



At Rockcliffe, we believe that:

- ✓ No child should be left behind
- ✓ All children can excel in mathematics
- ✓ Deep understanding is important and achievable
- ✓ Every child can enjoy mathematics

There are three key features of the way in which we deliver the maths curriculum that equip pupils with a deeper understanding:

Objects and pictures – Children use concrete manipulatives (objects) and pictorial representations (pictures), before moving to abstract symbols (numbers and symbols).

Language development – The way that children speak and write about mathematics has been shown to have an impact on their success. We use a carefully sequenced, structured approach to introduce and reinforce mathematical vocabulary. Every lesson includes opportunities for children to explain or justify their mathematical reasoning.

Problem solving – Mathematical problem solving is at the heart of our approach – it is both how children learn maths, and the reason why they learn maths. By accumulating knowledge of mathematical concepts, children can develop and test their problem solving in every lesson.



North Tyneside schools are following a programme towards 'mastery in mathematics', ensuring pupils have a deep understanding of mathematical concepts; they explore these using objects, pictures and through conversation as well as written symbols and numbers. Mathematics mastery puts fluency, reasoning and problem solving at the centre of every maths lesson enabling children to become deep thinkers and resilient learners.



Structure of lessons: Maths is taught every day for about an hour. From Reception, our lessons begin with 'Trio time', a 15-minute warm up focusing on fluency with maths facts and revision of key concepts; revision of number bonds, times tables and a short problem-solving activity that links to the main focus of the lesson. The main part of the lesson provides a mix of practical and written work, and the children are given plenty of opportunities to see how maths links to other areas of the curriculum, and real-life situations. Children are challenged to deepen their thinking and apply what they have learnt through 'Diving Deeper' challenges. A short plenary activity provides a summary, consolidation and assessment of knowledge and skills at the end of the lesson – this may be a quiz or a quick whole class problem-solving task.

In Reception your child will be working with numbers every day and will start to explore ideas such as counting, measuring and using mathematical language. The EYFS Framework says that by the end of Reception, children should be able to:

- Verbally count beyond 20, recognising the pattern of the counting system
- Compare quantities up to 10, 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
- Have a deep understanding of number to 10
- Subitise (recognise quantities without counting) up to 5
- Automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

In Key stages One and Two, we follow the National Curriculum. Units of work are taught across the year in *Number & Place Value, Addition & Subtraction, Geometry, Measures, Multiplication & Division, Fractions, and Statistics.*

13 + 16 = 58 + 97 = 25 + 32 = 47 + 29 =

Circle the calculation you think will have an answer between 50 and 60.

Fill in the missing numbers.

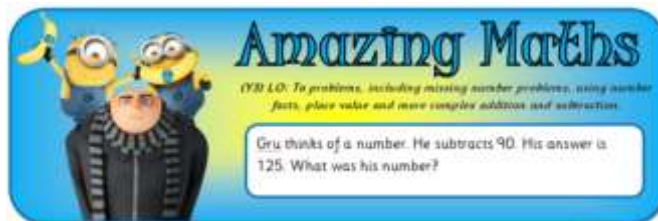
Start	Add 5	Add 50	Add 500
342			
	322		
		246	

Three minions ate 25 cupcakes.
Each of them ate a different odd number of cupcakes.
How many cakes did they each eat?
Find as many ways as you can.

Find the errors in Gru's calculations and then find the correct answer.

Calculation	Error	Correct Solution
$\begin{array}{r} 26 \\ + 35 \\ \hline 511 \end{array}$		

At Rockcliffe, we have developed our own unique approach to assessing maths. 'Amazing Maths' is a themed lesson which consolidates the unit's learning with calculations, puzzles and problems presented in a creative context. The stimulus may be a story, a film clip, a piece of music or an experience. These lessons provide assessment of children's understanding and level of development in the key skills of visualisation, estimation, communication, problem-solving and reasoning.



Times Tables Rock Stars

Times Tables Rock Stars is a carefully sequenced programme of daily times tables practice. All children in Key Stage 1 and 2 have a Times Table Rock Star account which allows them to access the app on a device (iPad, computer or smart phone) at home as well as school. The programme is specially designed to assess and support children's learning of multiplication and division facts, which is essential to help them calculate efficiently in all areas of maths.

Helping your child at home

We are often asked how parents can best support their child's learning in maths at home. The most straightforward and valuable help you can give is to:

1. Practise and reinforce number bonds - i.e. Pairs of numbers to 10. Once children know these well, it is easy for them to start to scale up, eg. If $3+7=10$, then $13+7=20$, $130+70=200$ and so on.
2. Mental addition and subtraction – Giving a target number eg. 30 and then different starting numbers to which children must add another number to reach the target or from which they must subtract a number to reach the target.
3. Times tables – Quick recall of these is the key to children being able to calculate accurately and confidently as they move on to more formal written methods for addition, subtraction, multiplication and division with larger numbers.

We realise that written methods for adding, subtracting, multiplying and dividing may differ slightly from the way you were taught at school, therefore each school year we will send home a helpful booklet showing you exactly which calculation strategies we teach in each year group throughout school.

Play games that involve numbers, such as bingo, dice, card games and board games; sing songs and rhymes such as 'Five Currant Buns in the Baker's Shop', or 'Ten Green Bottles'; order model animals by size and use the words 'longer/taller than', 'shorter than', 'longest/tallest' and 'shortest'; weigh and measure out ingredients for recipes; sort small objects, making groups of 3, 4, 5 or 6 things or ask them to make '8' in as many ways as they can (e.g. 4 and 4; 5 and 3; 2 and 6); help your child to practise using a ruler for drawing straight lines and measuring.

There are of course, some great websites and apps available for supporting children's learning in maths: At school we find that children really enjoy **Hit the Button** (website & app providing rapid practice in +, -, x, and ÷). Other apps that get a good review are **Math Bingo**, **Times tables: Squeebles Multiplication**, **Mr Thorne's: Addition Space Station**, **Times Table Terra**, **Divide + Conquer**.

