

**Fazakerley
Primary School**
Formosa Drive, Liverpool, L10 7LD



Mathematics: Our Intent, Implementation & Impact



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INTENT

Vision

As our school curriculum vision states, every single child in our school matters to us and we strongly believe our role is to prepare them for the opportunities, responsibilities and experiences of later life and the world including how to be financially aware and educated citizens. Mathematics is integral to all aspects of life and our Mathematics curriculum plays a big part in nurturing independent learners for life who are 'gritty' and know what to do when they face challenges. We strive to equip our children with the uniquely powerful set of tools to understand and change the world: logical reasoning, problem solving skills and the ability to think in abstract ways.

Introduction

A high-quality mathematics education provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a healthy and enthusiastic attitude towards mathematics.

Aims

Although relating specifically to Mathematics our aims for the subject are also in line with the school's general aims.

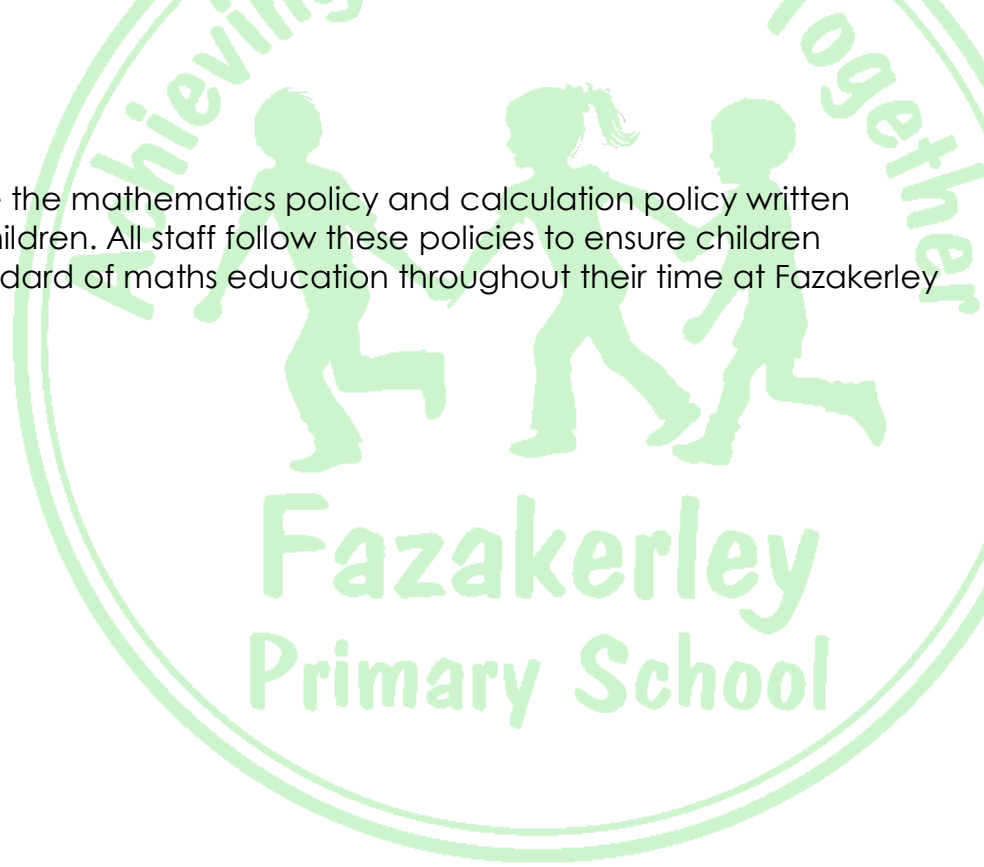
The National Curriculum for Mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- **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.



Policies

Further to this document, we have the mathematics policy and calculation policy written specifically for the needs of our children. All staff follow these policies to ensure children experience a consistent, high standard of maths education throughout their time at Fazakerley Primary School



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IMPLEMENTATION

At Fazakerley Primary, we take a mastery approach to the teaching and learning of Mathematics. Essentially, our ethos is that all children can be successful in the study of mathematics. We do not accept that 'some children cannot do maths' or that children should be limited by prior attainment. Maths is for everyone! We teach the skills to ensure our children are resilient learners who become life-long Mathematicians. We aim to deliver an inspiring and engaging Mathematics curriculum through high quality teaching. With this in mind we use the Power Maths mastery scheme from EYFS to Year 6.

The Power Maths approach enables children to be numerate, creative, independent, inquisitive, enquiring and confident. Children should not be afraid to make mistakes and should fully embrace the fact that mistakes are part of learning! A mastery curriculum promotes a deep, long-term, secure and adaptable understanding of the subject, so that children become fluent in calculations; possess a growing confidence to reason mathematically and hone their problem-solving skills.

The intention of the Maths curriculum is for children to be excited about Maths! Developing a positive attitude to this subject is essential. Teachers promote children's enjoyment of Maths and provide opportunities for children to build a conceptual understanding of Maths before applying their knowledge to everyday problems and challenges. We ensure that challenge is provided for all children, whatever their understanding. Children are encouraged to be brave and push the boundaries, deepening their understanding further.

The only way to learn Mathematics is by doing Mathematics!

Teaching in all our classrooms aims to have a collaborative learning and meta-cognition approach provides opportunities for:

- group work
- pair work
- journaling
- guided work
- whole class teaching
- individual work



All our children have the opportunity to engage in:

- the development of mental strategies
- written methods
- practical work
- investigational work
- problem solving
- mathematical discussion
- consolidation of fluency and arithmetic skills
- applying and using Mathematics across the curriculum and in real contexts.

At Fazakerley Primary School we recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use the appropriate mathematical vocabulary when planning to help determine the appropriate terminology to use in our teaching. Children are expected to use this terminology in their verbal and written explanations.

Time Allocations/Lesson Structure

Within EYFS, Mathematics is planned into all aspects of a child's day through continuous provision activities. As well as this:

- Within the Nursery classes, children have a daily number rhyme with the class teacher and then staff provide enhanced continuous provision opportunities for children to practise their maths skills. Nursery staff may use some stimulus and discover problems from the reception curriculum to introduce the children to our Power Maths approach.
- In Reception, children have a daily Mathematics lesson following Power Maths reception using the structure below to focus on one objective per week:

MONDAY – STARTER

TUESDAY – DISCOVER & SHARE

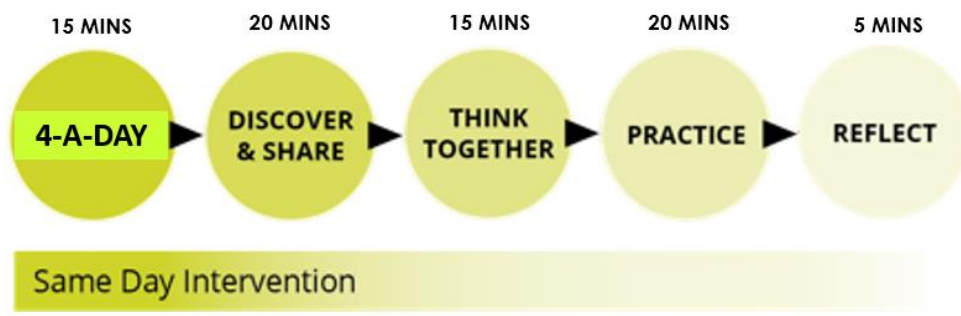
WEDNESDAY – THINK TOGETHER & PRACTICE JOURNAL 1

THURSDAY – CHALLENGE

FRIDAY – PRACTICAL ACTIVITIES & JOURNAL 2

Within Key Stage 1 and 2, children have a Power Maths lesson that lasts between 1 hour 15 minutes and 1 hour 20 minutes and follows the structure below:





This lesson structure allows for collaborative learning during the discover and share section of a lesson and allows us to follow the EEF 7-step model for metacognition.

1	Activating prior knowledge	4-A-Day/Power Up
2	Explicit strategy instruction	Discover Share
3	Modelling of learned strategy	Discover Share
4	Memorisation of strategy	Discover Share
5	Guided practice	Think Together
6	Independent practice	Practice
7	Structured reflection	Reflect

In Year 2 and above, children begin with a 4-a-day activity which supports fluency, recall of number facts and allow the pupils to have an opportunity to revisit prior learning. In Year 1, children complete a "Power Up" question using the Power Maths scheme or in some lessons the teacher may create their own "Power Up" lesson to revisit a specific concept based on the needs of their class. In Year 2-6 you may occasionally see children completing TT rockstars practice sheets during 4-a-day.



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Following this, the children are presented with varied similar problems which they might discuss with a partner or within a small group. At this point, scaffolding is carefully reduced to prepare children for independent practice. This is the 'Think together' part of the lesson. The teacher uses this part of the lesson to address any initial errors and confirm the different methods and strategies that can be used. The children are then shown a 'challenge' which promotes a greater depth of thinking. Some pupils may not progress to the challenge if they require further support with the initial objective and the challenge section may be used to extend more confident learners within that lesson.

The class then progress to the 'Practice' part of the lesson, which is designed to be completed independently. This practice uses conceptual and procedural variation to build fluency and develop greater understanding of underlying mathematical concepts. A challenge question and links to other areas of Maths encourages children to take their understanding to a greater level of depth.

The final part of the sequence is a 'reflect' task. This is an opportunity for children to review, reason and reflect on learning and enables the teacher to gauge their depth of understanding. Depending on the children's understanding in a lesson the teacher might choose to allow the children to continue with the 'practice' part of the lesson instead of choosing to do the reflect question. This is a teacher choice based on their formative assessment during the lesson.

Children are encouraged to solve problems each day through the use of concrete resources, pictorial representations and abstract thinking.

At the heart of this programme is the idea that all children can be successful mathematicians with the right mind-set. Children learn alongside five characters, each with different mathematical characteristics. These characters are:





Ash
Ash is curious and inquisitive. He loves to explore new concepts.



Astrid
Astrid is brave and confident. She is not afraid to make mistakes.



Dexter
Dexter is determined. When he makes a mistake, he learns from it and tries again.



Flo
Flo is flexible and creative. She often comes up with new methods.



Sparks
Sparks is helpful and supportive. He will remind you of things that may help you.

Our adaptive teaching fits within a Mastery approach. This means that children will all be working towards their year-group objectives. Children may use resources, images and adult support to achieve these objectives, others may be required to use the knowledge gained through the objectives to solve a range of problems in order to gain a rich breadth of understanding and develop the problem-solving skills identified above. The exception to this will be when children are working significantly below age-related expectations where this would be detrimental to their progress e.g. learning about numbers to one hundred if you are not secure in understanding your numbers to ten. In these cases, children will be given appropriate teaching and learning opportunities to address this through interventions and by completing differentiated independent practice activities in lessons.



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Environment – Displays, Working Walls & Help Desks

The learning environment is key to supporting our children's learning and a maths working wall is a key part of this. In every classroom, there is a Maths Working Wall, which is a public display of the learning process of the current concepts being taught.

A plan of what should be included on all Maths Working Walls is an appendix within the Classroom Display Policy. Teachers use this display to support their teaching inputs and children are encouraged to utilise this display in each lesson as a supportive resource in their independent work.

All classrooms have a help desk area within the classroom which includes various concrete apparatus and images to support children e.g. dienes, number lines. Again, children are encouraged to access this independently within lessons and should be updated for each new unit so appropriate resources are available.

EYFS Working Wall

**UNIT 9 –
ADDITION TO 10**

How many flowers are there **altogether**?

VOCABULARY:

- count, part, whole,
- **altogether**, how many, total
- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- addition, adding together, counting
- more, fewer

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KS1/KS2 Working Wall

UNIT 1 – PLACE VALUE AND 4 DIGIT NUMBERS

SENTENCE STEMS:

The best way to solve this would be...
I know this because...
The best strategy is...

VOCABULARY:

- tens (10s), hundreds (100s), thousands (1,000s)
- rounding, counting, represent, compare, order
- more than (>), less than (<)
- partition, recombine
- numerals
- nearest, distance



Eight thousand, three hundred and forty two.

Make a 4 digit number between 8000 and 9000.



I know this because it has 8 in the thousands column.

Homework

As a school, we no longer set maths homework sheets for children, as our monitoring found that it was having little impact on our children's learning. Instead we purchase a yearly subscription to TT Rockstars which is an online platform that children can use to access a carefully sequenced programme of times tables practice. Our expectation for all children in Key Stage 1 and 2 is that they play this game at least 3 times per week.

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Low Attaining Children

We use several strategies for our children that may at times within their education struggle to grasp concepts and make progress:

- During the maths lesson, we have a learning support assistant to work with each Maths class in KS1 and also one per year group in Key Stage 2. During this time they are directed by the class teacher to support all groups within the class, as well as specific individuals or groups of children.
- Children have same day intervention sessions every afternoon based on the lesson from that morning. Teachers decide which children will take part in these sessions at the end of each lesson.
- We have 1:1 Number Stacks intervention for the lowest attaining pupils.

If after the above strategies have been put in place, a child is still not making progress then teachers will liaise with the SENDCO to decide next steps within the graduated approach.

Interventions/Provisions

We deliver the following Every Child Counts intervention programs, as recommended by the Education Endowment Foundation:

- Becoming 1st Class @ Number (support around the EYFS ELG Number)
- 1st Class @ Number 1 (support around the Year 1 National Curriculum)
- 1st Class @ Number 2 (support around the Year 2 National Curriculum)
- Success @ Arithmetic: Number Sense (mainly for children in Years 3-5 who need support to understand the number system and become fluent with arithmetic facts)
- Success @ Arithmetic: Calculation (mainly for for children in Years 5-6 who need support to understand calculations and develop fluency with formal written methods)
- Number Stacks (available for all year groups – a concrete approach to key objectives throughout curriculum).

Higher Attaining Children

We ensure that our more able children are constantly challenged through challenge activities in lessons, more challenging success criteria as well as the requirement for our more able to constantly evidence the application for Mathematics skills within a breadth of activities and across the curriculum.



IMPACT

At Fazakerley Primary we have a clear intent for our Mathematics curriculum and through this aim to impact on children's mathematical attitudes, fluency, problem solving and reasoning in such a way that they positively impact on their social, financial, health and employment aspects of their lives.

Performance Indicators

We use the following performance indicators to assess the impact of our Maths curriculum:

- across EYFS, KS1 and KS2 children reach at least the national expected standard
- as many children as possible make more than expected or accelerated progress
- children enjoy mathematics
- children talk confidently about what they are doing in mathematics

We also measure the impact of our Maths curriculum through:

Monitoring

Monitoring is undertaken in various ways:

- The Mathematics Subject Leader /SLT observes lessons usually with a focus that is a whole-school issue or area for development.
- Monitoring of childrens' work in maths books and on Seesaw app.
- Learning Walks – usually with a specific focus of interest. This includes evaluating the quality of the learning environment and use of working walls/help desks etc.
- Staff, parent/carer and pupil voice

We see assessment as an integral part of the teaching process and strive to make our assessment purposeful, allowing us to match the correct level of work to the needs of the children, thus benefiting the children and ensuring progress.

Information for assessment will be gathered in various ways: by talking to the children, observing their work, marking their work, etc. Teachers will use these assessments to plan further work and inform the design of future lessons. We also use: NFER tests 2x per year in Years 1, 3, 4 and 5 and previous SATs papers for Years 2 and 6, to support our assessment.

Moderation

Teachers take part in moderation sessions within school and attend LA Moderations with other schools. These moderation meetings enable teachers to moderate each other's judgements against agreed criteria to ensure parity.

