Wallace Fields Infant School & Nursery

Subject Story for Maths

Intent:

At Wallace Fields Infant School and Nursery we are committed to the *Mastery Maths* philosophy that is for all children to develop a secure understanding of mathematical concepts and processes, combined with genuine fluency when completing calculations. Through using a scheme called *Power Maths*, we are giving children the opportunity to explore different methods that will improve their understanding of maths as whole. These methods are built upon within each Unit and will be continually revisited and embedded throughout their time at the school. *Power Maths* teaches and challenges children to use methods in the most appropriate, efficient way and develop their problem solving and reasoning skills. Our intent is to spark curiosity, engage reasoning, secure understanding and deepen maths learning for all.

The National Curriculum for Maths 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 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:

All children in Reception, Year 1 and Year 2 are taught four *Power Maths* lessons each week. The lessons involve a 'Power Up' (to recall number facts), 'Discover and Share' (involves practical, real-life problems where we find the maths through story-telling), 'Think Together' (involves working co-operatively with concrete resources to share ideas), 'Practice' (independent work in workbooks) and 'Reflect' (reflecting on the learning and consolidating). There are regular opportunities throughout the week to recall prior learning. This enables children to develop deep, secure knowledge and make connections. Wallace Fields Infant & Nursery School are part of a TRG (Teacher Research Group) focused on embedding this mastery approach in our school.

What happens if my child struggles and finds it hard?

- Quick identification and acting on it is key! Intervention is focused on keeping up now, not catching up later, so interventions happen as soon as they are needed.
- If a child or group of children haven't understood, they are pulled together to do more strengthening activities using the concrete/ practical resources.
- Those who need additional support receive it through targeted questioning, quick intervention, pre teach sessions, strengthening activities and booster provision.
- This approach supports the learning of all pupils including those with Special Educational Needs (SEND), English as an Additional Language (EAL) and Disadvantaged Pupils (Pupil Premium).

What about if my child is showing secure understanding, how are they challenged?

- The mastery approach sees all children learning the same concept in small steps, each finding and mastering challenge but at their own level.
- Those who grasp a concept easily have time to explore and understand that concept at a deeper level through questioning and deepening activities. These challenge activities encourage children to apply their knowledge in problem solving tasks and within different contexts.

'The class work together on the same key point, whilst at the same time challenging and supporting children to gain depth of understanding and proficiency'

How are children assessed in Maths?

- Children are informally assessed daily in every lesson to assess their understanding. Support or challenge is put in place to ensure that every child is making progress at their level.
- At the end of each unit of work, each child completes an end of unit check in their *Power Maths* workbooks. This covers a range of concepts that have been covered within that unit to ensure that children have a secure understanding before moving on.
- Children are assessed formally on a half-termly basis; this is a detailed assessment on everything that has been covered so far within the term. Children's attainment and progress is carefully measured throughout the year to ensure all children make good progress from their starting point.

Progression across year groups:

- In EYFS, there is a strong focus on Number, ensuring children have a solid, conceptual understanding of the numbers 1-10 and then the teen numbers. EYFS Mathematics is addressed through a combination of adult led Power Maths activities, small group activities, independent activities and child-initiated play. Throughout the week, each day has a different focus including: discover, share, think together, independent practice and reflect.
- In Year 1 children will build on their EYFS knowledge and cover number and place value for numbers to 50, addition and subtraction within 20, recognising 2D and 3D shapes, length and height, weight and volume, counting in groups of 2, 5 and 10, halves and quarters, telling the time (o'clock and half past) and recognising and adding coins.
- In Year 2 children will continue to build on, deepen and secure their knowledge by covering number and place value for numbers to 100, develop a variety of methods to solve addition and subtraction within 100, multiplication and division for numbers in the 2, 3, 5 and 10 times tables, money including coins and notes, statistics, measurement, properties of 2D and 3D shapes, fractions, time (to 5 minute intervals). Children will develop a range of problem solving methods and be able to select the most efficient method to find all the possible answers. In Years 1 and 2, each daily session includes a Power up starter, discover and share, think together, independent practice and reflection.

Impact:

We will be able to see that the children know more and remember more through evidence in their maths workbooks and progress tests. We will see that they are able to recall prior learning and apply it in a range of unknown contexts, for example, when problem solving or when finding more than one possible answer to a question. Children will be able to explain their understanding through reasoning and justifying the methods they have chosen and how they found the answer. We will see that children will have developed automaticity in the required skills and number facts they need by the end of each year. This will ensure children start their next year of learning with the necessary skills and knowledge to build on their learning.

- ✓ *Careful and detailed half-termly tracking of children's progress and attainment will show good progress and secure understanding.*
- ✓ *Measurable impact of interventions will 'plug gaps'.*
- ✓ *Children will be applying the number facts they have learnt e.g. number bonds, doubles, times tables etc.*
- ✓ *Children will understand and use a range of methods to find all the possible answers to a question or problem.*

If you were to walk into a Maths lesson at WFIS & Nursery you would see:

- *Engaged children working with concrete resources*
- *Discussion and collaboration as a whole class and with learning partners*
- *Children making connections with prior knowledge*
- *All children using mathematical vocabulary to explain their learning*
- *Children challenged through problem solving and reasoning activities*
- *Teachers supporting and challenging leaners*
- *Resilient children*

What does a good Maths learner look like by the time they leave Wallace Fields Infant & Nursery School?
By the time a child leaves our school we aim for them to be able to approach any problem and use multiple methods to solve or find a solution. Children will be able to explain to a friend how they came up with the answer using resources and mathematical vocabulary. They will have developed their resilience to overcome tricky problems that require them to use a range of different operations or processes. Children will also have a strong and secure sense of number through our 'Mastery Number Programme'.

British Values and Spiritual, Moral, Social and Cultural Learning in Maths:

British Values: Within Maths, children are encouraged to take into account the views of others in 'Think Together' activities and problem solving. The Year 2 Maths curriculum introduces statistics, collecting data and aspects of democracy through voting. Children work within boundaries to make safe choices during practical activities and behave appropriately, allowing all children the opportunity to work effectively. In Maths, children are taught to take turns, share equipment and review each other's ideas respectfully. Maths involves working collaboratively to solve problems, offer solutions and help others.

Social: Within Maths, children are provided with opportunities for group work, paired talk and peer assessments. Each of these elements promotes children's social development.

Moral: Practical work in Maths requires children to co-operate with others and help others where necessary to achieve as a group or pair. These opportunities require children to be selfless and explain Mathematical concepts in detail to other children, putting their own determinations to one side.

Spiritual: Every Maths lesson has a discovery element where children develop the knowledge, skills, understanding, qualities and attitudes they need to foster their own understanding of areas in which they need to develop.

Cultural: Children acquire a respect for their own culture and that of others, an interest in others' ways of doing things and curiosity about differences. During Maths, children are able to share how they carry out calculations and listen to the opinions of others. Sharing, listening, understanding and taking peer advice, are examples of cultural skills developed within Maths.

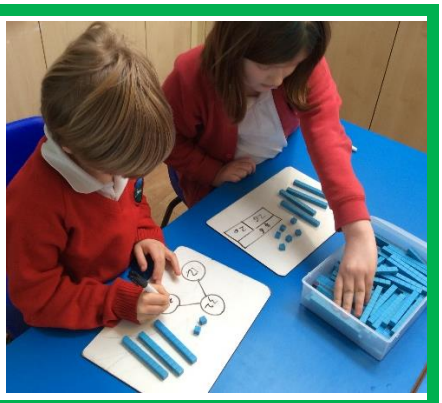
Pupil Voice:

Nursery: *"I like singing songs like 5 little monkeys."*
Reception: *"I like it when we do our maths outside and use massive ten frames on the floor."*
Year 1: *"I like working with my learning partner to talk about our ideas.''*
Year 2: *''I love Power Maths because I really like the challenges."*

Outstanding Learning Outcomes:

Maths can be anywhere! Here are some Reception children taking their maths learning outside using ten frames to recognise and compare different numbers within 10.

Here are some Year 1 children using counters to explore different ways to make 10 on a part-whole model. In Year 1 it is important that children learn their number bonds to 10.



Here are some Year 2 children partitioning numbers to 100 in different ways. They have used dienes, a part-whole model and a bar model to help them.

Successes in 2021-22:

- ☺ To continue to develop the maths mastery approach across the school, including the new EYFS framework, through support from the Maths Primary Specialist training: *Mastery maths training and team teaching opportunities have had a hugely positive impact on teaching and learning. The maths lead has supported Reception teachers with their Maths planning alongside training on the new EYFS maths requirements. This has enhanced the Maths curriculum and continuous provision in the EYFS. Children are developing secure and deeper knowledge of concepts. This is evident through learning walks, pupils books and conversations with pupils.*
- ☺ To ensure sufficient time is given to areas of the maths curriculum identified as NCETM priority areas: *Teachers are consistently using NCETM resources and materials in their teaching. Teachers have found that since doing this the children are much more successful in lessons as it identities gaps and misconceptions much earlier. Our recent OFSTED inspection reported 'clear assessment in maths', 'clear scope of the maths curriculum and in some places it is taken even further' and 'purposeful assessment in maths which personalises the curriculum'.*
- ☺ To develop fluency skills for all children in Reception, Year 1 and Year 2: *Teachers have all received training for the NCETM 'Mastering Number Programme' and have implemented these daily 15 minute sessions in the Summer term 2022 to develop fluency and secure Number sense. This has had a huge impact already and will continue throughout the next academic year. The use of NumBots this year (online app) has been very popular and well used amongst pupils across the school.*

Priorities for 2022-23:

- ⇨ To ensure the Power Maths mastery approach is fully embedded and consistent across the school: *The Maths lead, alongside teachers in the STEM faculty, will aim to ensure and monitor high quality teaching and learning of Maths ensuring that there are support and depth activities in every lesson to provide additional support and challenge where necessary. The Maths lead will aim to ensure that teachers continue to use the NCETM lesson resources to embed and secure knowledge of taught mathematical concepts.*
- ⇨ To continue to implement and embed the Mastering Number Programme: *The Maths lead will ensure that additional daily teaching sessions for all children of 10 to 15 minutes are taking place consistently and will attend training to share practice and engage in critical reflection and next steps. The Maths lead will analyse progress and attainment data in assessment weeks to monitor impact of the programme.*
- ⇨ To continue to ensure rapid and effective support for those children identified as not being on track to meet their target or achieve age related expectations: *Interventions and additional support will be provided for children who have gaps in their learning. We will ensure that all children, including those with SEND will receive daily preteach of vocabulary and maths skill including a recap at the end of the day where needed. Work will continue to be adapted where necessary to ensure that children are able to work independently and experience success in maths.*