



Maths Policy

JULY 2020

Oasis Academy Putney Primary School

Mathematics Policy



School vision

Together we learn, grow and achieve.

Maths intention

At Oasis Academy Putney, we follow a 'mastery approach' to mathematics. Our aim is to support and encourage children to build a deep conceptual understanding of concepts which will enable them to apply their learning in different situations. Every child will be supported in developing their mathematical fluency and conceptual understanding and will have the opportunity to 'master maths'.

Our cumulative maths curriculum encourages children to consolidate and connect their learning; ensuring that they develop basic maths skills that are vital for future life opportunities. We offer our children a broad range of experiences that promote positive attitudes towards mathematics and provide our children with a range of strategies to draw upon. Our children learn number sense and place value which allows them to become confident and fluent in maths. Once basic skills have been established the children begin to develop a greater depth of understanding which prepares them for reasoning and problem solving.

To inspire our children to develop a deep understanding of mathematics we focus on the 3 dimensions of depth (Mathematics Mastery). These dimensions are conceptual understanding, language and communication and mathematical thinking. We strive to provide our children with rich opportunities that encourage them to:

- Connect and represent maths in different ways (conceptual understanding)
- Explain, justify and prove maths using mathematical language (language and communication)
- Explore mathematical concepts by sorting, comparing and pattern seeking (mathematical thinking)

Problem solving is central to the mastery approach. Children share a sense of wonder and become empowered when they take on new and unfamiliar challenges. We believe that our children should be encouraged to investigate, seek solutions, make new discoveries and reason about their findings. Problem solving tasks require pupils to apply and deepen their previous learning and to explain their mathematical thinking. Therefore, by providing children with opportunities to problem solve we will be increasing their depth of understanding and their resilience.

Our maths curriculum aims:

- Every child has a positive attitude towards maths
- Every child becomes fluent in the fundamentals of maths
- Every child has the opportunity to deepen their understanding (dimensions of depth)
- Every child is encouraged to reason and problem solve

Mission Statement

Oasis Academy Putney is driven by a powerful ethos which aspires to treat everyone inclusively and recognises the importance of a holistic approach to education. As well as continuing to build a strong school and deliver a first-class education, it is also our desire to build an interconnected community, recognising that educational needs do not exist in isolation from the needs of the whole person.

Our mission in maths is to ensure that every child enjoys and succeeds. To do this we work in partnership with Mathematics Mastery to deliver world class maths teaching within our school.

Teaching and Planning

At Oasis Academy Putney we work in partnership with Mathematics Mastery, an organisation that provides us with collaboration, professional development and specialist training. Teachers use and adapt high quality planning guidance and lesson materials to deliver exceptional maths teaching and learning. The curriculum is cumulative and is designed to meet the requirements of the national curriculum. Children learn and connect concepts throughout the year, providing them with the opportunity to 'master maths'.

'In mathematics, you know you've mastered something when you can apply it to a totally new problem in an unfamiliar situation.'

Dr Helen Drury, Executive Director and founder of Mathematics Mastery

Like Mathematics Mastery, our mission is to ensure that every child enjoys and succeeds in maths. This means that we cover fewer topics in greater depth and we strive to achieve mastery for all. To do this we establish children's number sense and understanding of place value and ensure that problem solving remains an integral part of their maths learning.

Mathematics Mastery Lessons

Lesson structure

Teachers follow a six-part lesson structure. This keeps the lesson pacy, gives flow and allows more opportunities to teach creatively, give feedback and assess learning.

1. **Do now**

The purpose of the do now task is to consolidate previous learning. This could be recapping on what was learnt the day before or a topic from a previous unit that is necessary for the current lesson. Do Now tasks can be independent work that the children do at their tables or on their whiteboards for about 5 minutes. Alternatively, teachers may like to teach Fluency First in this section of the lesson. This is a teacher led task that may consolidate previous learning or introduce new concepts. This is an opportunity to rehearse, reinforce and consolidate mental calculation skills.

2. **New learning**

The New Learning section introduces the main learning for the lesson, beginning by sharing the lesson's key vocabulary with the pupils. This segment will require clear explanations and modelling of tasks to be completed throughout the lesson, especially the Talk task.

3. **Talk task**

As language is such an important feature of Mathematics Mastery, **Talk Tasks are imperative**. This segment allows talking about maths and comprehension to be developed, and provides opportunities to use mathematical language. The main focus here is on the children working together in pairs or small groups and talking in full sentences about maths.

4. **Develop learning**

The Develop Learning segment is designed to mirror the New Learning earlier in the lesson, but aims to move the pupils' learning on further and deepen their understanding. Learning could be developed by introducing different resources, adding a problem solving element, or encouraging further good language use following the Talk Task. This is a great opportunity to assess progress and understanding, and deal with any common misconceptions before pupils start independent work.

5. **Independent task**

This segment gives pupils the opportunity to practise their Develop Learning by working independently and demonstrating what they have understood and learnt. Although this is an independent task, this does not mean that the children must work alone, in silence, as they should be encouraged to discuss mathematical concepts together using the key vocabulary of the lesson. Here, tasks **will need to be adapted** so they challenge everyone in the class.

6. **Plenary**

The final part of the lesson is used to reflect on learning, gather evidence for assessments and plan for

future learning. It should sum up what the children have learnt during the lesson, consolidating all learning, address any common misconceptions, and pose a question for the next lesson.

In reception children engage in mathematics throughout the day and a maths challenge is always set up both inside and outside of the classroom. They have a dedicated time after lunch for maths teaching and learning and they follow the six-part lesson structure to do deliver this. However, at this stage in their education it is more suitable for the children to complete a short focus group activity, with a small number of peers and the class teacher, instead of completing an independent task.

In KS1 and KS2 50-60 minutes will be spent on the teaching and learning of mathematics every morning. Maths is taught as a discrete subject but cross curricular links are made to the class topic when relevant. Teachers also enable pupils to place mathematics in the world around them by integrating maths into other subject areas.

Transitions

Transitions are times when pupils move from place to place (e.g. carpet to tables) or from activity to activity (e.g. talk task to develop learning). The aim of transitions is to ensure every second of the maths lesson counts. Transitions can consist of songs, chants, counting and call & response activities with the teacher. These activities are exciting for the pupils, and helps to keep them focused on the learning and the lesson flowing. It is imperative that the transitions are smooth, snappy and meaningful, so these will need a lot of practice initially. Although these may seem repetitive at first, this repetition will aid learning, and eventually each lesson will use a variety of transitions.

Resources

Pupils have access to of concrete materials such as:

- Cubes
- Counters
- Numicon
- Dienes
- Bead strings

Providing children with such manipulatives allows them to explore the mathematics. Resources are clearly labelled and kept in the maths cupboard (next to the year 3 classrooms). Teachers must remind children to take care of resources and should return resources after use. If new equipment needs to be ordered, or old equipment needs to be replaced, teachers should let the Maths Subject Leader know.

During lessons children should be able to choose from a range of manipulatives so that they can make connections between different representations. However, they will be taught how different manipulatives can be used for specific purposes e.g. dienes to represent place value.

Each classroom has an interactive whiteboard. ICT is used effectively to support the teaching and learning of mathematics through the use of mathematic mastery smart slides and interactive resource websites such as:

<https://nrich.maths.org>

<https://www.topmarks.co.uk>

<https://uk.ixl.com>

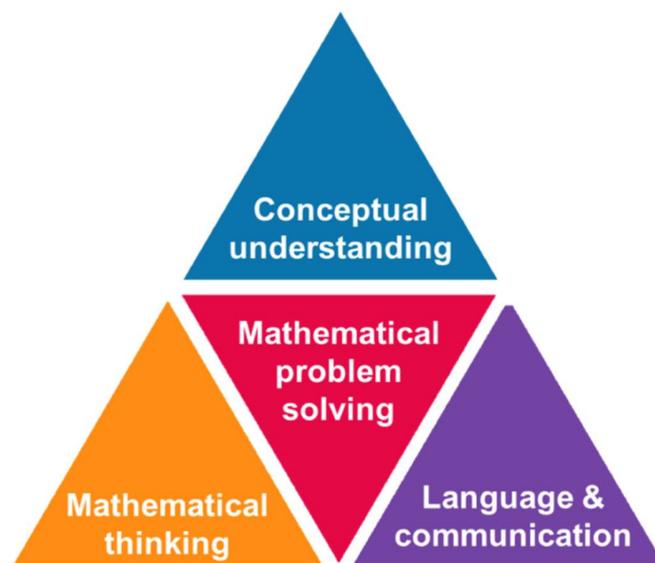
<https://www.youtube.com/user/TheLearningStation>

Additional Adults

Teaching Assistants should be provided with Mathematics Mastery training and should be used to supplement the teaching and learning effectively. Teaching Assistants will work to support specific groups or individual children and will encourage the key principles of the mastery approach. Teachers will provide teaching Assistants with an outline of the lesson and ensure they know how to support the children in achieving key learning.

Differentiation and the 3 Dimensions of Depth

Mathematics Mastery encourage the use of the 'Dimensions of depth' to deepen pupils' understanding.



Conceptual understanding – Pupils deepen their understanding by representing concepts using objects and pictures, making connections between different representations and considering what different representations stress and ignore.

Language and communication – Pupils deepen their understanding by explaining, creating problems, justifying and proving using mathematical language. This use of language also acts as a scaffold for their thinking.

Mathematical thinking – Pupils deepen their understanding by asking and exploring great questions, by giving examples, by sorting and comparing or by looking for patterns and rules in the mathematics they are exploring.

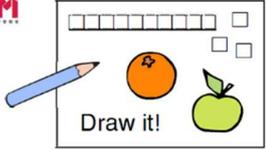
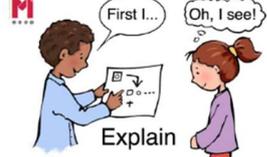
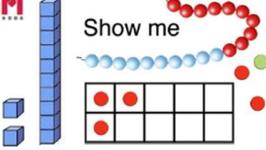
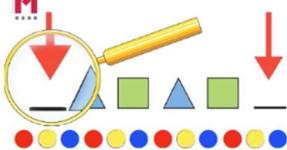
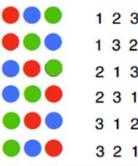
Problem solving is at the heart of the mastery approach. Pupils are provided with dedicated time to master each new concept so they can reason and problem solve in unfamiliar contexts.

Differentiation

Teachers differentiate learning through the dimensions of depth; ensuring that children are not accelerated through topics but instead develop a deep conceptual understanding of mathematics. Each teacher is responsible for adapting Mathematics Mastery guides so that they suit the individuals and class that they teach.

Children will work in mixed ability pairs/ groups for the majority of the lesson. However, when it comes to the independent they should be seated with children who are completing the same task. This will enable them to further develop their language and communication as they discuss their learning with their partner.

As much as possible the children in the class will be working towards the same learning objective. They will be sufficiently supported with scaffolded work or sufficiently challenged through the 3 dimension of depth or the suggested ideas for depth:

<p>M</p> <p>? ← Answer</p>	<p>M</p> 
<p>M</p>  <p>Draw it!</p>	<p>M</p>  <p>Explain</p>
<p>M</p> <p>Show me</p> 	<p>M</p> 
<p>M</p> <p>What's the same?</p>  <p>What's different?</p>	<p>M</p>  <p>1 2 3 1 3 2 2 1 3 2 3 1 3 1 2 3 2 1</p>
<p>M</p> <p>Maths story</p> 	<p>M</p> <p>Odd one out</p> 

Teachers use a range of resources from websites such as Nrich and White Rose to find additional tasks that challenge pupils and encourage them to problem solve. Progression of learning should be evident in every lesson.

Maths Meetings

An important aspect of Mathematics Mastery is the daily maths meeting, which is used to consolidate key areas of mathematics in your class. The key purpose of the maths meeting is to develop fluency, confidence and number sense. Therefore, every meeting should have a focus on number e.g. number bonds, adding/subtracting, counting in 2s, 5s and 10s etc. The meeting should cover 2 other areas of maths but should remain high paced. Maths meetings should last 10-15 minutes and should be led 3-5 times a week. This time can also be used to consolidate learning, address misconceptions and recap any learning that the children particularly struggled with. Maths working walls should be updated each term (Autumn, Spring and Summer) and should have resources that support that terms maths meeting non-negotiables. These can be found on the math meeting guidelines for each year group.

Maths Working Walls

- Boards must have a lettered title reading 'Maths Working Wall'
- KS1 boards must have a 100 square, EYFS a number line
- Boards must have resources that support that term's non-negotiables

- Boards must have an area designated for current learning and star words
- Photo evidence of the children's work (current unit) must be displayed



Recording and Marking

Recording

In KS1, children will complete daily maths work. As much as possible the children will work directly in their maths books, using the squares correctly. Occasionally children will work on worksheets which will be then be neatly stuck into their books. Photographic evidence will be taken if children work only with concrete manipulatives.

Every child has their maths book. Children and teachers follow the guidance below:

Book Presentation Guidance

- Orange 1cm squared book with Oasis name label on the front
- Ideas for depth sticker stuck in the front cover
- Short date in top left corner, using dots rather than slashes e.g. 23.1.20
- Leave a line
- LI (must be LI and not LO)
- Date and LI must either be hand-written by the child or must be printed on labels
- Reception glue in page toppers that include the short date, the LI and a success criteria
- Labels and writing must start in the first row of full boxes in the top left-hand corner of the page.

- All writing in Twinkl Cursive Unlooped
- No margins and no underlining
- Children must only write one number/ sign in each box however when they are writing sentences they should write on the horizontal lines as normal (ignoring the boxes).
- Worksheets should be kept to a minimum (only when necessary).
- Green pen used for ticks (correct answers), pink pen used for dots (incorrect answers)

Marking and Assessment

Children's work is marked according to the marking policy. Marking is carried out daily and children are given next steps/ corrections to complete using a pink pen twice a week.

Assessment for learning takes place in every lesson, through questioning, carefully scaffolded activities and effective teacher feedback. Formal assessments are made half-termly, informed by a combinations of teacher's ongoing assessments, Head Start assessments and Mathematics Mastery interim assessments.

Homework

Homework will be sent out to children on a weekly basis and will link to the current learning in the classroom. To help parents support their children with maths homework, a parental guidance page will be included with every activity. This will provide parents with the opportunity to understand the methods their child is being taught. Each piece of homework will have:

- The title of the unit of work
- The key learning that is intended
- Key vocabulary listed and explained
- A worked example
- A box for pupil and parent comments

The homework will be differentiated to appropriately challenge every child. Work will be scaffolded to support the lower achieving pupils and scaffolding will be reduced to stretch the higher achieving pupils. All children will have the opportunity to complete a depth task for most pieces of homework. Mathematics Mastery 'ideas for depth' will be used to provide every child with a depth challenge to complete.

Role of the subject leader

1. To monitor the subject and be able to comment accurately on:
 - standards throughout the school
 - progression of skills throughout the school
 - trends over time
2. Know the strengths and weaknesses in the maths and implement an action plan in line with school policy.
3. Write, maintain and develop a policy for the delivery of maths in the school.
4. Advise and assist members of staff within the school in the delivery of maths.
5. Order and maintain resources so the subject can be successfully delivered throughout the school.
6. Manage the maths budget.
7. Maintain professional development of the subject leaders and staff within the school in regard to mathematics.
8. Lead staff meetings and feedback to staff on any undertaken CDP.
9. Work alongside the SENCO and staff to support the provision for identified pupils.