St Jude's C of E Primary School's Subject Stories
Mathematics



Intent

Here at St Jude's we have a passion for high quality teaching and learning of mathematics. We believe that every child can succeed in maths and we aim to instil this belief in the children themselves.

The national curriculum for mathematics requires 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*

Implementation

The principles of Teaching for Mastery, a product of extensive research into the highly successful teaching practice in Singapore and Shanghai, are used consistently throughout the school. A whole class teaching approach is adopted, keeping the class working together, with no acceleration to new content. This is to avoid superficial, surface learning and foster a deep, secure understanding of all the concepts taught. The learning needs of every child are addressed through skilful questioning and appropriate, immediate intervention – this provides the necessary scaffolding or challenge for all.

The curriculum focuses on four areas: number, measurement, geometry and statistics across the year. Within these areas, concepts are taught slowly and at great depth to ensure the learning is secure and sustainable. Included in every lesson are fluency, reasoning and problem solving tasks, giving the children the opportunity to explore the concept being taught extensively before moving on to the next. Questions are designed carefully by the teachers to provide intelligent practice, developing and embedding conceptual fluency. We believe in exposing the children to multiple representations of a concept, using concrete, pictorial and abstract examples simultaneously to support the children's understanding.

At St Jude's, we place high importance on mathematical talk. As a result, lessons include regular opportunities for the children to discuss their understanding and explain their thinking, both with the adults and their peers. Accurate use of vocabulary and terminology features prominently in our lessons, with teachers both modelling and expecting it from the children. We believe this will support our children when faced with a range of mathematical problems.

Children are given maths homework weekly at St Jude's – mathematical activity will be provided, linking to the learning done in class that week and encouraging the children to practise and embed their skills further.

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Impact

KS1

	2017	2018	2019
Expected Level +	93% (National Average 75%) (Lambeth Average 79%)	81% (National Average 76%) (Lambeth Average 79%)	83% (National Average 76%) (Lambeth Average 79%)
Greater depth standard	23% (National Average 20%) (Lambeth Average 24%)	33% (National Average 22%) (Lambeth Average 26%)	27% (National Average 22%) (Lambeth Average 23%)

KS2

	2017	2018	2019
Expected Level +	81% (National Average 75%) (Lambeth Average 83%)	96% (National Average 76%) (Lambeth Average 80%)	81% (National Average 84%) (Lambeth Average 79%)
Working at higher standard	26% (National Average 23%) (Lambeth Average 30%)	44% (National Average 24%) (Lambeth Average 27%)	23% (National Average 27%) (Lambeth Average 31%)

- ✓ Our maths curriculum and the teaching strategies we employ have promoted progress in our attainment scores in KS1 and KS2 since 2017. As seen in the tables above show, overall we have made progress to be performing above national averages and above Lambeth averages in KS1, and in KS2 in most years.
- ✓ Monitoring of staff lesson design shows strong evidence of staff subject knowledge and understanding of the mathematical concepts being taught. Layered tasks and microscopic progression between tasks allow children to make connections in their learning.
- ✓ All learning is matched appropriately to the age group being taught.
- ✓ Our pupils' work in books consistently shows evidence of opportunities for fluency, reasoning and problem solving.
- ✓ Children are prepared year on year for the next step in their mathematics education.

If you were to walk into mathematics lessons at St Jude's, you will see:

- Small steps between and within lessons.
- Each lesson has one, small key point.
- Questions are carefully planned and used throughout the lesson to target children's fluency and reasoning skills.
- Ping pong style teaching where ideas and activities regularly move from teacher to children and back again.
- Children are given opportunities to share and critique answers or strategies.
- Children are given opportunities in a lesson and encouraged to identify and recognise patterns and rules, rather than just shown how to find the answer.
- A CPA approach where concrete, pictorial and abstract representations are used fluidly to allow deep, sustainable learning for all
- Children are expected to understand and use the correct, precise mathematical vocabulary when explaining their maths. Due to a consistent approach across the school, the children are confident to do this both verbally and in written work.
- Children will be given opportunities to practise and use their number skills, and apply them in different contexts.
- Adults in lessons will quickly identify children who are struggling within the lesson. Adults will float between tables to support and question children to deepen their understanding.

An example of skill progression within our mathematics curriculum:

Mathematical area of learning: Number and place value						
Reception: Selects the correct numeral to represent **1 to 5**, then 1 to 10 objects.	**Year 1:** Count, read and write numbers to **100** in numerals.	**Year 2:** Read and write numbers **to at least 100** in numerals **and** words.	**Year 3:** Read and write numbers up to **1,000** in numerals and in words.	**Year 4:** Recognise the place value of each digit in a four digit number.	**Year 5:** Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.	**Year 6:** Read, write, order and compare numbers to at least 10,000,000 and determine the value of each digit.

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Our Diverse Curriculum

As a school, we are passionate that our children receive a broad, balanced, inclusive and diverse curriculum. We have developed anti-racist commitments, and endeavor to fulfill these in every curriculum area, including mathematics. Within this subject, we will ensure:

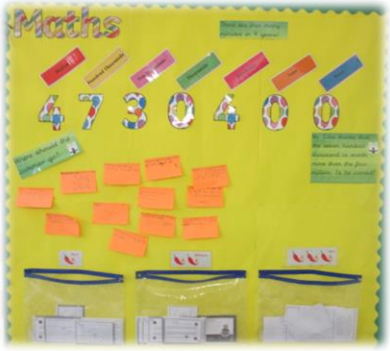
- Diverse texts about STEM (Science, Technology, Engineering and Mathematics) are present in our class and virtual libraries, especially those which celebrate key figures of different ethnic backgrounds
- Time in the school calendar is designated to celebrating significant figures in history who have contributed to the knowledge and understanding of mathematics. These celebrations will include a diverse range of people, including different ethnicities, genders and cultural backgrounds.
- Other opportunities are utilised to explore, promote and celebrate diverse figures, such as Family Learning Projects, Home Learning activities, newsletter items, Twitter posts, World Book Day, Science Week, and local community events.

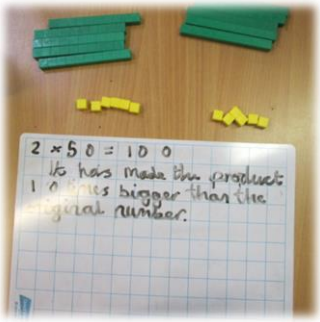
Outstanding examples of learning outcomes and mathematics at St Jude's

Visit from Debbie Morgan, NCETM *(National Centre for Excellence in the Teaching of Mathematics)* Director for Primary in 2018. She met with the children to discuss their learning and the impact of their maths lessons.

Our maths displays are interactive and relevant to the learning happening the lessons. They are updated regularly to support the children's understanding.

Examples of children using varied representations to access their learning.





The children are encouraged to answer in full sentences, both in their verbal and written answers.

Remote Learning

Whilst children are learning remotely, the following approaches are taken to ensure mathematics teaching and learning is consistent and of a high quality:

- Maths lessons are planned daily and uploaded to the Google Classroom
- Resources are planned and designed carefully to support the learning objective each day
- Teachers use the DfE ready-to-progress criteria to inform their planning and monitor progress
- Google Forms are designed to assess end-of-block learning (similar to when the children are in the classroom)
- Lessons include a 'Do it Now' task at the beginning of each lesson to review prior learning
- Teachers plan a 'Math's Moment' session into each week to review and recap key concepts and the DfE ready-to-progress criteria
- Children upload their work at least once a week to receive feedback.

Successes in 2019 – 2020

☺ KS1 maths results 2019:
- 83% children reached the expected standard (above national and Lambeth average)
- 27% children reached the higher standard (above national and Lambeth average)

☺ KS2 maths results 2019:
- 81% children reached the expected standard (above Lambeth average)
- 23 % children reached the higher standard (below national and Lambeth average)

☺ Teachers are confident in the delivery of lessons, using T4M – teachers' feedback from PDMs very positive and enthusiastic.

☺ Maths Monitoring recording sheet created to be in line with T4M principles

☺ Maths monitoring continued to show evidence that Teaching for Mastery principles are embedded in most teachers' practice – where appropriate the Maths Lead has supported key members of staff in planning

☺ Clear summative assessment procedures – end-of-unit assessments and end-of-term assessments

☺ Maths Lead has monitored remote learning closely and feedback has been given to all staff.

Priorities for 2020 - 2021

◎ Whole staff CPD at the beginning of the new academic year - focus on DfE guidance using 'Ready to Progress' criteria to assess children and ensure key concepts are secured after school closure period

◎ Regular monitoring and review of children's learning and identifying gaps in understanding – termly Pupil Progress meetings with teachers

◎ Research and evaluate teaching strategies for remote learning in mathematics, for those children unable to attend school

◎ T4M Specialist to continue role, leading two Work Groups in Building Firm Mathematical Foundations in Reception, and one Work Group in sustaining Teaching for Mastery.