Maths

Intent

Rollesby
Primary School with Nursery

Intent

Maths

Why is maths important?

Mathematics is an important creative discipline that helps us to understand and change the world. We want all children at Rollesby Primary School to experience the beauty, power and enjoyment of mathematics and develop a sense of curiosity about the subject with a clear understanding. At Rollesby we foster positive attitudes and we promote the fact that 'We can all do maths!' We believe all children can achieve in mathematics, and teach for secure and deep understanding of mathematical concepts through manageable steps. We use mistakes and misconceptions as an essential part of learning and provide challenge through rich and sophisticated problems. At our school, children will spend time becoming true masters of content, applying and being creative with new knowledge in multiple ways.

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Aims of the maths curriculum:

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 a 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 nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

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Our maths curriculum is:

• Informed by the National Curriculum;

• Carefully planned and structured to follow a clear pathway of progression through children's time at primary school

• Shaped by our school vision which aims to enable all children, regardless of background, ability or additional needs, to flourish to become the very best version of themselves they can possibly be.

Early Years

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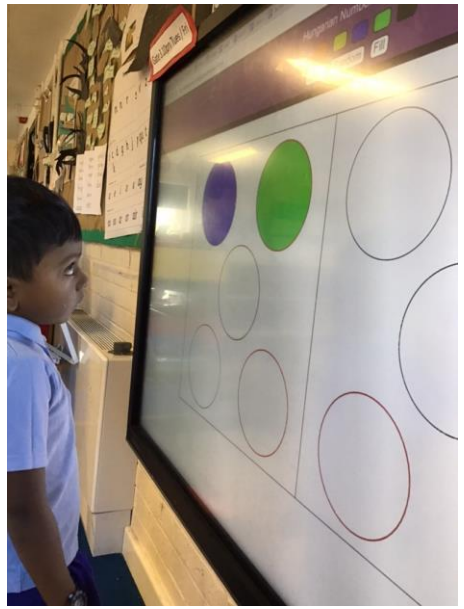
Mathematics is one of the specific areas of learning and development within the Early Years Foundation Stage.

The EYFS requires that settings provide children with ‘opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces and measures’.

In the EYFS, mathematics is also divided into two aspects: number and shape, space and measure.

Early Years



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Working mathematically in Key Stage 1:

The principal focus of mathematics teaching in key stage 1 is to ensure that children develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools]. At this stage, children should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, children should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Children should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

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Working mathematically in Lower Key Stage 2:

The principal focus of mathematics teaching in lower key stage 2 is to ensure that children become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, children should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that children draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. By the end of year 4, children should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Children should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

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Working mathematically in Upper Key Stage 2:

The principal focus of mathematics teaching in upper key stage 2 is to ensure that children extend their understanding of the number system and place value to include larger integers. This should develop the connections that children make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, children should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, children are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that children classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, children should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Children should read, spell and pronounce mathematical vocabulary correctly.

Content and sequence - EYFS

EYFS maths is taught through a bespoke curriculum planned for our mixed age classes.

Autumn	Phase	Getting to know you Settling in opportunities Introduce areas of provision Exploring the continuous provision inside and out Use positional language	**Just Like Me!**	**It's Me 1, 2, 3**	**Light and Dark**	Consolidation time
	Number		Match and sort Compare amounts	Representing 1, 2 & 3 Comparing 1,2 & 3 Composition 1.2 & 3	Representing numbers to 5 One more, One less	
	M, S and ST		Compare size, mass and capacity Exploring pattern	Circles and triangles Positional language	Shapes with 4 sides Time	
Spring	Phase	**Alive in 5!**	**Growing 6,7,8**	**Building 9 & 10**	Consolidation	
	Number	Introducing zero Comparing numbers to 5 Composition of 4 & 5	6. 7 & 8 Combining two amounts Making pairs	Counting to 9 & 10 Comparing numbers to 10 Bonds to 10		
	M, S and ST	Compare mass (2) Compare capacity (2)	Length and height Time	3D shapes Patterns		
Summer	Phase	**To 20 and Beyond**	**First - Then - Now**	**Find My Pattern**	**On the move!**	
	Number	Building numbers beyond 10 Counting patterns beyond 10	Adding more Taking away	Doubling Sharing and grouping Even & odd	Deepening understanding Patterns & relationships	
	M, S and ST	Spatial reasoning (1)	Spatial reasoning (2)	Spatial reasoning (3)	Spatial reasoning (4)	

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Content and sequence – KS1

KS1 maths is taught through a bespoke curriculum planned for our mixed age classes.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Autumn	Number and Place Value			Addition and subtraction			Measures		Multiplication And Division			Geometry		
Spring	Fractions		Measures		Addition and subtraction		Number and Place Value			Measures		Statistics		
Summer	Number and Place Value		Addition and subtraction		Fractions		Multiplication and Division	Geometry		Measures		Statistics		

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Content and sequence – KS2

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KS2 maths is taught through a bespoke curriculum planned for our mixed age classes.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Autumn	Number and Place value			Addition and subtraction		Geometry		Multiplication and Division		Fractions Decimals and Percentages				
Spring	Measures		Number and Place Value / Algebra (Y6 only)		Addition and subtraction		Statistics		Multiplication And Division					
Summer	Fractions Decimals and Percentages				Geometry			Statistics		Measures				

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Implementation

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We teach the National Curriculum using resources from White Rose, NCETM, Nrich and other recommended sources.

The curriculum has been written to ensure that skills and knowledge are built on year by year and sequenced appropriately to maximise learning for all children.

It has been designed to ensure the mixed age classes are able to access their appropriate year group.

Minimum lesson expectations:

All maths lessons will incorporate the following elements:

- Explicit teaching of vocabulary
- Revisiting of prior learning
- Question comprehension and applying a method
- Whole class feedback
- Every child challenged every lesson
- Fluency, reasoning and problem solving in most lessons
- Evidence of learning in pupil's books

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Vocabulary in EYFS to Year 6:

When discussing their findings or presenting information, children are encouraged to speak using full sentences and incorporating key mathematical vocabulary to explain their thinking.

This is modelled by teachers using strategies such as thinking talk. Pupils are encouraged to use sentence stems to develop their explanation and reasoning skills.

These stems sentences include:
I know this…..because...
I can explain it by.....
I have noticed that……..
I think this because…….
If I know this….
I know that…..

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Tailoring for SEND:

At Rollesby we aim for all mathematics lessons and learning questions to be accessible to all pupils.
We provide concrete and pictorial prompts to aid understanding and recall.
In addition, working walls are utilised in all lessons to minimise cognitive overload, so children can use and apply their knowledge more easily.
Sentence stems can be used where necessary to aid with written reasoning and problem solving.
Pre and post teaching of mathematical vocabulary and fluency skills provide all children with the opportunity to demonstrate an understanding of their mathematical learning.

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Multiplication Tables Check

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Schools in England are required to administer an online multiplication tables check (MTC) to Year 4 children. The purpose of the MTC is to determine whether children can recall their times tables fluently, which is essential for future success in mathematics. It will help schools to identify children who have not yet mastered their times tables, so that additional support can be provided.

Children in Year 4 are given staggered times tables tests to identify focus areas and to help build fluency. To further support children with their multiplication practice we use ‘Times Tables Rockstars’ as an online learning platform, which also offers resources to be used in the classroom.

Impact

Book Look

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Senior leaders and subject leaders regularly undertake a Book Look to monitor the effectiveness of teaching and learning.
This includes sessions with small groups of pupils using questioning to check and ensure information and knowledge is acquired and understood with increasing confidence. Feedback is given to teaching staff to inform future planning.

Impact

Teacher Assessment

- Key questioning
- Key vocabulary
- Verbal feedback
- Plenaries designed to check understanding of lesson topic and reasoning
- Use of termly assessments to help measure progress
- QLA of termly assessments to inform next steps

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