

Mathematics at St Nicholas C of E Primary School

Vision – The St Nicholas C of E Primary School curriculum provides a **hands on, investigative approach** with **memorable moments** and **challenge for all**. Through this, children develop **high expectations** and **aspirations** for themselves, **curiosity** and a passion to drive their own learning. Our values and moral code underpin an **ethos of care** within our **safe, nurturing environment**. We provide a **journey of learning** whilst developing each child holistically and recognising the uniqueness of every individual learner.

Intent

At St. Nicholas C of E Primary School, our intent for Mathematics is to teach, through engaging, explorative and creative lessons, a rich, hands-on, investigative, balanced and progressive curriculum using Maths to reason, problem solve and develop fluent conceptual understanding in each topic area and across subjects. Becoming fluent in the fundamentals of Mathematics, including through varied and frequent practice with increasingly complex problems over time, will mean that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. This results in giving each pupil a chance to believe in themselves as mathematicians and develop their confidence and the power of resilience and perseverance when faced with mathematical challenges. Our curriculum recognises that Maths underpins much of our daily lives, and, with that in mind, allows children to better make sense of the world around them by making connections between Mathematics and essential everyday life skills, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment.

Implementation

- Throughout the school, Reception to Year 6, we use the White Rose Maths scheme of learning as the basis for our Maths planning and to ensure coverage. The structure of the Mathematics curriculum across school shows clear progression in line with age related expectations. Teaching curriculum content in blocks allows children to explore skills and knowledge in depth and gain a secure understanding of particular subject matter. The small steps they provide ensure a sequence of progressive learning and is based on the 2014 National Curriculum.
- 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 mastery 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.

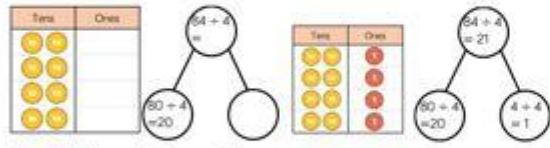
- Lessons may be personalised to address the individual needs and requirements of a class but coverage is maintained. Activities are differentiated to ensure there is appropriate challenge for all.
- In order to further develop the children's fluency, reasoning and problem-solving, we use a range of resources including those provided by Numberblocks, Mastering Number, Target on Maths, NCETM, NRICH, Third Space Learning and Classroom Secrets to enrich our children's Maths diet.
- Curriculum progression maps are based on the White Rose yearly overviews which set the curriculum out in blocks enabling children to get to grips with different areas of Maths through extended periods of time.
- Teachers and support staff implement the schools agreed calculation policies for progression in written and mental calculations.
- Fluency skills are constantly revisited with Reception and KS1 following the NCETM Mastering Number programme which aims to strengthen the understanding of number, and fluency with number facts, among children in the first three years of school. KS2 have dedicated Mental Maths and Times Tables sessions.
- As well as being fluent mathematicians, we want pupils to love and learn more about Mathematics through experimentation:

How might this sequence continue?  Describe the ways in which your sequences are similar and how they are different.	Dora says,  The taller you are, the longer your shoes are. Measure the height of people in your class and measure the length of their shoes. Is Dora correct?
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- Daily Maths lessons include recap/revisit, fluency, reasoning and problem solving.
- We implement our approach through high quality teaching delivering appropriately challenging work for all individuals using the CPA approach. This approach enables pupils to visualise and understand Mathematics by making connections between different representations:

Jack is dividing 84 by 4 using place value counters.

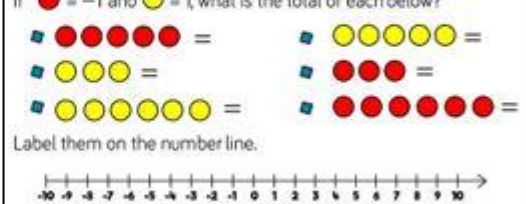
First, he divides the tens. Then, he divides the ones.



Use Jack's method to calculate:

$69 \div 3$ $88 \div 4$ $96 \div 3$

If $\bullet = -1$ and $\circ = 1$, what is the total of each below?



Label them on the number line.

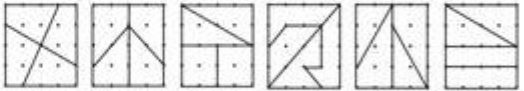
- To support the 'Concrete' part of our CPA approach, we have a range of mathematical resources in classrooms including Numicon, Base10 (Dienes) and counters. When children have grasped a concept using concrete equipment, images and diagrams are used (pictorial) prior to moving to abstract questions. Abstract Maths relies on the children understanding a concept thoroughly and being able to use their knowledge and understanding to answer and solve Maths without equipment or images.
- Resources and equipment are audited regularly so that children have materials of high quality and accuracy to support their learning. Our resources allow us to better use models and images to support learning in each area and enable the progression from concrete to pictorial to abstract. Children are familiar with these resources and can access them independently where needed.
- We place great emphasis on the use of correct mathematical vocabulary which is used by all staff and pupils. This is discussed with and explained to children who are then encouraged to use it independently when talking about Maths. This allows them to take ideas further.

If I know the length and width of a rectangle, how can I calculate the perimeter? Can you tell me 2 different ways? Which way do you find the most efficient?

If I know the perimeter of a shape and the length of one of the sides, how can I calculate the length of the missing side?

Can a rectangle where the length and width are integers, ever have an odd perimeter? Why?

Which of these shapes are split into quarters and which are not?



How many more ways can you find to split a 4 by 4 dotty square into quarters?

- Vocabulary is displayed clearly on working walls and is referred to in every lesson.
- Feedback is given on children's learning in line with our feedback policy. Formative assessment within every lesson helps teachers to identify the children who need more support to achieve the intended outcome through post-teach or revisiting in the next lesson, and those who are ready for greater stretch and challenge through planned questioning or additional activities.
- Maths is taught across the curriculum ensuring that skills taught in these lessons are applied in other subjects e.g. Science investigations and timelines in History.
- Through our teaching we continuously monitor children's progress which is assessed and tracked on a weekly basis using INSIGHT, our school assessment and tracking tool. Planning and interventions are adjusted and used accordingly.

- Summative assessments are completed at the end of each White Rose Maths unit of work and at the end of every term through White Rose Maths End of Block assessments. In addition, we use NFER Maths assessments at the end of the Summer Term. These results form discussions in termly Pupil Progress Meetings and are used to update INSIGHT. The main purpose of all assessment is to always ensure that we are providing excellent provision for every child.
- We continuously strive to better ourselves and frequently share ideas and things that have been particularly effective. We take part in training opportunities and moderation opportunities. Moderation takes place internally, through our MAT and with consortia schools.
- National Maths Day is celebrated in school and we also hold competitions using Mathletics and Times Table Rock Stars.
- In order to advance individual children's Maths skills in school and at home, we utilise Times Tables Rock Stars for multiplication practise, application and consolidation. In Years 1 to 6, Maths Homework is set fortnightly using Mathletics which is aligned to White Rose Maths, therefore reflecting the teaching that is happening in school.

Impact

- All children make at least expected progress from their starting points.
- Most children reach end of year expectations.
- Children demonstrate a quick recall of facts and procedures. This includes the recollection of the times table.
- Children are able to independently and fluently apply their knowledge to a range of increasingly complex problems.
- Children are reasoning with increased confidence and accuracy.
- Children understand the relevance and importance of what they are learning in relation to real world concepts.
- Children have a positive view of Maths due to learning in an environment where Maths is promoted as being an exciting and enjoyable subject in which they can investigate and ask questions; they know that it is OK to be 'wrong' and that this can strengthen their learning.
- Children are confident to 'have a go' and choose the equipment they need to help them to learn along with the strategies they think are best suited to each problem.
- Children show a high level of pride in the presentation and understanding of the work

We measure the impact of our curriculum through the following methods:

- Children's progress being assessed and tracked using INSIGHT.
- Pupil Progress Meetings where children who are 'off track' from their starting points are identified and actions planned to bring them back on track.
- A reflection on skills achieved against the planned outcomes.
- Pupil discussions about their learning; which includes discussion of their thoughts, ideas, processing and evaluations of work.
- Learning Walks
- Lesson Observations
- Book Monitoring

- Moderation – internal, within the MAT and with our consortia schools.
- Local and National Data.