

Philosophy and Intent

We know that all children have the ability and potential to succeed in Maths – some may require more time and support to get there, but with a positive attitude towards Maths and high expectations, anyone can be a mathematician. We want our mathematicians to understand the value of Maths, to feel successful when they learn and leave school with the skills to think critically and creatively.

As a school, we have been on a 3-year journey, during which time we have trialled and reflected upon different methods in teaching and learning for Mastery. We are now in the process of embedding a Concrete, Abstract, Pictorial (CPA) approach to teaching and learning in Maths, as part of a curriculum that allows children to spend longer and think deeper about mathematical concepts. The whole class moves through the curriculum at broadly the same pace via individual learning journeys. To ensure progression we follow the National Curriculum Programmes of Study for Maths, and regularly use the Power Maths scheme of work to enable us to deliver this with consistency.

Oracy is also a skill that we strive to embed throughout our entire curriculum in order for children to communicate their thinking. In Maths, our children are encouraged to speak openly and clearly about their reasoning without fear of 'getting it wrong' – we believe strongly in a culture where mistakes are celebrated as an opportunity to learn and develop a growth mindset. Our school believes that having a consistent approach and high expectations for spoken language benefits all children in their Maths, including those who may speak English as an additional language, for example.

Implementation: What does Maths look like at St Andrew's?

Foundation Stage

- Daily 'Power Maths' lessons linked to Early Learning Goals, using the CPA approach
- 'Short burst' Number Fluency 5 times per week: Maths embedded to form part of our daily routine
- Whole-school focus on oracy/spoken language: learning *to* talk and learning *through* talk
- Mathematical concepts and knowledge are evident across the entire Early Years curriculum
- Experimenting with mathematical ideas through playful engagement
- Continuous Provision activities with an obvious mathematical focus
- Children find their own maths in an activity: who has made the tallest tower? Are there enough cups for us all in the home corner?

KS1 and KS2

- Power Maths lessons at least 4 times per week - Fluency, Reasoning and Problem Solving embedded into all of these lessons
- A combination of quality first whole-class teaching and personalised interventions
- Children are generally taught as a whole class, although children will have tailored support or differentiated supervision when a teacher deems it appropriate
- Use of the Concrete, Abstract, Pictorial approach (CPA)
- A consistent whole-school approach to mastery using the CPA approach enables different 'types' of learners to develop a more secure grasp of concepts
- 'Math-Fanatics Fridays' once per week – opportunities to explore Maths in a wider range of contexts and apply critical and creative thinking. ***Please see addendum number 1 below**
- Whole-school focus on oracy/spoken language: learning *to* talk and learning *through* talk with the use of dialogue and sentence stems within lessons
- Longer but deeper: we learn about concepts in longer blocks, allowing for children to develop their understanding in more depth
- St Andrew's Times Table Awards once per week / number bonds sessions for Year 1

***Addendum 1:** After returning from COVID-19 lockdown, we have a requirement to ensure that children are catching up on missed learning. To allow enough time for this in the school week, we are currently focusing only on Power Maths sessions and on dedicated catch-up sessions. For this reason, our Math-Fanatics sessions are temporarily not a priority in our offer.

APPENDIX A

Foundation Stage Maths

'Every Day' Maths

Maths is embedded to form part of our daily routine. For example, self-registration: how many children are in today? How many children are allowed to play in the home-corner? Can you stand behind x in the dinner queue? We recognise that mathematical concepts and knowledge are evident across the entire Early Years curriculum and that young children will often naturally start experimenting with mathematical ideas through their playful engagement in a number of activities.

Continuous Provision

Some of our continuous provision activities will have an obvious mathematical focus, such as making pictures with shapes or filling containers with rice. At other times the children will find maths in an activity: who has made the tallest tower? Are there enough cups for us all in the home corner? Staff who are engaging with the children will document their activity and comments in order to evidence the learning and help children to make further progress.

Power Maths

We use Power Maths Foundation Level so that children are already learning and embedding key language, representations and number facts; this means they are well-equipped for Key Stage 1. This follows the CPA approach and all planning links to the Early Learning Goals.

KS1 and KS2 'Power Maths' Lessons

Four times per week, Maths lessons are planned in accordance with our chosen scheme of work: Power Maths. We use a CPA (Concrete, Abstract, Pictorial) approach to learning and believe that consistency of language and mathematical representations across year groups is vital in order for children to develop a secure understanding of mathematical concepts on their journey through our school. (Note: please see our Calculation Policies and our Progression Maps). Sometimes, a teacher may adapt or extend parts of a learning sequence in Power Maths according to their assessment for learning. They may also decide plan explorative sessions at the start of a unit in order to introduce and practise a new concept or method.

1. Discovering

The children are given an opportunity to discuss a problem that provides the context for a specific mathematical concept being taught that day. They are encouraged to explore a problem themselves to see what they already know and which strategies they might use in order to solve it.

2. Sharing and Thinking Together

Children are encouraged to share thoughts, strategies or misconceptions. The teacher will use this time to assess and challenge thinking: How do you know? Can you prove it? Are you sure? Can you represent it another way?

3. Practice

Children will use their 'Power Maths' practice books to apply their knowledge and understanding to a range of questions. The tasks increase in complexity, ensuring that children are supported to make progress within a lesson.

Those who require longer to consolidate their understanding of a concept may complete the first two or three tasks, whilst those who are more confident will reach tasks that require them to think differently or deepen their understanding. Some children may be provided with opportunities to extend their thinking further in tasks recorded in their separate Maths Journals.

4. Reflecting and Assessing

Children are encouraged to speak openly about their *learning* as a mathematician as well as the content of the Maths lesson itself. What was challenging? Were there any eureka moments? How do you feel at the end of this lesson? Do you need more support? More practice? A chance to deepen your understanding?

Children are formatively assessed within lessons and are offered same day intervention and verbal feedback wherever possible, so that misconceptions are dealt with 'in the moment'. These are known as 'Pit Stops'. They can be done as a whole class, small group work or 1:1 support.

Pit Stops may also take place later in the day or early the following morning – these are organised by the class teacher. The purpose is to provide children with one of the following:

1. Extra scaffolding and support
2. More independent practice and consolidation
3. Opportunities to deepen their understanding through further challenge

Marking within the Maths books is reflective of this (please see marking code below).

APPENDIX B

KS1 and KS2 'Math-Fanatics Fridays' *Please see addendum number 1 below

We also believe it is invaluable for children to be given opportunities to explore mathematics through a wider range of rich problem solving and sometimes creative tasks. Once per week, every class will explore tasks which enable all children to join in and take their understanding as far as they like.

The aims of these sessions are for the children to:

- **Find joy** in Maths and see that it can appear in the unlikeliest of places
- **Consolidate and apply** their knowledge and understanding to a wide range of contexts
- **Discover** new knowledge
- Understand how to make, test and evaluate mathematical **conjecture**
- Develop a range of explicitly taught **problem-solving strategies** (e.g. trial and error; finding exhaustive proof; systematic working etc.)
- Develop their level of **oracy** through focused discussion

In these sessions, children may approach Maths through:

- Puzzles
- Whole class 'low floor, high ceiling' tasks
- Open-ended investigations
- Cross curricular application (for example: Science, D&T or Art)

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APPENDIX C

KS1 and KS2 Times Tables

Multiplication and division facts are taught within Power Maths in order for children to understand them conceptually. However, children are also encouraged to spend time learning to recall facts with speed through shorter fluency sessions at school and at home – these may involve games, songs, flash cards and the use of *Times Tables Rockstars* online.

The St Andrew's Times Table Awards

The St Andrew's Times Table Awards are aimed at motivating children. Each child will do a weekly test in class, using the online platform *Times Tables Rockstars*. This establishes how many multiplication facts they know as a baseline, before offering each child a tailored programme to learn from. When ready, they will be tested again, before their new target times tables are set.

This forms a regular and repetitive cycle of assessment, practice and reassessment, encouraging children to improve their score each time. This is aimed at helping them to make small cumulative steps of progress and retain the facts they have learned.

As children improve their scores, their personal bests are celebrated. They may eventually reach a threshold for which are given a certificate in recognition of their achievements.

Bronze Award	Silver Award	Gold Award	Platinum Award	Diamond Award
25 / 100	50 / 100	75 / 100	90 / 100	100 / 100

(These scores may be amended if necessary.)

Notes:

**Some children may continue to focus on learning key number bonds (addition and subtraction facts) if their teacher feels this is necessary.*

***Those children who learn all facts by heart may then be encouraged to apply these facts to multiplying two-digit numbers.*

APPENDIX D

St Andrew's Church School: KS1 and KS2 Maths Marking and Feedback Codes

Teachers:

- will use their professional judgement as to when and how often 'purple dots' should be responded to;
- will use professional judgement to decide when and how often written next steps are given.

Children:

- may mark their own or their peers' work in pencil as part of a whole-class or group feedback session;
- may respond to feedback by doing a differentiated activity in their blue Maths Journal;
- may have specific, tailored interventions during Pit Stops that are aimed at targeting gaps in understanding (therefore response to lesson feedback may not always be a priority for these particular children).

What does it look like?	What does it mean?
	You have answered a question correctly and you have shown a good understanding.
	A calculation or answer is not correct. Look at your calculations again and write your corrected answer next to it.
	Purple brackets around a written sentence mean that your reasoning isn't very clear. Can you explain better?
	Next Steps: S for Support. You are working hard, but it looks like you need a little more support to develop your understanding . Work with an adult in Pit Stop.
	Next Steps: P for Practice. You seem quite confident, but you need a little more practice to consolidate your understanding . Continue with question or task independently during Pit Stop.
	Next Steps: D for Deepening. You have shown a strong understanding. Now can you deepen your understanding ? In your Practice Book or your Maths Journal, work on a challenge question that your teacher has given to you.
	You have received verbal feedback .
	You worked with adult support.

Foundation Stage Maths Marking Code

What does it look like?		What does it mean?
Next Steps		This is what you need to do next in your learning.
Progress star		You're making progress!
S	I	I+
I was supported	I worked independently	I have shown independence and a deeper understanding

Approved - November 19

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