



# Mathematics Policy

## Fazakerley Primary School

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***This Mathematics Policy should be read and followed in conjunction with the school's calculation policy.***

## **Our School Mission Statement**

In order to achieve success at Fazakerley Primary School, we believe that *everyone* in our community is of equal *worth* and should be given the opportunity to develop their full potential intellectually, emotionally, socially, physically and professionally. We promote in our whole school community, an understanding and respect for everyone's well-being and mental health, valuing and supporting each other as an integral part of our school life.

## **Rationale**

All school policies form a corporate, public and accountable statement of intent. As a primary school, it is very important to create an agreed school approach of which staff, children, parents, carers, governors and other agencies have a clear understanding. This policy is the formal statement of intent for Maths. It reflects the essential part that Maths plays in the education of our pupils. It is important that a positive attitude towards Maths is encouraged amongst all our pupils in order to foster self-confidence and a sense of achievement. The policy also facilitates how we, as a school, meet the legal requirements of current National Curriculum requirements.

## **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

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- **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.

## Subject Delivery

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:

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- 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.

### Early Years Foundation Stage

- See Statutory Framework for the Early Years Foundation Stage – Effective September 2014

### Key Stage 1

- See National Curriculum Mathematics Key Stage 1 programmes of study – September 2013

### Key Stage 2

- See National Curriculum Mathematics Key Stage 2 programmes of study – September 2013

## **Time Allocation**

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

- 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.
- 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**

- Pre-requisite check.
- Stimulus for the week.
- Includes a "Get Active" activity.

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## **TUESDAY – DISCOVER & SHARE**

- Whole class.
- Real life context.
- Includes a “Get Active” activity.

## **WEDNESDAY – THINK TOGETHER & PRACTICE JOURNAL 1**

- Whole Class
- Practice is done independently within small groups in their journal.

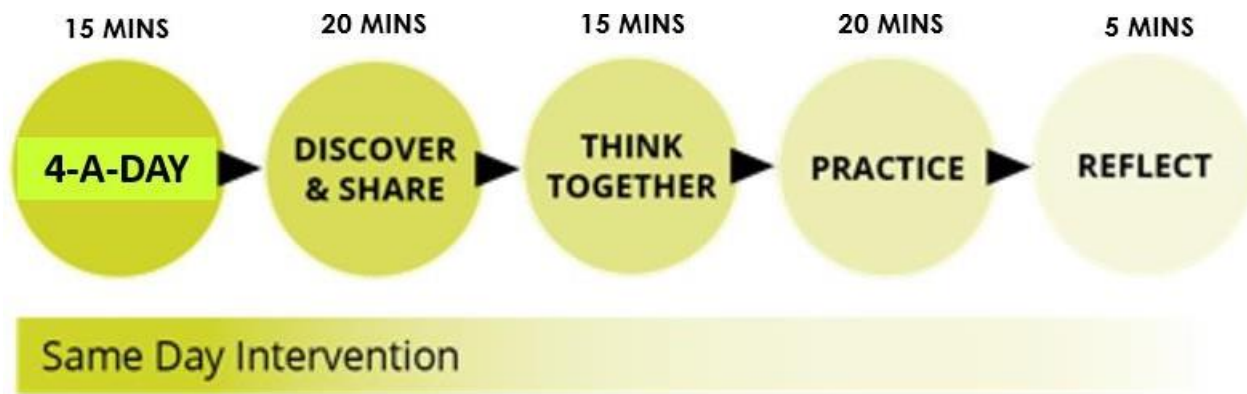
## **THURSDAY – CHALLENGE**

- Whole Class Or Pairs
- Focus on misconceptions and deepening understanding.

## **FRIDAY – PRACTICAL ACTIVITIES & JOURNAL 2**

- Whole Class/Group Activities
- Consolidate the learning from the week.
- Journal should be done INDEPENDENTLY – small groups in their journal.

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



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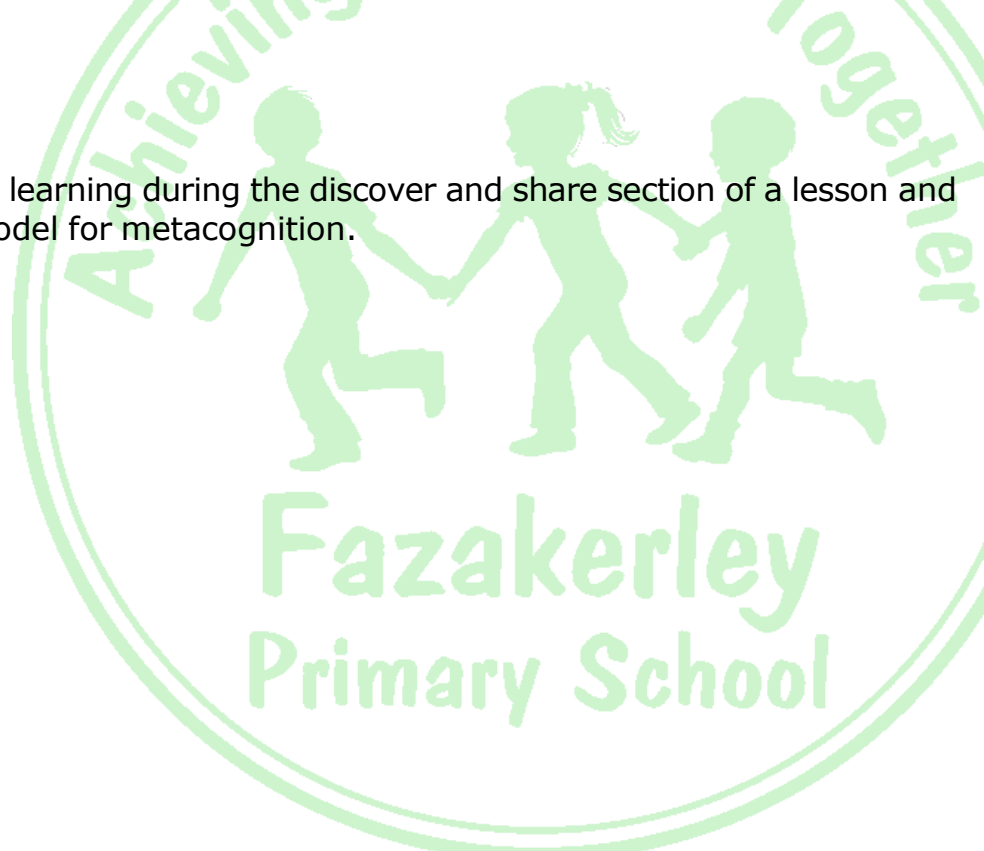
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This structure allows for collaborative learning during the discover and share section of a lesson and allows us to follow the EEF 7-step model for metacognition.

1	Activating prior knowledge	4-A-Day Discover
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	Workbook
7	Structured reflection	Reflection



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.

Following this, the main lesson begins with a 'Discover' and 'Share' task in which a contextual problem is shared for the children to discuss in partners. This helps promote discussion and ensures that mathematical ideas are introduced in a logical way to support conceptual understanding. In KS1, these problems are almost always presented with objects (concrete manipulatives) for children to use. Children may also use manipulatives in KS2. Teachers use careful questions to draw out children's discussions and their reasoning and the children learn from misconceptions through whole class reasoning.

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.

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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:



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Our lessons include adaptive teaching which 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 first.

## **Children's Work**

There are three places where children can record their work in Maths sessions/lessons:

- Maths Journal Book (one per child): child to complete work in the following format. When setting out work in our Maths Books, we teach our children to write one number per square always in pencil. When developmentally able to, we encourage our children to use a ruler to underline the date and unit and lesson number, and particularly in Key Stage 2, we teach our children to set work out in a particular way: date underlined on the top line, unit number and lesson number underlined on the second line and a line drawn below, then a 2 squared margin on the left hand side of the page and, if needed, a middle margin. This presentation instils pride in our children's work and consistency in approach throughout our school.
- Maths Workbook
- SEESAW App

For information on marking the Maths books, see school Marking and Feedback Policy.

## **Resources**

It will be the responsibility of the Mathematics Subject Leader to purchase, store and maintain new Mathematics resources. All staff members will be involved in identifying the needs for new resources and will inform the Mathematics Subject Leader of any areas in which resources could be improved.

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## **Environment – Displays, Working Walls and 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.

## **Planning**

Clear and careful planning is important to the success of the teaching and learning of Mathematics. We follow the Power Maths Plans structure, which outline the concepts and knowledge to be developed in each year group.

## **Equal Opportunities**

- All pupils irrespective of gender, race, religion or disability, are entitled to a broad and balanced English curriculum. We have high expectations of all our pupils.
- Attainment of boys and girls as well as the achievement of other groups (e.g. SEND, EAL, Pupil Premium) is carefully monitored.
- Teachers use adaptive teaching and provide resources that enable children to access their year group objectives at some level wherever possible.
- Suitable resources and learning environments will be made available to enable children to access the learning required.

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## **Special Needs**

We believe that quality first teaching is essential in identifying and catering for the specific needs of all of our children. Teachers differentiate their questioning and level of support provided in order to ensure that all needs are met. Teachers monitor the progress of our children very carefully and if it is deemed that a child is not making expected progress, then the teacher identifies this to the SENDCo as a 'teacher concern' and additional provision is then planned. The provision is then monitored using the 'assess, plan, do, review' cycle. If at this point, it is still deemed that the child is not making sufficient progress, then we would seek additional advice from external agencies. This is classed as 'SEN support' and children and parents are invited to contribute towards the child's one-page profile, which considers the views of the child, the school and the parents. This profile suggests recommended outcomes which are reviewed termly. The child's input is integral to the success of this profile as it allows the child to freely express how they feel about their learning and how school can support them.

## **Intervention/Provision**

Interventions are used to support pupils who are identified through teacher assessment as having gaps in mathematical understanding. These sessions are identified on the provision timetables and are led by Learning Support Assistants under the direction of the class teacher, Maths Lead and SENDCos.

Same Day Intervention is encouraged for children who have struggled to grasp the maths objective that day. These groups are fluid and are chosen by class teachers based on formative assessment during the lesson. Learning Support Assistants use these sessions to complete strengthening activities with the pupils, complete extra journal work or more questions in their workbook to ensure the child is ready to move on with the rest of the class the next day.

In some cases, pupils who are significantly below age related expectations may have further 1:1 or small group provision. These include:

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- Becoming 1<sup>st</sup> Class @ Number (support around the EYFS ELG Number)
- 1<sup>st</sup> Class @ Number 1 (support around the Year 1 National Curriculum)
- 1<sup>st</sup> 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 children in Years 5-6 who need support to understand calculations and develop fluency with formal written methods).
- Number Stacks

## **EAL**

We are aware that children with English as an additional language may have specific challenges and may require tailored support in order to access the curriculum.

## **More Able Children**

We ensure that our more able children are constantly challenged through differentiated tasks, 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.

## **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.
- Scrutiny of teachers' planning if presented.
- 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.

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## **Assessment**

Please read our school's 'Assessment' and 'Marking and Feedback' policies, which this policy runs alongside.

Assessment is regarded as an integral part of teaching and learning and is a continuous process. It is the responsibility of the class teacher to assess all pupils in their class. It is both formative and summative. In our school, we are continually assessing our pupils and recording their progress. 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 pupils, thus benefiting the pupils 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. Pupils will also complete an end of unit check to show understanding and areas that require further work.

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.

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## **Role of Subject Leader**

The Mathematics Subject Leader is responsible for co-ordinating Mathematics through the school. This includes:

- Devising an Action Plan at the beginning of each academic year based on the needs of the pupils, staff and whole school. To action, monitor and evaluate the progress of this throughout the year including writing an impact report at the end of the academic year.
- Ensuring continuity and progression from year group to year group.
- Providing all members of staff with guidelines and planning frameworks to show how aims are to be achieved and how the variety of all aspects of Mathematics are to be taught.
- Advising on in-service training to staff where appropriate. This will be in line with the needs identified in the Development Plan and within the confines of the school budget.
- To provide, where necessary, in-house training.
- Advising and supporting colleagues in the implementation and assessment of mathematics throughout the school.
- Assisting with requisition and maintenance of resources required for the teaching of mathematics. Again this will be within the confines of the school budget.
- Complete monitoring of children's books (termly). If it is deemed necessary – scrutiny of planning to answer questions raised in book monitoring.
- Carry out staff & pupil voice interviews.
- Classroom Observations and Learning Walks
- Attend Subject Leader Briefings led by the local authority.
- Write termly reports for governors outlining the current picture of Mathematics within school.

## **Role of Class Teacher**

- To ensure progression in the acquisition of mathematical skills in line with this policy, the Calculation policy, our school Maths Vision and the National Curriculum for Mathematics.
- To develop and update skills, knowledge and understanding of Mathematics.
- To identify CPD needs in Mathematics and take advantage of training opportunities, sharing these with the subject leader.
- To keep appropriate on-going records and assessments (in line with assessment policy).
- To plan effectively for Mathematics (with year group partners), liaising with subject leader when necessary.
- To inform parents of pupils' progress, achievements and attainment.

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## **Website Information**

It is the responsibility of the Mathematics Subject Leader to keep up to date with the statutory requirements of Mathematics and to ensure that all information is provided to the website manager for upload onto the school's website.

## **Governors**

At Fazakerley School we have an identified governor for Mathematics who is invited to meet with the Mathematics Subject Leader each term. This governor reports these discussions back to the curriculum committee.

## **Parents**

Parents are important influences on pupils' attitude and attainment. We actively encourage and involve them in school life through:

- Homework – Times Tables Rockstars & Numbots
- Parent Workshop mornings
- Stay & Play sessions
- Information-giving sessions
- Newsletters
- Parents' Evenings

Parents are given the opportunity to discuss Mathematics with their child's teacher through Parents Evenings and annually through a written report. Reporting in Mathematics will focus on each child's progress in all areas of the subject.

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