      *angles at a point on a straight line and . a turn (total 180o)                      *other multiples of 90o</p>
<p><b>Vocabulary:</b></p> <p>units, ones, tens, hundreds, thousands ,ten thousand, hundred                      thousand, million                      digit, one-, two-, three- or four-digit number                      numeral 'teens' number place, place value                      stands for, represents exchange the same number as, as many as                      equal to <i>Of two objects/amounts:</i> &gt; , greater than, more than,                      larger than, bigger than &lt; , less than, fewer than, smaller than &gt; ,</p>	<p><b>Vocabulary:</b></p> <p>add, addition, more, plus, increase                      sum, total, altogether                      score double, near double how many more to make...? subtract, subtraction, take (away), minus, decrease leave, how many are left/left over? difference between                      half, halve how many more/ fewer is... than...?                      how much more/less is...? equals, sign, is the same as tens boundary, hundreds boundary  <i>units boundary, tenths boundary inverse</i></p>	<p><b>Vocabulary:</b></p> <p>lots of, groups of , times, multiply, multiplication, multiplied by                      multiple of, product once, twice, three times four times, five                      times... ten times times as (big, long, wide, and so on)                      repeated addition array row, column double, halve share,                      share equally one each, two each, three each... group in pairs,                      threes... tens equal groups of divide, divided by, divided into,</p>	<p><b>Vocabulary:</b></p> <p>shape, pattern flat, <i>line</i> curved, straight round hollow, solid corner point, pointed face, side, edge, end sort make, build, <i>construct</i>, draw, <i>sketch</i> centre, <i>radius</i>, <i>diameter</i>  <i>net</i> surface <i>angle</i>, right-angled <i>base</i>, <i>square-based</i>                      vertex, vertices                      layer, diagram <i>regular</i>, <i>irregular concave</i>, <i>convex open</i>, <i>closed 3D</i>,  <i>three dimensional</i> cube cuboid pyramid sphere, hemisphere,  <i>spherical</i> cone cylinder, <i>cylindrical</i> prism <i>tetrahedron</i>,</p>

<p>greater than or equal to <math>\leq</math>, less than or equal to <math>\leq</math> Of <b>three</b> or more  objects/amounts:  greatest, most, largest, biggest least, fewest, smallest  one... ten... one hundred... one thousand more/less  compare, order, size <i>ascending/descending order</i>  first... tenth...  twentieth last, last but one before, after, next  between, half-way between guess how many, estimate  nearly, roughly, close to, about the same as  approximate, approximately  <i>is approximately equal to</i> just over, just under exact,  exactly  too many, too few, enough, not enough round (up or  down),  nearest round to the nearest ten/hundred <i>round to the  nearest</i>  <i>thousand</i> integer positive, negative above/below zero,  minus  number, count, how many...? odd, even every other  how many  times? multiple of digit next, consecutive sequence  continue  predict pattern, pair, rule relationship sort, classify,  property  <i>formula</i> divisible (by), <i>divisibility</i>, factor <i>square number</i>  <i>one</i>  <i>squared, two squared....(12, 22...), prime, prime factor</i></p>		<p>divisible by remainder factor, quotient, divisible by  inverse</p>	<p><i>polyhedron</i>  2D, <i>two-dimensional</i> circle, circular, semi-circle  triangle, triangular  <i>equilateral triangle, isosceles triangle</i> square  rectangle, rectangular, <i>oblong</i> pentagon, pentagonal  hexagon, hexagonal  <i>heptagon</i> octagon, octagonal <i>polygon</i> quadrilateral  size bigger,  larger, smaller symmetrical line of symmetry, <i>line  symmetry</i>  fold match mirror line, reflection, <i>reflect</i> pattern,  repeating pattern,  translation position over, under, underneath above,  below, top,  bottom, side on, in, outside, inside, around in front,  behind, front,  back before, after, beside, next to opposite, apart  between, middle,  edge, centre corner direction journey, route, map, plan  left, right up,  down, higher, lower forwards, backwards, sideways,  across close, far,  near along, through, to, from, towards, away from  ascend, descend  grid row, column <i>origin, coordinates</i> clockwise,  anticlockwise  compass point, north, south, east, west (N, S, E, W)  <i>northeast,</i>  <i>north-west, south-east, south-west (NE, NW, SE, SW)</i>  horizontal,  vertical, diagonal movement slide, roll whole turn, half  turn, quarter  turn, <i>rotate</i> angle, ...is a greater/smaller angle than  right angle  <i>degree</i> straight line stretch, bend <i>ruler, set square</i>  <i>angle measurer,</i>  <i>compasses</i></p>
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Spring Term 1		Spring Term 2		
Fractions	Decimals	Percentages	Geometry – Position/Direction	Statistics
<p>-Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.</p> <p>-Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt; 1</math> as a mixed number (e.g. <math>2/5 + 4/5 = 6/5 = 1 \frac{1}{5}</math>).</p> <p>-Compare and order fractions whose denominators are all multiples of the same number.</p> <p>-Add and subtract fractions with the same denominator and denominators that are multiples of the same number.</p> <p>-Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</p>	<p>-Read and write decimal numbers as fractions (e.g. <math>0.71 = 71/100</math>).</p> <p>-Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</p> <p>-Read, write, order and compare numbers with up to three decimal places.</p> <p>-Round decimals with two decimal places to the nearest whole number and to one decimal place.</p> <p>-Solve problems involving number up to three decimal places.</p>	<p>-Recognise the percent symbol (%) and understand that percent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal fraction.</p> <p>-Solve problems which require knowing percentage and decimal equivalents of <math>1/2</math>, <math>1/4</math>, <math>1/5</math>, <math>2/5</math>, <math>4/5</math> and those fractions with a denominator of a multiple of 10 or 25.</p>	<p>-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.</p>	<p>-Solve comparison, sum and difference problems using information presented in line graphs.</p> <p>-Complete read and interpret information in tables, including timetables.</p>
<p><b>Vocabulary:</b></p> <p>part, equal parts fraction, proper/improper fraction mixed number numerator, denominator equivalent, reduced to, cancel one whole half, quarter, eighth third, sixth, ninth, twelfth fifth, tenth, twentieth, hundredth proportion, ratio in every, for every to every, as many as decimal, decimal fraction decimal point, decimal place percentage, per cent, %</p>			<p><b>Vocabulary:</b></p> <p>size bigger, larger, smaller  symmetrical line of symmetry,  axis of symmetry  line symmetry, reflective  symmetry fold match mirror  line, reflection, reflect  pattern, repeating pattern,  translation parallel,  perpendicular x-axis, yaxis  quadrant rotation</p>	<p><b>Vocabulary:</b></p> <p>count, tally, sort, vote survey,  questionnaire data, database  graph, block graph, line graph  pictogram, represent group,  set list, chart, bar chart, bar  line chart tally chart table,  frequency  table Carroll diagram,  Venn diagram label, title, axis,  axes diagram most popular,  most common least popular,  least common mode, range  maximum/minimum value  classify, outcome</p>

Summer Term 1		Summer Term 2		
Multiplication & Division – Prime/Square/Cube Numbers	Number – The 4 operations	Fractions, Decimals & Percentages	Measurement	Measurement – Area & Perimeter
<p>-Establish whether a number up to 100 is prime and recall prime numbers up to 19.</p> <p>-Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).</p> <p>-Solve problems involving multiplication and division including using their knowledge of squares and cubes.</p> <p>-Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</p>	<p>-Add and subtract numbers mentally with increasingly large numbers.</p> <p>-Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</p> <p>-Multiply and divide numbers mentally drawing upon known facts.</p> <p>-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.</p> <p>-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.</p>	<p>-Compare and order fractions whose denominators are all multiples of the same number.</p> <p>-Add and subtract fractions with the same denominator and denominators that are multiples of the same number.</p> <p>-Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</p> <p>-Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25.</p>	<p>-Convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).</p> <p>-Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</p> <p>-Estimate volume (e.g. using 1 cm<sup>3</sup> blocks to build cuboids (including cubes) and capacity (e.g. using water).</p> <p>-Solve problems involving converting between units of time.</p> <p>-Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation, including scaling.</p>	<p>-Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.</p> <p>-Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes.</p>
<p><b>Vocabulary:</b></p> <p>lots of, groups of times, multiply, multiplication, multiplied by multiple of, product once, twice, three times... ten times... times as (big, long, wide... and so on) repeated addition array row, column double, halve share, share equally one each, two each, three each... group in pairs, threes... tens equal groups of divide, division, divided by, divided into remainder factor, quotient</p>	<p><b>Vocabulary:</b></p> <p>See Autumn Term</p>	<p><b>Vocabulary:</b></p> <p>See Autumn Term</p>	<p><b>Vocabulary:</b></p> <p>measure, measurement size compare unit, standard unit metric unit, imperial unit measuring scale, division guess, estimate enough, not enough too much, too little too many, too few nearly, roughly, about, close to about the same as, approximately just over, just under length, width, height, depth, breadth long, short, tall, high, low wide, narrow, deep, shallow, thick, thin longer, shorter, taller, higher... and so on longest, shortest, tallest, highest... and so on far, further, furthest, near, close distance apart/between, distance to... from... edge, perimeter kilometre (km), metre (m) centimetre (cm), millimetre (mm) mile ruler, metre stick, tape measure mass: big, bigger, small, smaller, balances weight: heavy/light, heavier/lighter, heaviest/lightest weigh, weighs kilogram (kg), half-kilogram, gram (g) balance, scales capacity full, half full empty holds, contains litre (l), half-litre, millilitre (ml) pint, gallon container, measuring cylinder area, covers, surface square centimetre (cm<sup>2</sup>), square metre (m<sup>2</sup>) square millimetre (mm<sup>2</sup>)</p>	

### Fluency Memory Joggers:

Within the daily maths session, 5/10 minutes is used to ensure the children have varied and fluent practise of basic skills. Previous maths domains are visited.

### Mini Maths Meet:

A daily 10 minute focus (outside of the maths session) on a specific aspect of maths/ basic skills/ problem solving/ reasoning which is explored in depth. Eg.  $6 \times 3$ .

### Problem Solving & Reasoning:

PSR takes place within sessions & also in a discrete PSR session once a week.

### Year 5 Skills:

	Skills
Problem Solving	Engage with mathematical activities and problems, making links and moving between different representations (concrete, pictorial, abstract).
	Independently choose to scaffold thinking using concrete, pictorial or abstract representations, if required.
	Independently choose to represent thinking using concrete, pictorial or abstract representations, as appropriate.
	Make suggestions of ways to solve a range of problems.
	Organise work from the outset, looking for ways to record and work systematically.
	Find and predict possibilities that match the context using patterns spotted to support.
	Independently check and improve work (e.g. look for other possibilities, repeats, missing answers, errors and ways to improve).
	Pattern spot and independently express generalisations/rules in words.
	Make and investigate conjectures and provide examples and counter-examples.
When they have solved a problem, pose a similar problem for a peer.	

	Skills
Reasoning	Provide a clear, correct, logical justification, expressing generalisation/rules in words.
	Reflect on others' justifications and use this to improve their work.
	Edit and improve their own and a peer's justification.
	Investigate 'what if?' questions.
	Create 'what if?' questions.