



Hayward's Primary School



# Maths Policy

## Hayward's Primary School



Written by:	School Based Policy	Signed:
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## OBJECTIVES

This policy is aimed at raising the attainment of Maths at Hayward's Primary school by:

- Providing consistency across the school in terms of teaching strategies, displays and layout of books
- Ensuring teachers reflect clearly on the needs of their current class and identify, and use, the most appropriate strategies to ensure their attainment is maximised
- Supporting staff in outlining what 'best practice' looks like at Hayward's Primary School
- Recognising the range of needs at the school and providing opportunities for staff to access support and training

## INTRODUCTION

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore 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. (National Curriculum 2014)

## HAYWARD'S MATHS VISION

### INTENT

At Hayward's, we strive for all children to develop a positive attitude to Maths as an interesting and valuable subject; we do not want children to fear Maths yet have a belief that they can achieve highly.

We strive for all children to become confident when talking about their mathematics, using reasoning – resources, diagrams and explanations – to show their understanding; we have high expectations of children's use of mathematical language.

We strive for all children to understand that Maths is not only the quick recall or computation of number facts – although these are fundamental – but that it is the considered thought and application, using what they know to work through a problem; we want children to feel confident when solving problems and develop a tool kit of problem-solving strategies which they can use inside and outside the classroom.

We strive for all children to develop a range of efficient strategies – their own tool kits – and make choices about how to use their maths; we want children to make decisions and explain them.

We strive for all children to feel challenged but enthused by Maths; we want every child to enjoy and succeed as Mathematicians, understanding its very important place in our world.

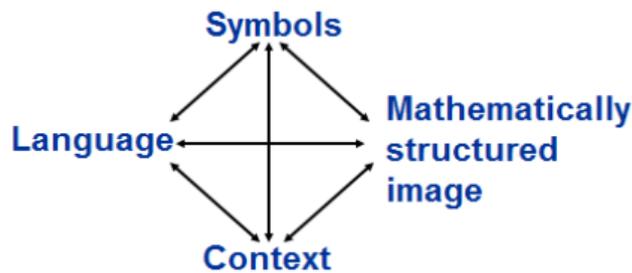
We strive for our lessons to be filled with discussion, questioning and exploration.

We strive for all children to embrace struggle/challenge and be comfortable with not getting everything right.

### IMPLEMENTATION

Maths lessons at Hayward's include the following:

- Daily fluency for knowledge recall
- Reasoning and problem-solving activities, which are incorporated into the maths lessons to develop and deepen mathematical thinking
- Good quality teacher modelling
- Imagery and resources
- Children responding to questions in full sentences so that everyone understands them
- Children having the opportunity to discuss and challenge their thinking, in mixed ability pairings
- Connective model:



Teachers will draw from a range of mathematical sources, including NRICH and White Rose Maths.

Care is taken by the teacher to ensure appropriate activities are given to deepen and support a level of understanding amongst the pupils.

Pictures, words, numbers, objects and other mathematical resources are used to help children explore, solve and demonstrate mathematical ideas and deepen their understanding.

Resources are readily available in each classroom to assist children with developing or demonstrating their understanding.

Careful consideration has been given to the Hayward's calculation policy, which is used to ensure a consistent approach to teaching the four operations in each year group.

Daily arithmetic sessions mean that children are able to build fluency and precision of the four operations. At the end of each academic year, year group teachers review and amend the Hayward's yearly overview for the following year and the blocks suggested on here are followed.

Parent workshops enable families to appropriately support their children.

Regular home learning is expected of the children. We use two platforms to support this learning: Hit The Button in Years 1 and 2 (aimed at developing the children's rapid recall of key number facts) and TTRS in KS2 (aimed at developing the children's rapid recall of key times tables facts).

## IMPACT

- Children believe that they will achieve
- Children have the flexibility to move between different contexts and representations of maths
- Children demonstrate a quick recall of year group-appropriate arithmetic facts
- Children are positive in their conversations around maths
- Children understand and are able to apply age-appropriate vocabulary
- Children show a high level of pride in the presentation of their work
- Most children achieve the expected standard for their year group
- Most children make age-appropriate progress

## STATUTORY REQUIREMENTS

At present we are following the guidelines from the new National Curriculum Document (2014). The Early Learning Goals are followed to ensure continuity and progression from the Early Years Foundation Stage through to the National Curriculum.

The aims of the 2014 National Curriculum are for our pupils to:

- Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.



- Problem solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering.

The National Curriculum sets out year-by-year programmes of study for key stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.

In the EYFS, it is essential that we are developing a strong grounding in number so that all children develop the necessary building blocks to excel mathematically

Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.

By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built.

In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures.

It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes (<https://help-for-early-years-providers.education.gov.uk/mathematics>)

## THE GOVERNING BODY

The Maths Subject Leader meets with the Maths link governor, in order to ensure Governors are up-to-date with Maths at Hayward's Primary School. Governors will complete the following roles:

Where a D is entered below, the lead governor has delegated decision making. This must be reported back to the full GB. NB committees cannot delegate decision making to individual governors, only the full GB can do this.

Where an R is entered below, the lead governor(s) will provide a recommendation to the full governing Board.

Curriculum (Maths)	D/R
To recommend the school's Maths Curriculum Policy and any updates to the GB for approval and to monitor implementation of changes to the school curriculum in line with national and local guidelines and requirements	R
To ensure that the National Curriculum for Maths is taught to all pupils within school	D
To receive information from the Headteacher and the staff about how the curriculum is taught, evaluated and resourced	D
To contribute to strategic planning within the school, and to lead on the recommendation of the School Improvement/Development Plan and any changes to the full Governing Board	D
To review data with the Headteacher and report key messages on school performance, including benchmarking information, to the Governing Board	D

The Head teacher shares data regularly with Governors and this is discussed at SLT meetings as well.

## SUBJECT ORGANISATION

Maths is taught through daily lessons. Furthermore, opportunities are provided so that it is developed and embedded in cross curricular contexts. Short, discrete Maths activities may take place at other parts of the day in short bursts. Arithmetic is regularly taught.

Careful planning and preparation ensures that throughout the school children engage in:

- practical activities and games using a variety of resources
- problem solving to challenge thinking



- individual, paired, group and whole class learning and discussions
- purposeful practise where time is given to apply their learning to open and closed tasks
- a range of methods of calculating e.g. mental and pencil & paper

## INCLUSION OF ALL PUPILS

Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, children's **My Plans** incorporate suitable objectives from the National Curriculum for Mathematics and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 or small group basis outside the mathematics lesson. Maths focused intervention in school helps children with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher.

Within the daily mathematics lesson teachers have a responsibility to not only provide differentiated activities to support children with SEND but also activities that provide sufficient challenge for children who are high achievers. It is the teachers' responsibility to ensure that all children are challenged at a level appropriate to their ability.

Examples of additional support in Hayward's:

- Counting to Calculating
- Mighty Maths
- Same-day intervention
- Conferencing

It will be identified that some children will be at a greater depth level. As stated, class teachers will provide opportunities for these children to be challenged **through adaptive teaching**. Yearly, the Maths lead will look for opportunities for children working at Greater Depth.

Positive attitudes towards maths are encouraged, so that all children, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics.

The aim is to ensure that everyone makes progress and gains positively from lessons and to plan inclusive lessons. Lessons involving lots of visual, aural and kinaesthetic elements will benefit all children including those for whom English is an additional language (EAL).

Differentiated questions are used in lessons to help children and planned support from Teaching Assistants and other adults.

## MATHS LESSONS AT HAYWARD'S

In all lessons, learning objectives and success criteria are clearly displayed and discussed. The emphasis in lessons is to make teaching interactive and lively, to engage all children encouraging them to talk about mathematics.

Lessons involve elements of:

- Instruction – giving information and structuring it well
- Demonstrating – showing, describing and modelling mathematics using appropriate resources and visual displays
- Explaining and illustrating – giving accurate and well-paced explanations
- Questioning and discussing
- Consolidating
- Reflecting and evaluating responses – identifying mistakes and using them as positive teaching points
- Summarising – reviewing mathematics that has been taught enabling children to focus on next steps

Learning Walls in classrooms will display key knowledge for children to call upon when needed. It is the teacher's responsibility to ensure that learning walls are useful and that children engage with them.



Each class has a stock of core resources that are age appropriate. Additional mathematical equipment and resources are stored centrally in the red boxes by the first aid area.

## PLANNING EXPECTATIONS

- Teachers should plan to cover all objectives in a year
- Each year, teachers complete a yearly overview for Maths covering all objectives in the NC; and they complete block plans breaking objectives down into small steps, before then planning weekly.
- Teachers refer to the Maths Vocabulary document when planning and delivering lessons
- Hayward's subscribe to White Rose Hub and Classroom Secrets 's to support teachers with planning
- Some objectives may need longer than others based on teacher assessment of children's understanding
- Teachers should plan to teach objectives so children acquire the knowledge needed to be successful, but all children should also be developing their problem-solving skills across the different areas of Maths
- Blocks should be planned in line with the yearly overview
- When teaching calculation, teachers should refer to the Calculation Policy, also available for parents on the website
- Activities should be context driven – money, measures, real life – where possible  
*Please see Maths Planning Guidance in Appendix for more information.*

## MATHS BOOKS

All classes have green Maths books with squares in. Children are taught a variety of methods for recording their work and are encouraged and helped to use the most appropriate and efficient. Children are encouraged to use mental strategies and their own jottings before resorting to more formal written methods. Children's own jottings to support their work is encouraged throughout all year groups. In all year groups, children are encouraged to use pictures and diagrams to both support their learning and show their understanding.

## ASSESSMENT AND TARGET SETTING

Marking of children's work is essential to ensure they make further progress. Work is marked against success criteria, in line with the school marking policy. Children are encouraged to self-assess their work and given time to read teachers' comments and make corrections or improvements. Responses to marking are made as close to the work as possible, ideally at the start of the next lesson. Some pieces of work in mathematics can be marked by children themselves, especially exercises involving routine practice, with support and guidance from the teacher – particularly in years 5 & 6. Children will mark their own work with a green pen.

Assessment is an integral part of teaching and learning and is a continuous process. Teachers make assessments of children daily through:

- regular marking of work
- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short term planning evaluated in light of these assessments. Teachers have an assessment sheet for their class that they will complete as the year progresses.

Summative assessments are carried out termly. There are termly assessment weeks, during which the tests are carried out. PUMA tests are currently used which provide a Maths Age, a Hodder Scale score and a Standardised Score. This, along with teacher assessment, will help the teacher decide whether the child is working at ARE – age-related expectation. Progress is recorded and tracked using the SIMs system. This system supports school



leaders and teachers in closely monitoring progress. It also highlights individuals or groups of children who make less-than-appropriate progress.

Year 1 and Year 2 have 3-5 Mental Maths non-negotiables: number facts that we aim for all children to be able to recall within 5 seconds. These are formed as bookmarks and placed in children's Maths books to track progress.

*Please see Assessment Guidance in Appendix for more information.*

## THE USE OF ICT

Times Table Rock Stars is an online program that we subscribe to as a school. In either paper form or online, Times Tables Rock Stars is a carefully sequenced programme of daily times tables practice.

Each week concentrates on a different times table, with a recommended consolidation week for rehearsing the tables that have recently been practised every third week or so.

This format has very successfully boosted times tables recall speed for hundreds of thousands of pupils over the last 8 years in over 14,000 schools - both primary and secondary - worldwide.

In school, KS2 children will complete 4 paper sheets each week. At home, children are expected to complete 10minutes, at least 3 times a week. This engagement is monitored by class teachers and the Maths lead.

## ROLE OF THE MATHS LEADER:

The Maths Leader supports the teachers in their planning, teaching and assessing. This support can be through 1:1 work, through admin meetings, during lesson observation/learning walk feedback and in unit meetings. There are teacher training meetings, and regular monitoring and evaluating takes place e.g. book scrutiny and learning walks. The Maths Leader is also responsible for purchasing and organising resources.

Additional references: Calculation Policy, Maths Coverage Documents, Marking Guidelines, Marking Code, Planning formats, Mental-Maths non-negotiables and Assessment Guidance

Member of staff responsible: Sam Tutton and Hannah Venning



## APPENDIX 1

### Maths Planning Guidance For Teachers

#### **Yearly Overview**

- Complete yearly overview at the start of each academic year to map out when topics will be taught
- Key vocabulary to be shown alongside each topic

#### **Planning a block**

##### **The Block Overview - Non-negotiable:**

- Complete the Block Overview before every block

##### **The Block Overview: The Thought Process Rationale**

- Have a conversation with partner teacher
- Break objectives into small achievable steps for each lesson (in some cases this may be part of a lesson/more than a lesson)
- Consider the order of these small steps within a block
- Agree on a task which will determine a child's overall success within the block
- Consider potential misconceptions children may have which will prevent true understanding

#### **Essentials of a weekly Maths Diet**

##### **Non-negotiables:**

- Recapping / revisiting areas of Maths that are NOT within current block of learning
- Activities to promote reasoning need to promote reasoning
- Support / Challenge for extremes
- Scaffolding for children aiming for ARE who may need more
- Developing mental arithmetic skills
- Practising key arithmetic skills in a variety of different forms – timed/untimed/mixed/discrete
- Assessment questions
- Planning and associated SMART boards to be saved in the Maths planning folder on the Google Drive at the time of planning or paper planning folder which HV can have access to if asked



## APPENDIX 2

### Assessment Sheets

These sheets are based on key assessment points; they are not a comprehensive list of year group objectives. When planning, you should use the coverage sheets to ensure full coverage.

Each teacher should have one A3 Assessment Sheet for their class, with each child's name written across the top.

The Assessment Sheets are broken into 2 sections:

#### **1) Reasoning and Problem Solving**

For each of these key objectives, at the end of each term you should make a teacher assessment, using a range of evidence. In line with the explanations below, this should be a blank box, half a tick, full tick or a tick highlighted in pink.

#### **2) Knowledge Based**

As you teach each key objective, add your assessment information onto the Knowledge Based section of the sheet, in line with the explanations below (leave the box blank, half a tick or, if the objective has been revisited and you are confident the child is secure in this area, a full tick). *No pink highlighting should be in this section.*

**Blank box – You do not have sufficient evidence of the child achieving the objective**

**Half a tick – You have evidence of the child achieving / understanding the objective**

**Tick – You have evidence that the child has mastered the objective**

**Tick highlighted in pink** (this only applies to the reasoning and problem-solving section) -  
**This child has demonstrated understanding at greater depth level**

#### **Notes for Use:**

- A child who is ARE may not have everything ticked
- Over the year, you'd hope to see half ticks converted to ticks - this is very useful for target setting / conferencing
- By end of the year, an ARE child should have mastered most of the knowledge-based key objectives and mastered some of the reasoning and problem solving key objectives
- Overall judgements should be by considering the Assessment Sheets in conjunction with PUMA scores and arithmetic tests  
ARE = PUMA SS 100+ and Arithmetic +60%; SS 93-99 = WTS ARE SS 80-92 = WTS . Secure ARE = SS 106, GDS = SS115
- Evidence must be based on a child's **independent** work
- Evidence = teacher knowledge: not all "evidence" needs to be written down; it is about you knowing your children. Evidence may include knowledge of the child through talk in lessons, conferencing, start of the day activities, book work, whiteboard work, assessments etc
- The moderation of teacher assessment will predominantly focus around subject leads talking to children, looking at books and test scores



## What does it mean to have “mastered” a concept?

<b>Independence</b>	Apply the skill or knowledge without recall to the teacher
<b>Fluency</b>	Apply the skill and knowledge with a high level of confidence and show good resilience when the task seems demanding
<b>Application</b>	Apply the skill and knowledge to a range of different contexts, including other areas of the curriculum
<b>Consistency</b>	Consistently use their skills, knowledge and understanding
<b>Synthesise</b>	Organise ideas to make connections with other areas of learning and new areas
<b>Re-visit</b>	Return to this aspect of learning after a break and still feel confident that that can work on the skill and knowledge without difficulty
<b>Explain it</b>	Able to explain others their understanding and perhaps be a learning buddy to others

### A pupil really understands a mathematical concept, idea or technique if he or she can:

- describe it in his or her own words
- represent it in a variety of ways (e.g. using concrete materials, pictures and symbols – the CPA approach)
- explain it to someone else
- make up his or her own examples (and non-examples) of it
- see connections between it and other facts or ideas
- recognise it in new situations and contexts
- make use of it in various ways, including in new situations

### KS1 Addition and Subtraction Bookmarks

The bookmarks include the quick recall mental maths facts that all children (except some SEND) should know by the end of the year. Quick recall can be verbal or written but the response time must be quick, suggesting that the child has stored this knowledge as a **fact** or can quickly obtain knowledge (within 5 seconds).

- Each child should have an addition and subtraction bookmark.
- Each bookmark has 3 – 5 year group specific objectives.
- It is essential that enough time is given to teaching **and practising** these
- The key to success is regularity and rigour
- You should tick them off when you are confident that child has quick recall (without exception).