

MATHEMATICS AT NATEBY PRIMARY SCHOOL

THE NATIONAL CURRICULUM

Aims:

The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

How will Maths be taught at Nateby Primary?

Intent

At Nateby Primary School, we believe mathematics is an important part of children's development throughout school, right from an early age. We intend on delivering a curriculum which gives each pupil a chance to believe in themselves as mathematicians and develop the power of resilience and perseverance when faced with mathematical challenges. We recognise that mathematics underpins much of our daily lives and therefore is of paramount importance in order that children aspire and become successful in the next stages of their learning. We aim to make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.

Implementation

How pupils at Nateby Primary will learn Maths.

Reception

The EYFS Statutory Framework is followed and states that:

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It

is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

Number

Children at the expected level of development will: -

- Have a deep understanding of number to 10, including the composition of each number;
- Subitise (recognise quantities without counting) up to 5;
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Numerical Patterns

EYFS Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system;
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Children in Reception are taught the above alongside children in Year One when this fits with their curriculum, otherwise they are taught as discrete units within the 'maths' input.

Key Stage 1 & Key Stage 2

Pupils are taught the Programmes of Study as set out in the National Curriculum. At Nateby, we have adopted the Lancashire Maths plans which break down the Programmes of Study into Year Group objectives. The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

We do not use a specific scheme to teach maths, but draw upon a variety of resources to teach the objectives. LAPs are used to breakdown steps in learning to help fill the gaps for some pupils.

Class One – EYFS & Year One Curriculum Map – Yearly Overview

	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12
AUTUMN	Number - Place Value		Number – Addition, Subtraction		Shape – 2D and 3D	Measures - Length	Statistics - Sorting	Fractions	Measures – Volume & Capacity	Measures - Money	Measures - Time	Assess & Review
SPRING	Number – Place Value, Addition and Subtraction		Number – Multiplication and Division		Counting & Sequencing	Counting & Money	Fractions	Shape – 2D and 3D	Measures – Time,	Measures - Mass/Weight	Shape – Position & Direction	Assess & Review
SUMMER	Number – Place Value, Addition and Subtraction		Number – Multiplication and Division		Measures – Volume & Capacity	Statistics - Sorting	Shape – Position & Direction	Measures - Time	Sequencing	Shape – 2D and 3D	Fractions	Assess & Review

NB – Not all Terms have 12 weeks and there are 39 weeks in total in a school year, so this gives teachers' flexibility to spend more time on certain topics or plan in more 'Assess & Review' days at the end of each topic.

Mental Maths Skills to Practice at home:		
Rapid Recall	Mental Strategies	Mental Calculations
Recall all pairs of numbers with a total of 10. Addition & Subtraction facts for all numbers at least to 5. Doubles of numbers to at least 10. Multiples of 2, 5 and 10 to the tenth multiple.	Count on or back in ones from any number. Reorder numbers in calculations. Begin to bridge through 10 and 20 when adding a single-digit number. Use number facts and place value to add or subtract pairs of single digit numbers. Use patterns of similar calculations. Identify near doubles. Add 9 to a single-digit number by adding 10 then subtracting 1.	Add or subtract a single-digit to or from a single-digit, without crossing 10. Add or subtract a single-digit to or from a 'teens' number. Doubles of all numbers to 10.

Class Two – Year Two & Year Three Curriculum Map – Yearly Overview

	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12
AUTUMN	Number - Place Value		Number – Addition, Subtraction		Shape – 2D and 3D	Measures – Length (Y3 perimeter)	Statistics - sorting	Fractions	Measures – Volume & Capacity	Measures - Money	Measures - Time	Assess & Review
SPRING	Number – Place Value, Addition and Subtraction		Number – Multiplication and Division		Counting & Sequencing	Measures - Mass	Fractions	Shape - Position & Direction	Measures – Money	Measures – Time	Shape – 2D and 3D	Assess & Review
SUMMER	Number – Place Value, Statistics, Addition and Subtraction		Number – Multiplication and Division		Measures – Reading Scales, temperature	Counting & Sequencing (Y3 Decimal Place Value)	Measures – Position & Direction,	Measures - Time	Statistics – Sorting	Shape – 2D and 3D	Fractions	Assess & Review

NB – Not all Terms have 12 weeks and there are 39 weeks in total in a school year, so this gives teachers’ flexibility to spend more time on certain topics or plan in more ‘Assess & Review’ days at the end of each topic.

Mental Maths Skills to Practice at home: Y2 Y3		
Rapid Recall	Mental Strategies	Mental Calculations
<p>Addition & Subtraction facts for all numbers at least to 10 (20).</p> <p>All pairs of numbers with a total of 20 (100).</p> <p>All pairs of multiples of 10 with a total of 100.</p> <p>Multiplication facts for the 2, 5 and 10 times tables (2, 3, 4, 5, 6, 8 and 10).</p> <p>Corresponding division facts.</p> <p>Doubles of all numbers to 20 and the corresponding halves.</p> <p>Sums and differences of multiples of 10.</p>	<p>Count on or back in steps of 2, 3 and 5 (4, 8, 50 and 100) from 0 and 10 from any number.</p> <p>Find a small difference by counting up from the smaller number to the larger number.</p> <p>Reorder numbers in calculations.</p> <p>Add three or four small numbers by putting the largest number first and/or by finding pairs totalling 9, 10 or 11.</p> <p>Bridge through 10 or 20, then adjust.</p> <p>Use number facts and place value to add or subtract pairs of numbers.</p> <p>Use patterns of similar calculations.</p> <p>Identify near doubles.</p> <p>Add 9 to a single-digit number by adding 10 then subtracting 1.</p> <p>Say or write a division statement corresponding to a given multiplication statement.</p>	<p>Add or subtract any single-digit to or from any two-digit, without crossing 10 (or 100).</p> <p>Add or subtract a single-digit to or from a multiple of 10.</p> <p>Add or subtract any ‘teens’ number to any two-digit number without crossing the tens boundary.</p> <p>Find what number must be added to any two-digit multiple of 10 to make 100.</p> <p>Find what number must be added to any multiple of 100 to make 1000.</p> <p>Add or subtract a multiple of 10 from any two-digit number without crossing 100.</p> <p>Add or subtract any single digit to any two-digit number, including crossing the tens boundary.</p> <p>Doubles of all numbers to at least 15 (20) and the corresponding halves.</p>

Year 4 Maths Curriculum Map – Yearly Overview

	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12
AUTUMN	Number - Place Value and Decimals		Number – Written Addition & Subtraction (problems and inverse)		Shape – 2D and 3D	Assess & Review	Multiplication & Division – Written & Mental Calculations		Measures – Length including perimeter	Counting – Multiplication tables x6, x9	Measures - Time	Assess & Review
SPRING	Number – Place Value, Roman Numerals. Counting – incl negative numbers.	Statistics	Fractions, Decimals & Division		Measures – Position & Direction,	Assess & Review	Number – Addition & Subtraction (statistics)	Place Value, Multiplication Incl x7, x11 tables. Written Multiplication		Area	Shape – 2D shape and position	Assess & Review
SUMMER	Number – Addition & Subtraction (statistics)	Number – Multiplication and Division, Fractions and Decimals (measures), Fractions and Written Division			Measures Volume & Capacity, Mass	Assess & Review	Number – Multiplication Facts incl x12 tables	Number/Statistics Counting and sequences (Statistics)		Shape Position & Area		Assess & Review

NB – Not all Terms have 12 weeks and there are 39 weeks in total in a school year, so this gives teachers flexibility to spend more time on certain topics or plan in more ‘Assess & Review’ days at the end of each topic.

Mental Maths Skills to Practice at home:		
Rapid Recall	Mental Strategies	Mental Calculations
<p>Multiplication facts up to 10 x 10 and the corresponding division facts.</p> <p>Multiples of numbers to 10 up to the tenth multiple.</p> <p>Sums and differences of pairs of multiples of 10, 100 or 1000.</p> <p>Doubles of multiples of 10 and 100 and corresponding halves.</p>	<p>Count on or back in repeated steps of 1, 10 or 100.</p> <p>Count up through the next multiple of 10, 100 or 1000.</p> <p>Add three two-digit multiples of 10.</p> <p>Partition into tens and units, adding the tens first.</p> <p>Bridge through 100.</p> <p>Add or subtract the nearest multiple of 10 then adjust.</p> <p>Identify near doubles.</p> <p>Double any two-digit number by doubling the tens first.</p>	<p>Find what number must be added to any two-digit number to make 100.</p> <p>Add or subtract any pair of two-digit numbers.</p> <p>Subtract any four-digit number from any four-digit number where the difference is small.</p> <p>Double any whole number from 1-50 and find all the corresponding halves.</p> <p>Double any multiple of 5 to 100.</p> <p>Multiply any two-digit number by 10.</p> <p>Multiply any two-digit multiple of 10 by any single-digit number.</p>

Class Three – Year Five & Year Six Curriculum Map – Yearly Overview

	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk12
AUTUMN	Number - Place Value and Decimals Written + and – including problems (Y6 Problems and inverse) .			Geometry and Measures – angles, perimeter		Fractions- compare, order, equivalenc e	Mental Multiplication & Division (factors, multiples) Division incl problems (Y6 Written & Mental)		Measures - Area	Addition and Subtraction (statistics)	Statistics and Measures - Time	Assess & Review
SPRING	Number – Place Value, Roman Numerals. Counting – incl negative numbers.	Fractions, Decimals and Division		Calcul ating with Fractio ns	Shape – 2D and 3D incl sorting. Position & Direction		Number – Addition & Subtraction incl problems	Geometry Reflection, translation, angles.		Measures Length, Mass and Capacity. Area & Volume (Statistics)		Assess & Review
SUMMER	Number – Addition & Subtraction	Number – Multiplication and Division, Fractions and Decimals (measures), Fractions and Written Division.			Measures Volume & Capacity, Mass		Number – Multiplicatio n and Division	Counting and sequence s	Measures (time) and statistics	Shape 2D and 3D Area and Volume of shapes		Assess & Review

NB – Not all Terms have 12 weeks and there are 39 weeks in total in a school year, so this gives teachers flexibility to spend more time on certain topics or plan in more ‘Assess & Review’ days at the end of each topic.

Mental Maths Skills to Practice at home: Y5 Y6		
Rapid Recall	Mental Strategies	Mental Calculations
<p>Multiplication facts up to 10 x 10 and the corresponding division facts.</p> <p>Sums and differences of decimals.</p> <p>Doubles and halves of decimals.</p> <p>Multiplication and division facts involving decimals.</p> <p>Squares of numbers to 12 x 12 and corresponding squares of multiples of 10.</p>	<p>Count up through the next multiple of 10, 100 or 1000.</p> <p>Partition into hundreds, tens and units, adding the most significant digit first.</p> <p>Use known number facts and place value to add or subtract pairs of three-digit multiples of 10 and two-digit numbers with one decimal place.</p> <p>Add or subtract the nearest multiple of 10 or 100 (and 1000) then adjust.</p> <p>Partition to carry out multiplication.</p> <p>Use the relationship between multiplication and division.</p> <p>Add several numbers.</p> <p>Use factors.</p> <p>Use knowledge of number facts and place value to add or subtract pairs of three-digit multiples of 10 and two-digit numbers with one decimal place.</p>	<p>Add or subtract any pair of three-digit multiples of 10.</p> <p>Find what must be added to a decimal fraction with units and tenths to make the next higher whole number.</p> <p>Add or subtract any pair of decimal fractions each with units and tenths, or each with tenths and hundredths.</p> <p>Double any whole number from 1 to 100, multiples of 10 to 1000, and find corresponding halves.</p> <p>Find 50%, 25%, 10% of small whole numbers or quantities.</p> <p>Find any multiples of 10% of a whole number or quantity e.g. 70% of £20, 50% of 5kg, 20% of 2 metres.</p> <p>Subtract a four-digit number just less than a multiple of 1000 from a four-digit number just more than a multiple of 1000.</p> <p>Multiply any two-digit number by a single-digit e.g. 34 x 6</p> <p>Multiply any two-digit number by 50 or 25 e.g. 23 x 50</p>

	Use doubling and halving.	Multiply or divide any whole number by 10 or 100, giving any remainder as a decimal. Find squares of multiples of 10 to 100.
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WIDER EXPERIENCES – Cultural Capital & multiculturalism

Cultural capital is the accumulation of knowledge, behaviours, and skills that a child can draw upon and which demonstrates their cultural awareness, knowledge and competence; it is one of the key ingredients a pupil will draw upon to be successful in society, their career and the world of work. Cultural capital gives power. It helps children achieve goals, become successful, and rise up the social ladder without necessarily having wealth or financial capital. Cultural capital is having assets that give children the desire to aspire and achieve social mobility whatever their starting point. It is our aim at Nateby Primary to provide children with a high quality maths education which will enable children to reach their full potential.

COVID 19 RESPONSE

Children who were home schooled received the same content of learning in Maths as those who were taught in school. However, we appreciate that this may have looked differently from one child to another and from pupils taught in school. As a result, and part of our ‘good practice’ whenever a new topic/programme of study is being taught in Maths, pupils complete an initial assessment. This then quickly informs future planning and helps to group children accordingly.

Impact

Through careful planning, often involving several ability groups and sometimes individual lesson planning, pupils at Nateby Primary receive a high-quality mathematics education which provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Pupils are assessed throughout each lesson and any misconceptions are quickly dealt with, either on the spot, or later in the day. Next step marking is used to tackle any mistakes and misunderstandings, but also as a way of checking pupils understanding by applying the skill in a more problem solving type of way.

Teachers use formative assessment to plan the next steps in pupils learning on a day-to-day basis. Summative assessment may be used at the end of a particular unit or at the end of a term. At the end of a particular Key Stages, formal assessments are conducted by pupils.

Teachers use assessments to inform tracking of pupil’s attainment at the end of each term. Attainment is reported to parents at parents evening and in the end of school year report.