

## Year 6 Maths Breath of Study

| Annual Overview |                                       |        |                                       |   |  |                    |
|-----------------|---------------------------------------|--------|---------------------------------------|---|--|--------------------|
|                 | Week 1                                | Week 2 | Week 3                                | Week 4  | Week 5                                     | Week 6             |
| Autumn          | Number<br>Place Value                 |        | Number<br>Addition and<br>Subtraction | Number<br>Multiplication and Division<br>Multiples, Factors and Prime Numbers |  | Number<br>Algebra  |
|                 | Number<br>Fractions                   |        | Number<br>Decimals & Percentages      | Assessment Week   | Measure<br>Length, mass, capacity and time |                    |
| Spring          | Measure<br>Perimeter, area and volume |        | Geometry<br>Properties of shape       |   | Geometry<br>Position and Direction         | Geometry<br>Angles |
|                 | Statistics                            | Ratio  | Mock SATs and Revision                |   |  |                    |
| Summer          | SATs Preparation                      |        |                                       |   |  |                    |

| Arithmetic   |  | Mental Maths   |
|--|--|--|
| <ul style="list-style-type: none"> <li>Add &amp; subtract 4 digit by 4 digit numbers</li> <li>Add &amp; subtract decimals</li> <li>Subtract decimals from a whole</li> <li>Multiply 2 digit numbers by 1 digit numbers</li> <li>Multiply 2 digit numbers by 2 digit numbers</li> <li>Multiply three 1 digit numbers</li> <li>Divide 3 digit numbers by 1 digit numbers</li> <li>Divide 4 digit numbers by 1 digit numbers</li> <li>Multiply decimals</li> <li>Multiply &amp; divide numbers by 10, 100 and 1000 including decimals</li> <li>Square numbers</li> <li>Multiply numbers by 1 and 0</li> <li>Add and subtract fractions with the same denominator</li> <li>Find missing fractions to make a whole</li> </ul> | <ul style="list-style-type: none"> <li>Add fractions with different denominators</li> <li>Subtract fractions with different denominators</li> <li>Multiply fractions</li> <li>Multiply fractions by a whole number</li> <li>Find fractions of amounts</li> <li>Add and subtract negative numbers</li> <li>Find the difference between two negative numbers</li> <li>Percentages</li> <li>Missing number problems involving addition &amp; subtraction</li> <li>Missing number problems involving two steps</li> <li>Missing number problems involving multiplication &amp; division</li> <li>Missing number problems involving place value (up to 5 digits)</li> <li>Place value problems including multiplication and division</li> </ul> | <ul style="list-style-type: none"> <li>Addition and subtraction of any multiples of 1000 (e.g. <math>7000 + 4000 = 11000</math>);</li> <li>Multiplying and dividing any number by 10, 100 and 1000 (e.g. <math>24 \times 1000 = 24,000</math>, <math>45 \div 100 = 0.45</math>, <math>3.4 \times 10 = 34</math>);</li> <li>Adding/Subtracting a 1 digit number to any number</li> <li>Adding/Subtracting multiples of 10/100 to any 4 digit number (<math>1450 + 200</math>)</li> <li>Multiplication of multiples of 10 and 100 based on known facts (e.g. <math>40 \times 40 = 1,600</math>)</li> </ul> |

### Spoken Language

The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.



#### Unicef RRS Article 13

Every child must be free to express their thoughts and opinions and to access all kinds of information, as long as it is within the law.



#### Unicef RRS Article 29

Every child has the right to an education that should help them to use and develop their talents and abilities.



#### Unicef RRS Article 32

Every child has the right to find out things and share what they think of others, by talking, drawing, writing or in any other way unless it harms or offends other people.

## Year 6 Annual Overview

|  | Week 1  | Week 2   | Week 3  | Week 4   | Week 5                                 | Week 6   |
|--|---|--|---|--|--|--|
| Autumn   | <b>Place Value</b>  |  | <b>Addition and Subtraction</b>   | <b>Multiplication and Division</b>   |  | <b>Algebra</b>   |
|  | <p>Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</p> <p>Round any whole number to a required degree of accuracy</p> <p>Use negative numbers in context, and calculate intervals across zero</p> <p>Solve number and practical problems that involve all areas of number and place value</p> |  | <p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p> <p>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p>Solve problems involving addition, subtraction</p> | <p>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</p> <p>Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</p> <p>Perform mental calculations, including with mixed operations and large numbers</p> <p>Solve problems involving addition, subtraction, multiplication and division</p> <p>Explore the order of operations using brackets; f</p> <p>Identify common factors, common multiples and prime numbers</p> <p>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</p> <p>Establish whether a number up to 100 is prime and recall prime numbers up to 19</p> |  | <p>Use simple formulae</p> <p>Generate and describe linear number sequences</p> <p>Express missing number problems algebraically</p> <p>Find pairs of numbers that satisfy an equation with two unknowns</p> <p>Enumerate possibilities of combinations of two variables</p> |
|  | <b>Fractions</b>  |  | <b>Decimals and Percentages</b>   | <b>Assessment Week</b>   | <b>Length, mass, capacity and time</b> |  |
| <p>Compare and order fractions, including fractions <math>&gt; 1</math></p> <p>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination</p> <p>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</p> |   | <p>Decimals and percentages</p> <p>Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for</p> | <p>Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places</p>  |  |  |  |

|  |  |  |   |
|--|--|--|---|
| <p>Multiply simple pairs of proper fractions, writing the answer in its simplest form</p> <p>Divide proper fractions by whole numbers</p> <p>Use understanding of the relationship between unit fractions and division to work backwards by multiplying a quantity that represents a unit fraction to find the whole quantity (for example, if <math>\frac{1}{4}</math> of a length is 36cm, then the whole length is <math>36 \times 4 = 144\text{cm}</math>).</p> <p>Generate and describe linear number sequences (with fractions)</p> <p>Associate a fraction with division and calculate decimal fraction equivalents</p> | <p>comparison</p> <p>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</p> <p>Multiply one-digit numbers with up to two decimal places by whole numbers</p> <p>Use written division methods in cases where the answer has up to two decimal places</p> |  | <p>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</p> <p>Convert between miles and kilometres</p> <p>Time, time lines, strategies for time questions etc.</p> |
|--|--|--|---|

|                   |   |
|-------------------|---|
| <p>Vocabulary</p> | <p><i>Number: Powers, integer, prime, composite, square, cube, column addition and subtraction, placeholder, factor pairs, composite numbers, prime number, prime factors, square number, cubed number, formal written method, order of operations, common factors, common multiples</i></p> <p><i>Geometry: Regular and irregular polygons, composite rectilinear shapes</i></p> <p>Fractions, decimals and percentages: Proper fractions, improper fractions, mixed numbers Percentage Half, quarter, fifth, two fifths, four fifths, ratio, proportion</p> <p><i>Geometry: Diameter, circumference, dimensions, compare and classify, quadrants, coordinates, acute, obtuse, reflex, right angle</i></p> |
|-------------------|---|

|                      | Week 1  | Week 2 | Week 3  | Week 4 | Week 5  | Week 6   |
|----------------------|---|--------|---|--------|---|--|
| <p><b>Spring</b></p> | <p><b>Perimeter, area and volume</b></p>  |        | <p><b>Properties of shape</b></p>   |        | <p><b>Position and Direction: Coordinates</b></p>   | <p><b>Angles</b></p>   |
|                      | <p>Recognise that shapes with the same areas can have different perimeters and vice versa</p> <p>Recognise when it is possible to use formulae for area and volume of shapes</p> <p>Calculate the area of parallelograms and triangles</p> <p>Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [for example, mm<sup>3</sup> and km<sup>3</sup>].</p> |        | <p>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</p> <p>Draw 2-D shapes using given dimensions and angles</p> <p>Recognise, describe and build simple 3-D shapes, including making nets</p> |        | <p>Recognise the missing coordinate of rectangles, triangles and straight lines. Describe positions on the full coordinate grid (all four quadrants)</p> <p>Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</p> | <p>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</p> <p>Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</p> |

|            | Statistics   | Ratio  | Mock SATs and Revision  |
|------------|--|--|---|
|            | <p>Interpret and construct pie charts and line graphs and use these to solve problems<br/>Link percentages or <math>360^\circ</math> to calculating angles of pie charts.</p> <p>Calculate and interpret the mean as an average</p>  | <p>Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p> <p>Consolidate understanding of ratio when comparing quantities, sizes and scale drawings by solving a variety of problems</p> | <p>Lessons to be based on results of Mock SATs and ongoing revision of key principles</p> |
| Vocabulary | <p><i>Statistics: Interpret/construct pie charts, comparison, interpret data, average, analysis, conclusion</i></p> <p><i>Geometry: Nets, circumference, diameter, radius, properties, quadrilaterals, regular and irregular</i></p> |  |   |