



# Year 5 Medium Term Planning

| Autumn Term 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| Number and Place Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Addition and Subtraction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Multiplication and Division                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Geometry ( Shape and Angles)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| <ul style="list-style-type: none"> <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, count forwards and backwards with positive and negative whole numbers, including through zero.</li> <li>Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.</li> <li>Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</li> <li>Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.</li> <li>Solve number problems and practical problems that involve all of the above.</li> </ul> <p><b><u>Vocabulary</u></b></p> <p>units, ones, tens, hundreds, thousands ,ten thousand, hundred thousand, million<br/> digit, one-, two-, three- or four-digit number<br/> numeral 'teens' number place, place value<br/> 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 ≥ <i>greater than or equal to</i> ≤ <i>less than or equal to</i> <i>Of three or more objects/amounts:</i><br/> greatest, most, largest, biggest least, fewest, smallest<br/> one... ten... one hundred... one thousand more/less<br/> compare, order, size <i>ascending/descending order</i> first... tenth... twentieth last, last but one before, after, next<br/> between, half-way between guess how many, estimate<br/> 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 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 formula divisible (by), divisibility, factor square number one squared, two squared....(1<sup>2</sup>, 2<sup>2</sup>...), prime, prime factor</p> <p>CC Links—On beyond a Million—David M Schwartz</p> | <ul style="list-style-type: none"> <li>Add and subtract numbers mentally with increasingly large numbers.</li> <li>Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</li> <li>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</li> <li>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> </ul> <p><b><u>Vocabulary</u></b></p> <p>add, addition, more, plus, increase<br/> sum, total, altogether<br/> score double, near double how many more to make...? subtract, subtraction, take (away), minus, decrease leave, how many are left/left over? difference between<br/> half, halve how many more/ fewer is... than...? how much more/less is...? equals, sign, is the same as tens boundary, hundreds boundary units boundary, tenths boundary inverse</p> <p>Children <b>revisit</b> skills from Year 4<br/> They will <b>recap</b> what they know<br/> Children will <b>embed</b> the skills learnt this term across the curriculum</p> | <ul style="list-style-type: none"> <li>Multiply and divide numbers mentally drawing upon known facts.</li> <li>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.</li> <li>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.</li> <li>Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers.</li> <li>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.</li> <li>Solve problems involving multiplication and division including using their knowledge of factors and multiples.</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>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</li> </ul> <p><b><u>Vocabulary</u></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)<br/> 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, divisible by remainder factor, quotient, divisible by inverse</p> <p>CC Links—The Lions Share by Matthew McElliot or Multiplying Menace—<a href="https://youtu.be/6Ft6JJYsAnc">https://youtu.be/6Ft6JJYsAnc</a></p> | <ul style="list-style-type: none"> <li>Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.</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 sides and angles.</li> <li>Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.</li> <li>Draw given angles, and measure them in degrees (o).</li> <li>Identify:</li> </ul> <p>*angles at a point and one whole turn (total 360o)<br/> *angles at a point on a straight line and ½ a turn (total 180o)<br/> *other multiples of 90o</p> <p><b><u>Vocabulary</u></b></p> <p>shape, pattern flat, line curved, straight round hollow, solid corner point, pointed face, side, edge, end sort make, build, construct, draw, sketch centre, radius, diameter net surface angle, right-angled base, square-based vertex, vertice layer, diagram regular, irregular concave, convex open, closed 3D, three dimensional cube cuboid pyramid sphere, hemisphere, spherical cone cylinder, cylindrical prism tetrahedron, polyhedron 2D, two-dimensional circle, circular, semi-circle triangle, triangular equilateral triangle, isosceles triangle square rectangle, rectangular, oblong pentagon, pentagonal hexagon, hexagonal heptagon octagon, octagonal polygon quadrilateral size bigger, larger, smaller symmetrical line of symmetry, line symmetry fold match mirror line, reflection, reflect 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 origin, coordinates clockwise, anti-clockwise compass point, north, south, east, west (N, S, E, W) north-east, north-west, south-east, south-west (NE, NW, SE, SW) horizontal, vertical, diagonal movement slide, roll whole turn, half turn, quarter turn, rotate angle, ...is a greater/smaller angle than right angle degree straight line stretch, bend ruler, set square angle measurer, compasses</p> <p>CC Links—Circumference and the Sword in the Cone</p> |



## Year 5 Medium Term Planning

| Spring Term 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Spring Term 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| Fractions<br>3 weeks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Decimals<br>3 weeks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Percentages<br>3 weeks                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Geometry<br>2 weeks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Statistics<br>1 week                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"> <li>Identify, name and 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 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>).</li> <li>Compare and order fractions whose denominators are all multiples of the same number.</li> <li>Add and subtract fractions with the same denominator and 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> </ul> <p style="text-align: center;"><b>CC Links</b></p> <p>Fractions in Disguise—Edward Einhorn</p> <p><a href="https://www.stem.org.uk/system/files/elibrary-resources/legacy_files_migrated/40792-Teacher%20guide%20KS2.pdf">https://www.stem.org.uk/system/files/elibrary-resources/legacy_files_migrated/40792-Teacher%20guide%20KS2.pdf</a></p> | <ul style="list-style-type: none"> <li>Read and write decimal numbers as fractions (e.g. <math>0.71 = 71/100</math>).</li> <li>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</li> <li>Read, write, order and compare numbers with up to three decimal places.</li> <li>Round decimals with two decimal places to the nearest whole number and to one decimal place.</li> <li>Solve problems involving number up to three decimal places.</li> </ul> | <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul> | <ul style="list-style-type: none"> <li>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.</li> </ul> <p style="text-align: center;"><b>Vocabulary</b></p> <p>size bigger, larger, smaller<br/>symmetrical line of symmetry, axis of symmetry<br/>line symmetry, reflective symmetry fold match mirror line, reflection, reflect pattern, repeating pattern, translation parallel, perpendicular x-axis, y-axis quadrant rotation</p> <p style="text-align: center;"><b>CC Links</b></p> <p><a href="https://www.stem.org.uk/system/files/elibrary-resources/2016/05/PR03_Pixel_your_space_teacher_guide_and_pupil">https://www.stem.org.uk/system/files/elibrary-resources/2016/05/PR03_Pixel_your_space_teacher_guide_and_pupil</a></p> | <ul style="list-style-type: none"> <li>Solve comparison, sum and difference problems using information presented in line graphs.</li> <li>Complete read and interpret information in tables, including timetables.</li> </ul> <p style="text-align: center;"><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> |
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## Year 5 Medium Term Planning

| Summer Term 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Summer Term 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                |
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| Multiplication and Division— prime, square and cube numbers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Number—The 4 operations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Fractions, Decimals and Percentages                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Measurement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Measurement—Area and Perimeter |
| <ul style="list-style-type: none"> <li>Establish whether a number up to 100 is prime and recall prime numbers up to 19.</li> <li>Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).</li> <li>Solve problems involving multiplication and division including using their knowledge of squares and cubes.</li> <li>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</li> </ul> <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> | <ul style="list-style-type: none"> <li>Add and subtract numbers mentally with increasingly large numbers.</li> <li>Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</li> <li>Multiply and divide numbers mentally drawing upon known facts.</li> <li>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.</li> <li>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.</li> </ul> <p><b>Vocabulary</b></p> <p>See Autumn term</p> | <ul style="list-style-type: none"> <li>Compare and order fractions whose denominators are all multiples of the same number.</li> <li>Add and subtract fractions with the same denominator and 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>Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{3}{5}</math> and those fractions with a denominator of a multiple of 10 or 25.</li> </ul> <p><b>Vocabulary</b></p> <p>See Autumn term</p> | <ul style="list-style-type: none"> <li>Convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).</li> <li>Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</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.</li> <li>Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation, including scaling.</li> </ul> <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> <p>CC Links —History/Geography/food technology<br/>Making Savoury Scones</p> |                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Children <b>revisit</b> skills from Spring Term<br/>They will <b>recap</b> what they know<br/>Children will <b>embed</b> the skills learnt this term across the curriculum</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                |

## Year 5 Medium Term Planning

| Problem Solving Skills                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Independently choose to <u>scaffold and represent</u> thinking using <u>concrete, pictorial or abstract</u> representations if and as appropriate                                                                                                                                                                                                                                                                                     |
| <b>Identify and obtain information</b> to solve mathematical problems and investigations from a range of contexts<br><i>Make clear links to the wider curriculum and real-life as well as those based in mathematics</i><br><i>Recognise information that is important</i><br><i>Determine what information is missing</i><br><i>Develop lines of enquiry</i><br><i>Break a several-step problem/investigation into simpler steps</i> |
| Organise work from the outset, looking for ways to record and work <u>systematically</u>                                                                                                                                                                                                                                                                                                                                              |
| When they have solved a problem, <u>pose a similar problem</u> for a partner                                                                                                                                                                                                                                                                                                                                                          |
| <b>Find and predict possibilities</b> that match the context<br><i>Use patterns spotted to support as appropriate</i><br><i>Predict possibilities from results already obtained</i>                                                                                                                                                                                                                                                   |
| <b>Check results</b> , considering whether these are reasonable<br><i>Check as they work</i><br><i>Spot and correct errors</i><br><i>Review methods and consider which are most efficient</i><br><i>Relate problems to previous experiences</i>                                                                                                                                                                                       |
| <b>Pattern spot</b> and independently <b>form generalisations/rules</b> in words                                                                                                                                                                                                                                                                                                                                                      |
| <b>Make and investigate own conjectures</b><br><i>Provide examples and counter-examples</i>                                                                                                                                                                                                                                                                                                                                           |
| Reasoning Skills <b>STAGE 1 DESCRIBE STAGE 2 EXPLAIN STAGE 3 CONVINCCE STAGE 4 JUSTIFY</b>                                                                                                                                                                                                                                                                                                                                            |
| <b>Provide a clear justification</b> , using precise mathematical language, for the approaches/methods/strategies tried and adopted whilst searching for solutions<br><i>Check their methods</i><br><i>Justify their answers</i><br><i>Correct, logical argument</i><br><i>Uses sentence stems and connectives to expand, such as:: 'because', 'therefore', 'and so', 'that leads to'</i>                                             |
| Independently <b>explain</b> the generalisation/rule they have formed, using precise mathematical language                                                                                                                                                                                                                                                                                                                            |
| Reflect on others' <b>justification</b> of their methods/ strategies and use this to improve their own work                                                                                                                                                                                                                                                                                                                           |
| <b>Edit and improve</b> their own and a peer's justification                                                                                                                                                                                                                                                                                                                                                                          |
| Investigate <b>'what if?'</b> questions                                                                                                                                                                                                                                                                                                                                                                                               |
| Create own <b>'what if?'</b> questions to investigate                                                                                                                                                                                                                                                                                                                                                                                 |