

# Mathematics Curriculum

## Intent

Eden Park is a school which values mathematics. We believe it is a beautiful subject which, when harnessed, allows people to better understand and rationalize the world around them. It is a unique language which transcends cultural boundaries, and through it, all children can experience a sense of awe as they solve a problem for the first time, discover a more elegant solution and make links between seemingly unrelated areas of mathematics. Mathematics teaches us to think and is regularly responsible for changing the world.

### Aims

- To implement the current legal requirements of the Foundation Stage and National Curricula, through the use of the Foundation Stage Curriculum Guidance and the Primary Framework for Mathematics.
- To foster positive attitudes to and remove fear of mathematics, allowing our children to develop a resilient 'can do' attitude and to perceive themselves as mathematicians.
- To allow all children to experience the fascination and excitement of discovery through the lively and engaging teaching of mathematical concepts.
- To broaden children's knowledge and understanding of the importance of mathematics in the wider world.
- To give the children opportunities to become increasingly fluent in the 'building blocks' of mathematics in order to allow them to fully immerse themselves in deeper reasoning about the structure and implications of their mathematics.

We have adopted a coherent, rigorous and sequential approach to maths which is guided currently by the National Curriculum, but shaped by White Rose mathematics, The NCETM and the new government guidance on 'Ready-to-progress' criteria.

## Implementation

- Teachers and teaching assistants have a clear knowledge of the mathematical 'non-negotiables' in each year group and plan to ensure that every child is given the maximum possible support to achieve these.
- Lessons are designed in order to challenge children's thinking rather than learning a method for performing a calculation. Where possible, links are drawn to how this concept is relevant to the outside world.
- Children at all levels are required to explain their thinking, reasoning and understanding. This may be scaffolded by the use of stem sentences, probed by the use of high-quality questioning and recorded through journaling.
- Teaching sequences are designed to begin at a level accessible to all children and move their learning forward through carefully chosen small steps throughout which children are expected to reason about their learning.
- Throughout their school journey, children are presented with appropriately selected images and manipulatives to underpin their understanding. These are kept consistent from year to year through the school's adoption of a single scheme of planning, though lessons are adapted to the needs of the children in each group.
- It is acknowledged that in every lesson, teachers will be involved in two-way dialogue with children which will necessitate considerable flexibility in the direction a lesson takes, and which will often change the next lesson in a sequence. Teachers will not plan a long series of lessons and deliver them 'at' the children.

Non-negotiables have been put in place for each year group:

- Year R – Count reliably with numbers from 1-20.
- Year 1 – Recall number bonds and related subtraction facts within 10.
- Year 2 – Recall and use addition and subtraction facts to 20 fluently.
- Year 3 – Recall and use multiplication and division facts for 2,3,4,5(,8) and 10x tables.
- Year 4 – Recall and use multiplication and division facts up to 12x12.
- Year 5 – Apply tables knowledge to contexts in which the products have been multiplied by 10, 100 or 1000 (E.g. Understand that  $0.4 \times 0.6$  is 0.24 because  $4 \times 6 = 24$ )

Following the publication of the Ready-to-progress criteria

([https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/897806/Maths\\_guidance\\_KS\\_1\\_and\\_2.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/897806/Maths_guidance_KS_1_and_2.pdf)), these should be merged with those on p334:

### **Factual fluency progression**

	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Additive factual fluency</b>	Addition and subtraction within 10.	Addition and subtraction across 10.	Secure and maintain fluency in addition and subtraction within and across 10, through continued practice.		
<b>Multiplicative factual fluency</b>			Recall the 10 and 5 multiplication tables, and corresponding division facts.	Recall the 3, 6 and 9 multiplication tables, and corresponding division facts.	Secure and maintain fluency in all multiplication tables, and corresponding division facts, through continued practice.
			Recall the 2, 4 and 8 multiplication tables, and corresponding division facts.	Recall the 7 multiplication table, and corresponding division facts.	
				Recall the 11 and 12 multiplication tables, and corresponding division facts.	

### **EYFS - Reception offer**

- In Early Years we aim to offer and deliver high quality Maths opportunities and sessions to enable children to have a deep understanding of mathematical concepts.
- We deliver discrete teaching sessions from the Nurseries to the Reception classes guaranteeing small steps are taken to ensure all children are secure in a concept before moving on. We refer to this as a mastery approach.
- We are passionate about Maths and aim for children to be curious and fearless.
- Starting in our Nurseries, we develop the children's fluency of number starting with 'representing number'.
- We make sure children understand that numbers can be found everywhere and be represented in lots of ways.
- We give our children opportunities to explore numbers through small world play and having access to lots of different materials and objects
- Our environments are rich in mathematical opportunities with each area of our continuous provision providing an aspect of maths
- Within our Reception classes we follow a school wide mathematical structure laid down by White Rose Maths, which is delivered to the whole class for short sessions. This allows children to explore numbers, solve problems and develop their reasoning skills.
- The children play games involving dice, dominoes, playing cards and sorting and matching as well as developing their mathematical skills through stories and rhymes

**Key Stages 1&2**

- Maths is taught in a discrete session every day throughout the school.
- New concepts are taught in small steps to allow all children access to all learning.
- Children are encouraged to continue with their maths learning at home, sometimes in the shape of formal homework.
- Teachers and teaching assistants provide extra practise for the children who make the slowest progress, giving them the best possible chance to catch-up. This may take the form of pre-teaching or direct individual or small group intervention at the point of need.
- Children are assessed formatively often, including by the use of DUG sheets and government assessment materials, and are assessed summatively twice a year or more, currently using PUMA and SATs materials.
- Children in Year 6 who are demonstrating a particular aptitude for mathematical thinking are invited to join ‘Geek club’, in which mathematical ideas beyond the KS2 curriculum are explored.
- Lessons are designed to ensure that children are given enough time to practise and develop arithmetic fluency as well as reasoning about numbers and mathematical concepts.

**Summative Assessments**

- PUMA is used to assess maths at the end of Year 1. Outcomes are then used to target support and for the next year.
- At the end of Year 2, Key Stage 1 government assessments are completed for maths.
- PUMA is used to assess maths at the end each term in Year 3, 4 and 5. Outcomes are then used to target support and for the next year.
- At the end of Year 6 , Key Stage 2 government assessments are administered and the outcomes are reported.

**Staff development**

All staff have received extensive professional development and have, as a result, developed a deeper understanding of the pedagogy associated with the mastery approach to maths teaching. Joint Practice Development across our Academy Trust as well as dedicated Staff Development Time at Eden Park has allowed us to refine and improve our approach to the maths curriculum. It is never-ending and we continue to learn new things every day!

Enriching the Mathematical Experience	
Whilst we look to make every maths lesson engaging, fun and rich experience, we intend to take the opportunity to highlight the beauty of maths across the school for one special day each term.	
Autumn	EP Beauty in Mathematics Day Explore an aspect of maths that you find beautiful in some way
Spring Pi Day	Originating in the USA, Pi Day is held on 14 <sup>th</sup> March (US date 3.14). Explore an aspect of maths to do with the world or the history of mathematics
Summer	National Numeracy Day This is observed on the Wednesday of the second full week of May. Explore an aspect of mathematics to do with number.

# Impact

## RECEPTION

% expected or exceeding GLD			
2016	2017	2018	2019
56.1	66.1	67.8	72%

% of children achieving ELG in mathematics		
	NUMBER	SHAPE, SPACE AND MEASURE
2016	78% expected and of these 2% exceeding	75% expected and of these 2% exceeding
2017	74% expected and of these 12% exceeding	78% expected and of these 0% exceeding
2018	81% expected and of these 17% exceeding	80% expected and of these 8% exceeding
2019	85% expected and of these 13% exceeding	83% expected and of these 8% exceeding

## KEY STAGE 1

% achieving expected standard or above		
	2017-2018	2018-2019
Eden Park	77%	77%
National	75%	76%

## KEY STAGE 2

% achieving expected standard or above		
	2017-2018	2018-2019
Eden Park	85%	76%
National	76%	79%



# A few examples of maths provision within our classrooms...







