

## Fluency In Mathematics

This document has been created to give guidance on the teaching of key skills and number facts in order to promote mathematical fluency in the pupils of Bugle School. To do this, we need to ensure that children are equipped with the ability to rapidly recall key number facts (arithmetical proficiency) so that they can then use these to support mental and written methods that they will use throughout their mathematical education.

We want to ensure there is consistency and a clear progression in the teaching of mental addition, subtraction, multiplication and division across the school, in line with the expectations of the 2014 National Curriculum. Children need to be taught to use mental calculation approaches as their first port of call when it is efficient and appropriate to do so. They will also need to understand and be able to use estimation and jottings to support their mental strategies.

We will now be completing daily 'Maths Meetings' – a 10 minute slot first thing in the morning whereby children answer 4-6 questions covering recently taught content and introducing some of the other content that requires more time to master, such as time. These questions would be completed on whiteboards and could be differentiated so that groups exceeding or below could be working in a small group with an adult. The questions can be mixed so that more than one area of the mathematics curriculum is covered in a single 'Maths Meeting'. These 'Maths Meetings' do not have to link to the content of your main maths lesson and should not be used as an extension of your daily maths lesson. These short sessions will give a good opportunity to promote and show the importance of efficient, accurate mental strategies as well as providing opportunities for the quick recall of key number facts (such as number bond and times table facts).

'TimesTables Rockstars' and 'Sumdog' are key programmes to use to support the rehearsal of key number facts but should not be used as a way of 'teaching' the number facts. Children need to have a firm understanding of where these facts come from and be able to identify them when presented in different ways before being expected to recall them from memory. We will also be using the KS1 and KS2 '99 club' tests to track children's mental maths.

## Mental Calculation Strategies

### Addition

#### Counting on

Children need to be familiar with 100 square and number lines to support this mental strategy.

Progression:

- Count on from the biggest number, counting in ones (not bridging 10)
- Count on from the biggest number, counting in ones (bridging 10)
- Count on from biggest number, counting in multiples of 10
- Count on from biggest number, counting in multiples of 10 then adding the remaining one

#### Re-ordering

Children need to understand that addition can be completed in any order and sometimes, re-ordering the given number sentence can support more efficient calculation.

Progression:

- Putting the biggest number first
- Finding number bonds to 10 then adding remaining number(s)
- Finding number bonds to multiples of 10 then adding remaining number(s)

#### Compensating for 10

Children need to be able to use their knowledge of adding 10 to support addition of 9 and 11. This can then be applied to adding multiples of 10 and then 100.

Progression:

- Adding 10 then subtracting 1 to add 9
- Adding 10 then adding a further 1 to add 11
- Adding 20 to then add 1 or subtract 1 to add 21 and 19 (this can then be done for any multiple of 10)
- Adding 100, the adding/subtracting 1,2,3 to add 97, 98, 99, 101, 102, 103 (this can then be done for any multiple of 100)

### Using near doubles

Children need to be able to use their knowledge of the ways numbers can be made alongside their knowledge of doubling to efficiently add near doubles.

Progression:

- Near doubles to 20 that are 1 away (e.g.  $12 + 13 = \text{double } 12 + 1$ )
- Near doubles to 20 that are more than 2 away (e.g.  $12 + 15 = \text{double } 12 + 3$ )
- Near doubles of larger 2-digit numbers (e.g.  $44 + 49 = \text{double } 44 + 5$ ) *Children will need to be confident in doubling 2-digit numbers mentally before this can be introduced.*

### Using place value

Children will need a clear understanding of place value before they can use this strategy. Children will be taught to start with adding the ones to support the use of written methods in KS2. Children need to be taught to use jottings to support this strategy.

- Children add the ones digits and jot down the answer, then repeat with the tens digits before mentally adding the two answers
- Repeat the above steps with increasingly large numbers.
- Add the ones then count on in multiples of 10.
- Upper KS2, picture the column method of addition and complete the calculation using jottings to keep track of the calculation

## Subtraction

### Counting back

Children need to be familiar with 100 square and number lines to support this mental strategy.

Progression:

- Count back from the biggest number, counting in ones (not bridging 10)
- Count back from the biggest number, counting in ones (bridging 10)
- Count back from biggest number, counting in multiples of 10
- Count back from biggest number, counting in multiples of 10 then adding the remaining one

### Re-ordering

This can be used when children are completing a calculation using solely subtraction of more than one number (e.g.  $59 - 7 - 9$ )

Progression:

- Subtracting to reach 10 then subtracting the remaining number(s)
- Subtracting to reach multiples of 10 then subtracting remaining number(s)

### Compensating for 10

Children need to be able to use their knowledge of subtracting 10 to support subtraction of 9 and 11. This can then be applied to subtracting multiples of 10 and then 100.

Progression:

- Subtracting 10 then adding 1 to subtract 9
- Subtracting 10 then subtracting a further 1 to subtract 11
- Subtracting 20 to then add 1 or subtract 1 to subtract 19 and 21 (this can then be done for any multiple of 10)
- Subtracting 100, the adding/subtracting 1,2,3 to subtract 101, 102, 103, 97, 98, 99, (this can then be done for any multiple of 100)

## Using place value

Children will need a clear understanding of place value before they can use this strategy. Children will be taught to start with subtracting the ones to support the use of written methods in KS2.

Children need to be taught to use jottings to support this strategy.

- Children subtract the ones digits and jot down the answer, then repeat with the tens digits before mentally adding the two answers (without the need to exchange)
- Children to repeat above with exchanging (e.g.  $96 - 78 =$  ,  $16 - 8 = 8$  then  $80 - 70 = 10$ ,  $10 + 8 = 18$ )
- Repeat the above steps with increasingly large numbers.
- Subtract the ones then count back in multiples of 10.
- Upper KS2, picture the column method of subtraction and complete the calculation using jottings to keep track of the calculation

## Multiplication

### Doubling

Progression:

- Doubling numbers to 10
- Doubling 2 digit numbers using partitioning by doubling the ones digit, then doubling the tens digit and mentally adding the two answers (jottings to be done to support, particularly with higher 2-digit numbers)
- Doubling increasingly large numbers using partitioning
- Doubling decimal numbers (UKS2)

### Counting in multiples

Children need to be able to count in multiples of the tables given for their particular year group. It is important to show the links between numbers, for instance using a secure knowledge of counting in 2s to support counting in 4s. Using materials like a 100 square so that children can picture the position of the numbers and spot patterns are a useful starting point.

### Recall times tables facts

Children need to be able to recall times tables facts quickly and out of order. This needs to be linked to counting in multiples. The use of a 100 square and actions may support this.

### Multiplying by 10, 100 and 1000.

Children need a secure understanding of place value before working on these strategies.

Progression:

- Multiplying by 10 requires the digits to move one place to the left and a place holder 0 put into ones column
- Multiplying by 100 requires the digits to move two places to the left and 2 places holder 0s put into the tens and ones columns.
- This process can then be repeated to show multiplying by 1000 etc
- Multiplying a decimal by 10, 100, 1000 requires the digits to move to the left as previously, but this time at least one place holder will come after the decimal point. Children need to know the conventions surrounding dropping the 0 from an answer after a decimal point unless it is asked for or you are working with money.

It is paramount that children understand it is the digits that move, not the decimal point. Children should not be told to just 'add a 0' – the use of the term 'add' can cause confusion as adding 0 doesn't change a number.

## Multiplying larger numbers by a 1-digit number

Children will need a clear understanding of place value before they can use this strategy. Children will be taught to start with multiplying the ones to support the use of written methods in KS2. Children need to be taught to use jottings to support this strategy.

Progression:

- *2-digit by 1-digit* Children multiply the ones digits and jot down the answer, then repeat with the ones digit and tens digit before mentally adding the two answers
- *3-digit by 2-digit* Children multiply the ones digits and jot down the answer, then repeat with the ones digit and tens digit, then the ones digit and hundreds digit before mentally adding the three answers (this can then be repeated with increasingly large numbers)

## Division

### Halving

Progression:

- Halving even numbers to 10
- Halving even numbers to 20
- Halving 2-digit numbers using partitioning and jottings to support (e.g. to find half of 46, half of 40 = 20, half of 6 = 3, 20 + 3 = 23)
- Halving larger numbers using partitioning
- Halving odd numbers (UKS2)
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### Dividing by 10, 100 and 1000.

Children need a secure understanding of place value before working on these strategies.

Progression:

- Dividing by 10 requires the digits to move one place to the right
- Dividing by 100 requires the digits to move two places to the right
- This process can then be repeated to show dividing by 1000 etc
- Dividing a number by 10, 100, 1000 where the answer is a decimal requires the digits to move to the right as previously, but this time at least one place holder will come after the decimal point. Children need to know the conventions surrounding the use of one 0 before a decimal point.

It is paramount that children understand it is the digits that move, not the decimal point.

### Dividing larger numbers by a 1-digit number

Children will need a clear understanding of place value before they can use this strategy. Children will be taught to start with dividing the tens (or highest value column) to support the use of written methods in KS2. Children need to be taught to use jottings to support this strategy.

Progression:

- *2-digit by 1-digit* Children divide the tens digit by the divisor and jot down the answer, then repeat with the ones digit and the divisor before mentally adding the two answers
- *3-digit by 2-digit* Children divide the hundreds digit by the divisor and jot down the answer, then repeat with the tens digit by the divisor and jot down the answer, then with the ones digit and the divisor before mentally adding the two answers (this can then be repeated with increasingly large numbers)

## **Maths Meetings.**

The following pages show the expected coverage of topics during your morning 'Maths Meetings'. These 10 minute sessions should give children time to answer 4-6 questions on their whiteboards and then review these answers with an adult. Those children who are working at a particularly high or low level, may work on different questions with an adult designated to that group for feedback.

Within a single 'Maths Meeting' a mix of topics may be covered across the 4-6 questions. If a particular area is found to be a weakness within the majority of the group, it may become a focus for the morning meetings for the rest of that week. It is possible that a more in depth lesson may be required to really embed understanding – this should be noted so that a full lesson can be dedicated to this at another time. The first time you visit a topic (particularly if you have not yet taught it in your year group) you may wish to give some started questions based on the previous year group's objectives in order to identify any gaps that may need filling.

## Year 1

<b>Autumn 1</b> <ul style="list-style-type: none"><li>- Count forwards and backwards to 30 in 1s, 2s, 5s and 10s</li><li>- Number bonds up to and including 10</li><li>- Days of the week</li><li>- Tell the time (o'clock)</li><li>- Left and right hand</li></ul>	<b>Autumn 2</b> <ul style="list-style-type: none"><li>- Count forwards and backwards to 40 in 1s, 2s, 5s and 10s</li><li>- 10 times table to 6 X 10</li><li>- Number bonds up to and including 12</li><li>- Tell the time (o'clock)</li><li>- Measuring length (non-standard units)</li></ul>
<b>Spring 1</b> <ul style="list-style-type: none"><li>- Count forwards and backwards to 50 in 1s, 2s, 5s and 10s</li><li>- 10 times table to 12 X 10</li><li>- Number bonds up to and including 14</li><li>- Know and recognise: circle, square, triangle, rectangle</li><li>- Tell the time (half past)</li><li>- Left and right hand</li></ul>	<b>Spring 2</b> <ul style="list-style-type: none"><li>- Count forwards and backwards to 70 in 1s, 2s, 5s and 10s</li><li>- 2 times table to 6 X 2</li><li>- Number bonds up to and including 16</li><li>- Days of the week</li><li>- Tell the time (half past)</li><li>- Measuring length (using cm)</li></ul>
<b>Summer 1</b> <ul style="list-style-type: none"><li>- Count forwards and backwards to 90 in 1s, 2s, 5s and 10s</li><li>- 2 times table to 12 X 2</li><li>- Number bonds up to and including 18</li><li>- Months of the year</li><li>- Tell the time ( o'clock and half past)</li></ul>	<b>Summer 2</b> <ul style="list-style-type: none"><li>- Count forwards and backwards to 100 in 1s, 2s, 5s and 10s</li><li>- 5 times table to 12 X 5</li><li>- Number bonds up to and including 20</li><li>- Months of the year</li><li>- Tell the time ( o'clock and half past)</li><li>- Know and recognise: circle, square, triangle, rectangle, pentagon, hexagon and octagon</li></ul>

## Year 2

<b>Autumn 1</b> <ul style="list-style-type: none"><li>- Count forwards and backwards to 100 in 1s, 2s, 5s and 10s</li><li>- Recap 2, 5 and 10 times tables</li><li>- Number bonds up to and including 30</li><li>- Using <math>&lt;</math>, <math>&gt;</math> and <math>=</math></li><li>- Numbers to 20 in words (correct spelling)</li><li>- Identify names of and number of sides of a 2D shape</li><li>- Tell the time (o'clock and half past)</li><li>- Measuring length (cms)</li></ul>	<b>Autumn 2</b> <ul style="list-style-type: none"><li>- Count forwards and backwards from 100 to 200 in 5s and 10s</li><li>- 2 times tables including division facts</li><li>- Number bonds related facts to 100 (e.g. is <math>7 + 3 = 10</math> then <math>70 + 30 = 100</math>)</li><li>- Numbers from 20 to 40 in words (correct spelling and use of hyphens)</li><li>- Add three 1-digit numbers</li><li>- Identify names of and number of faces of a 3D shape</li><li>- Tell the time (quarter past and quarter to)</li><li>- Measuring length (cms)</li><li>- Turn quarter- and half- turn clockwise and anti-clockwise</li></ul>
<b>Spring 1</b> <ul style="list-style-type: none"><li>- 5 times tables including division facts</li><li>- Number bonds related facts to 100 (e.g. is <math>7 + 3 = 10</math> then <math>70 + 30 = 100</math>)</li><li>- Numbers from 40 to 60 in words (correct spelling and use of hyphens)</li><li>- Add three 1-digit numbers</li><li>- Identify names of, number of faces of and lines of symmetry of a 2D shape</li><li>- Tell the time (o'clock, half past, quarter past and quarter to)</li><li>- Subtraction by counting back from a 2-digit number (not bridging 10)</li></ul>	<b>Spring 2</b> <ul style="list-style-type: none"><li>- 10 times tables including division facts</li><li>- Numbers from 60 to 80 in words (correct spelling and use of hyphens)</li><li>- Add three 1-digit numbers</li><li>- Identify names of, number of faces of and lines of symmetry of a 2D shape</li><li>- Tell the time (10 minute intervals)</li><li>- Subtraction by counting back from a 2-digit number (bridging 10)</li><li>- Identify names of and number of faces and number of edges of a 3D shape</li><li>- Turn quarter- and half- turn clockwise and anti-clockwise making links to <math>90^\circ</math> and <math>180^\circ</math> turns</li></ul>
<b>Summer 1</b> <ul style="list-style-type: none"><li>- Count forwards and backwards from 200 to 400 in 2s, 5s and 10s</li><li>- 4 times tables to <math>4 \times 12</math> (making link to 2 times table)</li><li>- Numbers from 80 to 100 in words (correct spelling and use of hyphens)</li><li>- Use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> with numbers to 200</li><li>- Identify names of, number of faces of and lines of symmetry of a 2D shape</li><li>- Add three 1-digit numbers</li><li>- Tell the time (5 minute intervals to half past)</li></ul>	<b>Summer 2</b> <ul style="list-style-type: none"><li>- Recap all tables covered so far and the division facts for 2s, 5s and 10s</li><li>- Use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> with numbers to 200</li><li>- Identify names of, number of faces of and lines of symmetry of a 2D shape</li><li>- Add three 1-digit numbers</li><li>- Identify names of, number of faces of and lines of symmetry of a 2D shape</li><li>- Tell the time (5 minute intervals)</li><li>- Subtraction by counting back from a 2-digit number (bridging 10)</li></ul>

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| <ul style="list-style-type: none"><li>- Subtraction by counting back from a 2-digit number (bridging 10)</li><li>- Turn quarter-, half- and three-quarter and full- turn clockwise and anti-clockwise making links to <math>90^\circ</math>, <math>180^\circ</math>, <math>270^\circ</math> and <math>360^\circ</math> turns</li></ul> |  |
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## Year 3

<b>Autumn 1</b> <ul style="list-style-type: none"><li>- Count in multiples of 4 to 48</li><li>- Count in multiples of 50 to 1000</li><li>- Write numbers from 100 to 400 in words (correct spelling and use of hyphens)</li><li>- Mental addition 3-digit + 1-digit</li><li>- Mental subtraction 3-digit - 1-digit</li><li>- Recap time (5 minute intervals)</li><li>- Recap tables learnt so far and introduce 4 times table (make explicit links to 2 times table) Perimeter of 2D shapes</li></ul>	<b>Autumn 2</b> <ul style="list-style-type: none"><li>- Count in multiples of 4 to 48</li><li>- Count in multiples of 50 to 1000</li><li>- Count in <math>\frac{1}{2}</math> to 20</li><li>- Compare and order 3-digit numbers using &lt;, &gt; and =</li><li>- Write numbers from 400 to 700 (correct spelling and use of hyphens)</li><li>- 4 times table (make explicit links to 2 times table) with division facts</li><li>- Measure length (cm and mm)</li><li>- Time (1 minute intervals)</li><li>- Identify horizontal and vertical lines</li><li>- Mental addition 3-digit + 2-digit</li></ul>
<b>Spring 1</b> <ul style="list-style-type: none"><li>- Count on and back in multiples of 4 to 48</li><li>- Count on and back in multiples of 50 to 1000</li><li>- Count in <math>\frac{1}{2}</math> to 20</li><li>- Time (10 minutes on and back)</li><li>- 8 times table (explicit links to 4s) with division facts.</li><li>- Counting in <math>\frac{1}{10}</math> to 10</li><li>- Mental subtraction 3-digit - 2-digit</li><li>- 10 more/less than a 2-digit number, a year and a leap year</li><li>- Number of seconds in a minute; number of days in each month</li></ul>	<b>Spring 2</b> <ul style="list-style-type: none"><li>- Count in multiples of 8 to 96</li><li>- Count in multiples of 100 to 2000</li><li>- Counting in <math>\frac{1}{10}</math> to 10</li><li>- Compare and order unit fractions</li><li>- Compare and order 3-digit numbers using &lt;, &gt; and =</li><li>- Mental addition 3-digit + 3-digit</li><li>- Counting in <math>\frac{1}{10}</math> to 10 on and back</li><li>- Identify lines which are parallel and perpendicular</li><li>- Name 2D shapes and list properties of them</li><li>- 3 times tables including division facts</li></ul>
<b>Summer 1</b> <ul style="list-style-type: none"><li>- Write numbers from 700 to 1000 (correct spelling and use of hyphens)</li><li>- Add fractions with the same denominator</li><li>- Mental subtraction 3-digit - 3-digit</li><li>- Time (durations within an hour)</li><li>- Counting in <math>\frac{1}{10}</math> from any number</li><li>- 6 times table (make explicit links to 3 times table) with division facts</li><li>- Measure the perimeter of 2D shapes</li><li>- Name 2D shapes and list properties of them</li><li>- 100 more/less than a 2-digit number</li><li>- Compare and order fractions with the same denominator</li></ul>	<b>Summer 2</b> <ul style="list-style-type: none"><li>- Count in multiples of 8 to 96</li><li>- Count in multiples of 100 to 2000</li><li>- Subtract fractions with the same denominator</li><li>- Recap time</li><li>- Recap all tables learnt so far</li><li>- Identify horizontal and vertical lines and those which are parallel and perpendicular</li><li>- Mental addition and subtraction using numbers with up to 3-digits</li><li>- Mentally calculate 2-digit X 1-digit</li><li>- 10 and 100 more/less than 3-digit numbers</li><li>- Compare and order unit fractions</li></ul>

## Year 4

<b>Autumn 1</b> <ul style="list-style-type: none"><li>- Count backwards through 0 to include negative numbers</li><li>- Count in multiples of 25 to 1000</li><li>- Mental addition and subtraction using numbers with up to 3-digits</li><li>- Mentally multiply 3 numbers</li><li>- Recap time (1 minute intervals)</li><li>- Recap tables learnt so far and introduce 9 times table (make explicit links to 3 times table) with division facts</li><li>- 1000 more/less than a 4-digit number</li><li>- Measure perimeter of 2D shapes</li></ul>	<b>Autumn 2</b> <ul style="list-style-type: none"><li>- Count backwards through 0 to include negative numbers</li><li>- Count in multiples of 6 to 72</li><li>- Mental addition and subtraction using numbers with up to 4-digits</li><li>- Mentally calculate 2-digit X 1-digit</li><li>- Rounding to nearest 10</li><li>- Roman numerals to 12 (link to clock face)</li><li>- 7 times table (make explicit links to 3 times table) with division facts</li><li>- Measure area of 2D shapes by counting squares</li></ul>
<b>Spring 1</b> <ul style="list-style-type: none"><li>- Count in multiples of 9 to 108</li><li>- Mental addition and subtraction using numbers with up to 4-digits</li><li>- Mentally calculate 2-digit <math>\div</math> 1-digit</li><li>- 11 times table with division facts</li><li>- Rounding to nearest 100</li><li>- Roman numerals from 12 -30</li><li>- Dividing 1-digit number by 10</li><li>- Converting between 12- and 24-hour time</li><li>- Converting between units of time (mins to secs; hours to mins; years to months and weeks to days)</li></ul>	<b>Spring 2</b> <ul style="list-style-type: none"><li>- Count in multiples of 7 to 84</li><li>- Mental addition and subtraction using numbers with up to 4-digits</li><li>- Mentally calculate 3-digit X 1-digit</li><li>- 12 times table with division facts</li><li>- Rounding to nearest 1000</li><li>- Roman numerals from 30 - 50</li><li>- Factor pairs</li><li>- Dividing 2-digit number by 10</li><li>- Describe position using co-ordinates in the first quadrant</li></ul>
<b>Summer 1</b> <ul style="list-style-type: none"><li>- Mental addition and subtraction using numbers with up to 4-digits</li><li>- Mentally calculate 3-digit <math>\div</math> 1-digit</li><li>- Recap all times tables with division facts</li><li>- Roman numerals from 50 - 100</li><li>- Factor pairs</li><li>- Dividing 2-digit number by 100</li><li>- Counting up and back in <math>\frac{1}{100}</math> from any number</li><li>- Plot points to draw polygons</li><li>- Identify lines of symmetry</li><li>- Converting between units of measure</li><li>- Decimal equivalents</li><li>- Equivalent fractions</li></ul>	<b>Summer 2</b> <ul style="list-style-type: none"><li>- Mental addition and subtraction using numbers with up to 4-digits</li><li>- Mentally multiply and divide numbers with up to 3 digits by a 1-digit number</li><li>- Recap all times tables with division facts</li><li>- Factor pairs</li><li>- Dividing 2-digit number by 100</li><li>- Counting up and back in <math>\frac{1}{100}</math> from any number</li><li>- Converting between units of measure</li><li>- Rounding decimals with 1 decimal place to the nearest whole</li><li>- Compare and order angles (using terminology of 'acute' and 'obtuse')</li></ul>

**Year 5**

<p><b>Autumn 1</b></p> <ul style="list-style-type: none"> <li>- Count forwards in powers of 10 from any number up to 1,000,000</li> <li>- Interpret negative numbers in context</li> <li>- Round any number to 1,000,000 to nearest 10; 100 and 1000</li> <li>- Mental addition and subtraction of numbers with up to 5 digits.</li> <li>- Recap all times tables and related division facts</li> <li>- Recap dividing whole and decimal numbers by 10 and 100</li> <li>- Recap telling time (to 1 minute)</li> <li>- Identify 3D shapes from 2D representations</li> </ul>	<p><b>Autumn 2</b></p> <ul style="list-style-type: none"> <li>- Count forwards in powers of 10 from any number up to 1,000,000</li> <li>- Interpret negative numbers in context</li> <li>- Round any number to 1,000,000 to nearest 10,000</li> <li>- Roman numerals to 500</li> <li>- Identify all factor pairs of a given number and common factors of two given numbers</li> <li>- Identify multiples of a number</li> <li>- Mental multiplication and division</li> <li>- Dividing whole and decimal numbers by 10, 100 and 1000</li> <li>- Converting between units of time</li> </ul>
<p><b>Spring 1</b></p> <ul style="list-style-type: none"> <li>- Count forwards and backwards with positive and negative whole numbers</li> <li>- Round any number to 1,000,000 to nearest 100,000</li> <li>- Recall prime numbers to 19</li> <li>- Square numbers</li> <li>- Distinguish between regular and irregular 2D shapes</li> <li>- Count forwards and backwards with positive and negative whole numbers</li> <li>- Recap all times tables and related division facts</li> <li>- Roman numerals to 1000</li> </ul>	<p><b>Spring 2</b></p> <ul style="list-style-type: none"> <li>- Count forwards and backwards with positive and negative whole numbers</li> <li>- Recognise years written in Roman numerals</li> <li>- Cube numbers</li> <li>- Establish if a number to 100 is prime</li> <li>- Write decimal numbers as fractions</li> <li>- Round decimals with 2 decimal places to nearest whole and 1 decimal place</li> <li>- Identify multiples of a number</li> <li>- Recap telling time (to 1 minute)</li> <li>- Mental addition and subtraction of numbers with up to 5 digits.</li> </ul>
<p><b>Summer 1</b></p> <ul style="list-style-type: none"> <li>- Round any number to 1,000,000 to nearest 10; 100; 10,000 and 100,000</li> <li>- Perimeter of composite shapes</li> <li>- Calculate area of rectangles</li> <li>- Identify the position of a shape following a reflection or translation</li> <li>- Percentages written as fractions and decimals</li> <li>- Square and cube numbers</li> <li>- Mental multiplication and division with increasingly large numbers</li> <li>- Write decimal numbers as fractions</li> <li>- Identify multiples of a number</li> <li>- Compare and order fractions with denominators that are multiples of the same number</li> </ul>	<p><b>Summer 2</b></p> <ul style="list-style-type: none"> <li>- Reading timetables</li> <li>- Draw and measure angles using degrees</li> <li>- Convert between different measures</li> <li>- Recall prime numbers to 19 and establish if a number to 100 is prime</li> <li>- Recognise years written in Roman numerals</li> <li>- Round decimals with 2 decimal places to nearest whole and 1 decimal place</li> <li>- Identify all factor pairs of a given number and common factors of two given numbers</li> <li>- Converting between mixed numbers and improper fractions</li> </ul>

## Year 6

At the discretion of the class teacher, some content may be need to be prioritised in the run up to SATs in order for children to be fluent in key skills. This content may be covered more frequently during daily 'Maths Meetings'. This time may also be used to fill small gaps from previous year groups.

<b>Autumn 1</b> <ul style="list-style-type: none"><li>- Calculate intervals across 0</li><li>- Round any whole number to a required degree of accuracy</li><li>- Mental calculation using mixed operations</li><li>- Order of operations</li><li>- Multiply and divide by 10,100 and 1000 where answers have up to 3 decimal places</li><li>- Recap all times tables and related division facts</li><li>- Recap time from previous year groups</li></ul>	<b>Autumn 2</b> <ul style="list-style-type: none"><li>- Calculate intervals across 0</li><li>- Mental calculation using mixed operations</li><li>- Order of operations</li><li>- Identify common factors and common multiples</li><li>- Identify prime numbers</li><li>- Add and subtract fractions</li><li>- Use common factors to simplify fractions</li><li>- Use common multiples to express fractions in the same denomination</li><li>- Recap all times tables and related division facts</li></ul>
<b>Spring 1</b> <ul style="list-style-type: none"><li>- Mental calculation using mixed operations</li><li>- Calculate decimal, fraction equivalents</li><li>- Order of operations</li><li>- Make nets of 3D shapes</li><li>- Calculate percentages</li><li>- Recap all times tables and related division facts</li><li>- Conversion between measures</li><li>- Recap time from previous year groups</li><li>- Use common factors to simplify fractions</li></ul>	<b>Spring 2</b> <ul style="list-style-type: none"><li>- Mental calculation using mixed operations</li><li>- Order of operations</li><li>- Recognise that shapes with the same area can have different perimeters</li><li>- Recap all times tables and related division facts</li><li>- Draw 2D shapes using given dimensions and angles</li><li>- Find missing angles</li><li>- Recap time from previous year groups</li><li>- Use common multiples to express fractions in the same denomination</li></ul>
<b>Summer 1</b> <ul style="list-style-type: none"><li>- Mental calculation using mixed operations</li><li>- Order of operations</li><li>- Recap all times tables and related division facts</li><li>- Calculate the area of parallelograms and triangles</li><li>- Position in all 4 quadrants</li><li>- Calculate and interpret the mean as an average</li><li>- Use common multiples to express fractions in the same denomination</li></ul>	<b>Summer 2</b> <ul style="list-style-type: none"><li>- Mental calculation using mixed operations</li><li>- Order of operations</li><li>- Recap all times tables and related division facts</li><li>- Illustrate and name parts of a circle (radius, diameter circumference)</li><li>- Calculate and interpret the mean as an average</li><li>- Calculate the area of parallelograms and triangles</li><li>- Position in all 4 quadrants</li></ul>

