



Weston Schools Federation

Mathematics Policy 2024-2026

Date of last review: April 2024

Date of next review: April 2026



The Nature of Mathematics at Weston Park Primary School and Weston Shore Infant School

At Weston Park Primary School and Weston Shore Infant School we aspire to ensure that our mathematics curriculum 'equips pupils with the knowledge they need to succeed in life'. *Ofsted September, 2019.*

We believe that all children can achieve in Maths and use a mastery approach to deliver the programmes of study for each year group in The National Curriculum 2014. We believe in promoting sustained and deepening understanding, with teaching for conceptual understanding at the heart of everything we do.

Our approach aims to provide all children with full access to the curriculum, enabling them to develop independence, confidence and competence – 'mastery' in mathematics in order to be independent mathematicians who are well equipped to apply their learning to the wider world. This supports our vision of 'creating endless opportunities'.

Mathematics Mastery

Weston Park Primary and Weston Shore Infant School have adopted the Ark Mathematics Mastery curriculum for EYFS and Years 1-6 and the supporting progression of calculations guidance. This approach has been adopted because it is academically ambitious for all: knowledge-rich, discipline-led, logically sequenced, designed to support memory and supports a commitment to diversity and inclusion.

The Mathematics Mastery curriculum allows for cumulative development of knowledge and skills: each school year begins with a focus on the concepts and skills that have the most connections, these concepts are then applied and connected throughout the year to consolidate learning. This gives pupils the opportunity to 'master maths' as they are able to develop mathematical fluency and conceptual understanding.

These concepts and skills are developed by applying the 3 Dimensions of Depth to teaching and learning:

- conceptual understanding
- language and communication
- mathematical thinking

with Problem solving at the heart of Mathematics teaching and learning. Developing a deep understanding in mathematics will ensure that pupils can represent their thinking in different ways, use mathematical language to communicate related ideas and think mathematically with the concept. This will enable them to apply their understanding to a new problem in an unfamiliar situation.

Mathematics lessons from Years 1-6 are consistent follow a six-part lesson structure, underpinned by the Dimensions of Depth. This consists of:

- Do Now: This is a quick five-minute task that all pupils can access without any teacher input as an introduction to the mathematics lesson.
- New Learning: The New Learning segment introduces the lesson's main mathematical concepts.
- Talk Task or Let's Explore: The Talk Task or Let's Explore is a chance for all pupils to practise using mathematical vocabulary related to the lesson's concept.

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- **Develop Learning:** This segment builds on the New Learning and develops a deeper understanding of the maths concepts of that lesson. It also addresses misconceptions or inaccuracies discovered during the preceding segment.
- **Independent Task:** The Independent Task provides pupils with the opportunity to practise the learning from that lesson. This may be independently and/or in pairs/small groups.
- **Plenary:** The Plenary segment recaps on the lesson, checking understanding and celebrating success

The curriculum in Year 6 is adapted further to ensure the best opportunities are given to addressing misconceptions and deepening understanding of less secure concepts, in preparation for secondary school readiness.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. Learning will allow pupils to make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They will also apply their mathematical knowledge to science and other areas of the wider curriculum.

Mathematics in Early Years Foundation Stage

The Mathematics Mastery model incorporates a ‘formal’ approach and consists of a 6-part structure (as for Years 1-6). Teachers in EYFS adapt the delivery of the Mathematics Mastery programme and choose approaches which best suit the needs of the pupils in the cohort; it will, however, maintain the presence of the 3 Dimensions of Depth. Learning is cumulative and ensure exposure to all aspects of the Early Learning Goals over the course of the year. Pupils have opportunities to apply their knowledge to solve more complex problems.

The approach used may change for specific units or progressively across the academic year but will incorporate explicit teaching and modelling, independent maths learning, adult-led learning, opportunities in continuous provision, discovery time and enhanced provision (both inside and outdoors). Adults focus in on specific elements when interacting with pupils, for example, the language being used and modelled, the questions and prompts being asked or given, the resources available to pupils, etc. Staff develop pupils’ mathematical language and thinking as well as their conceptual understanding using concrete, pictorial and abstract representations. This ensures high quality enabling learning environments.

As stated in the EYFS Profile, practitioners must reflect on the different ways that children learn and reflect these in their practice. Three characteristics of effective teaching and learning are:

1. Playing and exploring - pupils investigate and experience things, and ‘have a go’
2. Active learning - pupils concentrate and keep on trying if they encounter difficulties, and enjoy achievements
3. Creating and thinking critically – pupils have and develop their own ideas, make links between ideas and develop strategies for doing things.

Staff observe pupils playing to support their understanding of a pupil’s skill set and deepens their level of understanding. Staff also facilitate play by introducing resources or interacting to stimulate and encourage further thinking.

Language in Mathematics

We are determined to develop mathematical language and communication skills by encouraging all pupils to answer mathematical questions in full sentences with a focus on

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the use of correct mathematical vocabulary, within all Mathematics sessions. Sentence stems will support mathematical reasoning.

Mathematical vocabulary is shared at the start of each lesson and displayed clearly with an expectation that this is used during 'Talk Tasks' with their peers and throughout the learning journey. We want to develop mathematicians who can talk confidently about their learning; talk tasks enable pupils to explain their learning and thinking to their peers and adults.

There is an expectation that all staff (in all year groups) model the accurate use of mathematical language in all learning and that visual models are displayed to support learning and independence.

Progression of Calculation skills

We believe that pupils must not simply rote learn procedures calculation strategies but demonstrate their understanding of these procedures through the use of concrete materials and pictorial representations.

In order to ensure that pupils' knowledge of calculations is cumulative, we have adopted the Ark Mathematics Mastery Progression in Calculations. This approach allows pupils to gain a deeper understanding of calculation by using manipulatives and pictorial representations before moving to formal written methods later on in their journey.

Mathematics outside of the main Mathematics Lesson / Additional opportunities for Mathematics

Our delivery of Maths content is supplemented every day with Maths meetings and Arithmetic sessions.

Daily maths meetings are held across the school, outside of the maths lesson. Their purpose is to consolidate prior learning in mathematics (outside the day's mathematics lesson) and develop fluency in recall of the associated sticky knowledge. These meetings allow all children to revisit key concepts in maths more frequently, aid rapid recall and allow further opportunities for mathematical links to be made across concepts. Pupils remember our prior learning through fun songs, chants and games to make sure our foundational knowledge of Mathematics stays strong. This enables pupils to practise applying multiple concepts and skills on a regular basis, meaning they are continually building on their mastery. Adults model and insist on pupils responding to questions in full sentences in all maths meetings.

Pupils from Year 1-6 also complete a short daily arithmetic session to allow ensure progress with fluency, accuracy and confidence within the range of operations appropriate for their age and stage in learning. This too will only include prior learning in number and calculations.

In KS1 this begins on small whiteboards and is not timed. From the spring term however, Year 2 pupils begin to complete this learning at the **back** of their workbooks. In Years 3-4 this is called the 'FAB 5', in Year 5 this is called the 'super six' and in Year 6 this is called '8 in 6' - to increase the range of questions given within a time constraint. The questions are completed at the back of workbooks.

The timings for the set of questions should follow:

FAB 5:

Y3 - 5 questions in 7 minutes

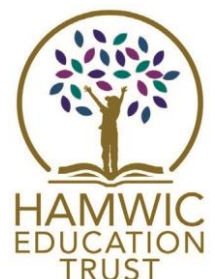
Y4 - 5 questions in 5 minutes

Super six:

Y5 - 6 questions in 4 minutes

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'8 in 6'

Y6 - 8 questions in 6 minutes

During this arithmetic time the teacher (and/or other adults) laps the room for on-going AFL (assessment for learning) – live marking and giving verbal feedback or workshop/pre-teach with children with SEND. Children, when appropriate, are encouraged to note down the time taken to answer the questions so that they can track their speed and aim to beat their personal best. Additionally, the questions may be peer assessed and the teacher should make a note of children with misconceptions (on a post it), ready for a workshop.

Numbots and TTRS are used to develop the children's fluency in number facts and multiplication. This supports to accelerate learning at home and at school. Regular challenges and competitions are run to encourage participation and raise a love of maths outside of school. Certificates are issued for progress through levels and stages of the games as well as in recognition of commitment to using the platforms as a tool to improve accuracy and speed of recall.

Assessment in Mathematics

At Weston Park Primary School and Weston Shore Infant School, the children are continually assessed by the teachers and support staff through the process of ongoing AfL (Assessment for Learning) in the high-quality provision. Before each unit, a whole-class pre-unit assessment is conducted which staff use to carefully adapt planning to ensure the provision meets the needs of all pupils. In addition to this, individual post-unit assessments are conducted to measure progress and identify any remaining misconceptions; these are then used to inform priority concepts for maths meetings and also interventions.

Furthermore, termly written summative assessments allow staff to monitor the progress of taught concepts and identify any gaps in understanding as they move through each year group. Data from these and teacher assessments inform ongoing team discussions and termly pupil progress meetings with the senior leadership team. This also informs adaptations to planning.

In Early Years, teachers make observations of pupils as they complete a range of practical, written and oral mathematical activities in lessons, adult led tasks, continuous provision and discovery time. These observations are used to evidence the pupils' early mathematical understanding.

Staff Professional Development

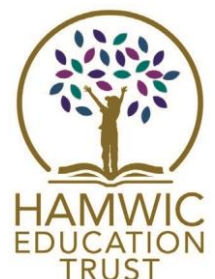
All staff receive induction training for using the Mathematics Mastery programme. The Mathematics leads takes part in regular CPD through the Mathematics Mastery programme and this training is disseminated to staff regularly. Teaching staff are carefully trained and their understanding of the mastery approach is developed in ongoing and strategically planned CPD (continuous professional development), considering both subject knowledge and pedagogical knowledge. Staff have continued support through access to modelled videos and tutorials which are designed to enhance mathematical and pedagogical expertise; there is an expectation for teams to watch these ahead of planning a new unit. Additionally, leaders support CPD through mentoring, coaching, co-planning, modelling lessons and team teaching.

Planning for mathematics

The Mathematics Mastery Programme planning guidance has been adopted which follows the National Curriculum programmes of study for each year group. Leaders and teams work together to make appropriate adaptations to the planning guidance and lesson

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resources to ensure provision meets the needs of the pupils at Weston Schools Federation.

Leaders monitor adaptations to planning and the impact on learning and progress (in a lesson or over time in the books, from the classroom learning environment and through pupil conferencing) however do not expect the audience for the planning to be anyone other than the teaching staff themselves.

All steps in the mathematics learning journey should allow all pupils to achieve mastery: to become fluent, reason effectively and solve problems that are appropriate to their next steps. It is expected all children (including those with an SEND) will have opportunities to reason and problem solve at their level.

WALT and Success Criteria

WALT (We are learning to...) and success criteria are an important tool, when used effectively, to ensure the thread of learning is clear to the children. It also helps them to know what their next step in the lesson is.

In a pupil book, a new unit begins with a unit overview WALT with the key objectives to be learnt, this is taken directly from the Programmes of Study for each year group. Each lesson has a lesson WALT; the expected outcome from the national curriculum is broken down into smaller achievable steps of learning. These start with, "We are learning to..." and will normally be given to the children on a pre-printed sticker. To ensure consistency, the Weston Schools Federation model format is used by all.

Example unit overview WALT:

Addition and subtraction within 20

In this 2 week unit we will learn to:

- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$

Example lesson WALTs:

L1 – WALT add by counting on.

L2 – WALT subtract by counting back.

L3 – WALT add a 1-digit number to a teens number using known facts.

L4 – WALT subtract a 1-digit number from a teens number using known facts.

Where appropriate, relevant success criteria linked to the skill that is being taught may be shared with the children and displayed in class for them to refer to. Process Success Criteria will be a step-by-step guide of how to complete a skill. When used, staff will use it throughout modelling and worked examples. Pupils will be encouraged and expected to use the linked mathematical vocabulary and full sentences through talk tasks. Process Success Criteria has been proven to have a positive impact on progress on children, as it raises the independence and confidence of children. For some aspects of maths, however, Process Success Criteria has a more limited impact (such as some areas of shape). Typically, children will be given process success criteria to help them work independently and become fluent in a skill.

On occasions, it may be that staff will deliberately conceal the WALT at the start of a lesson and the pupils will be challenged to articulate what they have learnt later in the lesson.

Resources and strategies for mathematics

There is a great emphasis on the use of practical resources to support conceptual understanding for all pupils in all year groups, guidance is clear in planning and progressive resource lists. Unit training videos model how to best use concrete resources to ensure consistency and progression across the school. These resources must be used practically by staff for dynamic modelling and also by pupils. Some of these are:

- Dienes and counters
- Multi-link cubes
- Shapes, including 3D shapes
- Cuisenaire rods
- Geo-boards
- Clocks
- Money - coins and notes
- Equipment for measures – scales, cylinders, weights for estimation

Each class has an up-to-date maths learning wall which the children can interact with and use appropriately to support independence. Where appropriate, further models will be displayed on the washing line. Teachers also display the formal written methods relevant for the year group they are teaching in. As well as this, visual links to prior learning will be clear for the children to refer back to. Other aspects of the learning wall include star words (key vocabulary), stem sentences to support reasoning, success criteria or information that would help the children to solve mathematical problems, as well as having taught models (I DO) up for the children to refer to. Classrooms have a clear maths resource area (age and needs appropriate), from where the children can independently choose to use mathematical resources to support their understanding.

Furthermore, classrooms have a Maths Meeting board to support these vital daily sessions. All Maths Meeting boards will display appropriate place value, calendar maths and time. It will also display 4-5 other mathematical topics of priority focus. These additional topics will vary based on class needs and will change over a few weeks to reflect a breadth of learning.

Presentation in mathematics

Pupils are taught (and routinely reminded) how to present their written maths work to a high standard and encouraged to take a pride in their work, in line with current school

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presentation guidelines. They are taught to write one digit per square and use the lines on the page to support drawing with a ruler. The children write and underline the short date in maths at the start of each new session and where appropriate will write the date in Roman Numerals.

Inclusion in mathematics

Interventions are planned and delivered for pupils who not making the expected progress or are having difficulty meeting age related expectations. Ongoing AfL informs changes to provision within 'Quality First Teaching' and highlights children for staff to work with further.

Within the maths lesson, there are opportunities for the teacher or teaching assistants to work with a small group in order to support the learning or provide challenge. These groups can be planned based on the assessment information from the previous day, or they can be groups formed during a lesson where the teacher judges that a focus group would move the children's learning on. At all times, the groups for maths will be fluid and flexible depending on what the children need. Teaching Assistants should work with a variety of ability groupings over a week, unless they are timetabled for 1:1 support for an EHCP/SEND/IBP child.

Pupils with SEND

For additional guidance, please check in accordance with the 'Inclusion policy'.

The inclusion-team work alongside staff to closely monitor the progress of pupils with additional needs; SMART personal targets are created and linked to individual starting points, a pupil's age and stage in development. These are updated routinely, and clear support is planned to help meet the target and capture evidence of progress. In some circumstances, a pupil may require their own mathematical learning journey.

Teachers and support staff use video guidance materials to support consistent understanding of the use of concrete and pictorial resources to develop conceptual understanding before learning becomes abstract.

Disadvantaged pupils

The achievement and progress of all disadvantaged pupils is tracked and monitored by teachers and leaders. Teachers use their professional judgement to identify which steps are essential in order to achieve age-related expectation and make progress from starting points. Some pupils will have evidence of pink slip intervention work and how it has helped diminish gaps.

Setting or mixed ability in mathematics

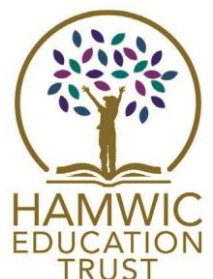
The *Mathematics: made to measure* report states that 'outstanding learning and progress occurred more often in mixed-ability primary classes than in those set by ability'. The Mathematics Mastery approach allows for pupils to work collaboratively and learn from pupil models.

Gender and mathematics

The achievement of boys and girls in maths should be equal. The school tracks the progress and attainment of boys and girls in maths and adjusts the curriculum and focus to ensure the narrowing of any gap between the genders.

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Absence of children

To ensure missed learning can be tracked and addressed, if the child is absent from a lesson or series of lessons the date and WALT sticker is stuck into the book with 'ABSENT' written (this could be written by a learning buddy in class). If a reason for absence is known, e.g. intervention or unwell, it could be noted too.

Mathematics across the curriculum

Pupils are given opportunities to demonstrate the independent application of taught maths skills across the curriculum. This enables retrieval of knowledge and supports it becoming stored in a pupil's long-term memory. *It is sequenced so that new knowledge and skills build on what has been taught before and pupils can work towards clearly defined end points. Ofsted 2019.*

There are significant links between science and the statistical element of maths in terms of the analysis of experiments, which should be utilised by class teachers. Other examples could feature measuring time, distance, mass etc. in a science experiment, interpreting graphs in science or their non-fiction reading, accurate measuring in Design Technology etc.

Links to reading

Pupils should experience a wide range of reading, and this includes in their maths. This may be reading an appropriate story, understanding problems, reading and interpreting data. Children are taught how to annotate what they have read with numbers to help them identify the question they are being asked, the numbers and operation they will need to use and therefore the calculation they will need to complete or knowledge they will need to evidence in order to answer the question. Where appropriate, links to high quality mathematical stories will be made.

Links to writing

Pupils are introduced to key mathematical vocabulary in a progressive, planned manner across the school and this is displayed as part of the learning journey. The vocabulary is modelled precisely by all staff who in turn have high expectations for pupils to accurately use this language when speaking in full sentences and then in their written work.

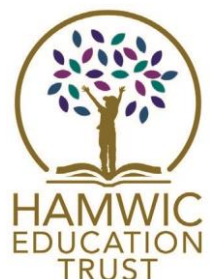
There is an expectation that, where appropriate, pupils will explain their thinking and reasoning, justifying their answers through written responses. Written responses will follow the non-negotiables for writing and should be of the same standard as writing in English books. As in English, spelling and number formation/reversal errors are highlighted and pupils expected to green pen edit and correct them.

Marking and feedback

Learning is marked in accordance with the 'Marking and Feedback Policy'. Staff check pupils' understanding systematically, identify misconceptions accurately and provide clear, direct feedback at the point of teaching by lapping the room in between teaching groups and providing workshops to clarify misconceptions. Where verbal feedback is given in a lesson this is marked VF in accordance to the school's marking and feedback policy. During the lesson, staff use questioning to check understanding, identifying and tackling misconceptions at the point of teaching and adapting planning for individuals, groups or the class accordingly. A green highlighter indicates correct responses and examples of where the WALT has been met and a pink highlighter should be used to indicate an error. Time is given for responding to the marking; it is an expectation that children will respond to feedback in green pen.

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Assessments to inform teacher judgements

For additional guidance, please check in accordance with the 'Assessment policy'.

Teachers upload formative and summative assessments to DCPro on a termly basis.

Teacher assessments are based on clear evidence of independent learning in books and observations in lessons.

At the end of each term, pupils complete a written summative (NTS) assessment. The frequency of these written assessments may vary in key year groups, such as Year 6, to ensure children are familiar with test procedure and give teachers additional evidence to use in their assessment. The results of these are also recorded on DCPro and Bromcom.

Pupil, group and class and year group data is analysed by teachers and leaders and used to inform planning and interventions. This analysis is also shared with Maths leaders who will identify strengths and weaknesses in the teaching of maths across the school, and arrange corresponding CPD workshops.

Moderating Maths judgements

As part of the assessment cycle there are regular opportunities to moderate evidence in workbooks to validate teacher assessments in all year groups; this is within and across year groups, phases and schools in the trust. Evidence must indicate that:

- children are making progress which is appropriate for their age and ability and that students are sufficiently challenged
- children are able to independently respond to a range of independent tasks and self-edit misconceptions
- DCPro assessments must reflect learning in workbooks

The evidence must be robust, reliable and recent.

Home learning Policy

Home learning is sent home at the start of every half term. It will outline arithmetic skills parents can practise with their children. This is progressive and closely linked to skills from the national curriculum. Home learning is supplemented by the use of Numbots in EYFS and KS1 and Times Table Rockstars (TTRS) from Year 2 onwards.



Signed Chair of Governing Body:

[date]

Signed Headteacher:

[date]

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