

St. Paul's Academy – Mathematics
Our Vision 4 Maths

'I can do it; you can do it and together we all can do it.'

Here at St. Paul's we believe everyone can 'do' maths and succeed. This belief is reflected in our whole school vision statement above and underpins all of our teaching and delivery of mathematics. Our vision statement also outlines the importance of working together as we believe our educational journey is not an isolated one but one, we all take together.

What we believe

Maths can sometimes be thought of as a challenging and frustrating subject however at St. Paul's, we think of maths as a challenging yet fun and exciting subject where we can all learn and grow together. We firmly believe that ALL of our children have the ability to succeed in maths and through our high-quality teaching and enthusiastic teachers, our children go on an exciting mathematical journey that stimulates their curiosity and love for learning in maths. We encourage all of our children to develop their understanding and knowledge of maths so they can be creative and logical in solving problems, fluent in their ability to calculate but most importantly they become confident mathematicians.



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Intent, Implementation, Impact

The National Curriculum 2014 sets out 3 main aims for maths which are to ensure all children:

- 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.

These aims are delivered through a coherent journey of small steps, leading to a deep understanding and mastery of the subject. This document outlines our intent, implement and impact that ensures these aims are met.

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Intent

Maths is a fundamental skill that we use daily and is an essential part of everyday life. Here at St. Paul's Academy, we see maths as a journey and adventure that is achieved through exploration, investigations, curiosity, practice and application of skills.

Our maths curriculum has the following intentions:

- To ensure that our children are excited and enthused by their maths learning and are nurtured into confident mathematicians that can calculate efficiently, reason and problem solve.
- To deliver a whole school mastery approach that sparks children's curiosity and excitement.
- To have high expectations of ALL our children and ensure each child has an appropriate level of challenge and opportunities to make progress and be successful.
- To develop factual fluency so children can recall and apply knowledge rapidly and securely and be able to solve problems by applying their mathematics to a variety of problems including in unfamiliar contexts.
- To use the CPA (concrete, pictorial, abstract) approach at all ages, to enable children to fully understand the concepts, principles, and structures of maths.
- For children to interact with a range of problems, think logically and to work systematically.
- To ensure the children receive quality first teaching that is underpinned by our whole school vision that all children can achieve and succeed.
- To foster and promote mathematical talk, where the children develop the ability to articulate, discuss and explain their thinking.
- To develop children's resilience by promoting a culture where making mistakes is embraced and these are seen as opportunities to discuss, explore and deepen our understanding of mathematical concepts.
- To ensure our children are equipped and ready to progress to the next stage of their learning.

Our curriculum intentions will allow our children to have a better understanding of the world around them and the ability to identify patterns between maths and everyday life.

Implementation

Power Maths

PM is a whole class mastery approach to teaching mathematics. It is an approved DfE mastery scheme and ensures we have whole school consistency and progression.



Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time. Each lesson phase provides the means to achieve greater depth, with more able children being offered rich and sophisticated problems, as well as exploratory, investigative tasks. The delivery of Power Maths integrates the Concrete, Pictorial, Abstract (CPA) approach, which allows children to explore mathematical ideas through objects, pictures, words and symbols. The three strands of this approach are entwined, and our children use them consistently alongside each other to cement their knowledge and understanding within a lesson.

Teaching

Power Maths is delivered through quality first teaching where our teachers use a variety of teaching and learning styles to develop the children's knowledge, skills and understanding in mathematics. One way in which this done is by grouping our children into mixed ability pairs meaning the whole class can move along together at broadly the same pace. We foster an inclusive approach, which is reflected in our whole school vision and promotes the self-confidence and resilience within our children. Even though all our children will be working on the same concepts, differentiation is still catered for as those children who grasp concepts quickly will be challenged through additional rich and sophisticated problems. The focus of our teaching does not just rely on children reaching an answer to solve a problem but to demonstrate a deeper understanding by being able to give mathematically reasoned explanations.

Planning

Our children study maths daily covering a broad and balanced mathematical curriculum including elements of number, calculation, geometry, measures and statistics. Each daily lesson includes a WALT (We are learning to) which the children are encouraged to identify through their practice. The daily lesson is broken down into the following structure.

1. Power Up – Each lesson begins with retrieval practice where the children have opportunities to practice skills they have previously been taught. There is a focus on mental methods and strategies within this part of the lesson.
2. Discover - The children are presented with real-life problems that aim to stimulate their curiosity and get all children thinking. They work collaboratively to investigate the problem and consider different solutions.
3. Share - The class shares their ideas and compare different ways to solve the problem whilst explaining their reasoning.
4. Skills – Children are presented with fluency style questions to practice the key maths skills that are needed within that lesson.
5. Think Together (I do, We do, You do) - Here the scaffolding is gradually reduced as children become more familiar with the mathematical concept and apply their understanding with independence.
6. Independent Practice - Children now practice individually, developing their skills to build fluency, understanding of the concept and confidence. Each lesson includes a challenge to allow children to show their deeper understanding.
7. Reflect - Finally, children are prompted to reflect on and record their learning from each session and show how they have grasped the concept explored in the lesson.

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Implementation

Times Tables Rock Stars

TTRS is used to develop fluency and rapid recall of times table facts. It is a carefully sequenced programme of daily times table practice. Children progress through pre-programmed levels which are matched to their individual abilities. It is a fun and challenging programme that uses Rock Star avatars to engage and engross children. TTRS supports children in preparation for the MTC in Y4 and TT interventions are put in place across KS2 to support children's individual needs.

Assessment



Children complete a baseline test and check points for each times table which allows us to measure their progress throughout the year.

Number Facts



Across Key Stage 1 there are key number facts outlined that the children are expected to be able to recall fluently. Children are expected to be fluent in their rapid recall of these facts and should take no longer than 3 seconds in providing an answer. As part of their maths lessons, children are taught a range of skills and strategies to ensure they become fluent in the number facts as this will allow them to tackle more complex maths effectively. Number facts include: adding 0/1/2/10 to a number, number bonds to 10, doubles to 10 and near doubles, bridging and compensating facts.

Assessment

We assess the children's performance towards these facts at different points throughout the year to ensure they are on track in becoming fluent. The facts are also tested with KS2 children to identify any children who need appropriate support.

Fluency

Fluency is an area that we promote throughout the whole school and we have daily sessions outside of the maths lesson that target fluency practice within each year group. These lessons target extra practice and consolidation of the number and calculations elements in the National Curriculum. The elements that have been taught are assessed at the end of year term.

Moderation

Termly moderation allows for the tracking of maths across the school. A portfolio of maths representations showcases the expected standard across all year groups and allows for secure teacher judgments.

Assessment



Termly assessment through PUMA assessments allow for careful tracking of pupil's ability with planning, interventions and support tailored to pupil and cohort needs. YR/2/6 complete government standardised assessments. Formative assessments occur daily as outlined in our marking and feedback policy.

Special Events

Annually we take part in whole school events to promote the maths wider curriculum. Events include World Maths Day, National Numeracy Day and NSPCC Number Day.



Workshops

Parents are invited into school to support their children's maths learning. Workshops include number (learning styles), times table and real-life maths skills.

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Impact

The impact of our maths curriculum is that all children develop a growth mindset attitude and the belief that they can succeed in maths. The Power Maths scheme ensures that all children experience challenge and successes that develops their growth mindset. Pupils will believe that they can succeed in Maths and that this is achieved through hard work and commitment.

With the intentions set out in our maths curriculum this will enable our children to become confident mathematicians who will have the conceptual understanding and the ability to recall key facts fluently, reason with number and think logically to solve problems – the main aims set out by the National Curriculum 2014.

Our school fosters a fun and exciting maths working environment where children are free to make mistakes and they strive to be the best they can. A mathematical concept or skill has been mastered when a child can show it in multiple ways, using different representations and the correct mathematical language to fully explain their ideas. Children can independently apply their maths skills to new and unfamiliar problems and understand they are on a journey where finding the solution is only half of the answer.

In order for the above to be achieved the maths curriculum is monitored and reviewed regularly to ensure it meets the needs of all of our children and fulfils the vision we have set out. We also measure our impact by monitoring the work completed by our children to guarantee this is of a high standard and children demonstrate a secure understanding with no children falling behind. Other ways in which the curriculum intent and implementation is monitored is through lesson observations and feedback, learning walks, pupil conferencing, weekly planning and book trawls, regular assessment, and analysis of data.