



Moreton C.E Primary School

Mathematics Policy 2021

This policy was ratified on: March '21
Implemented on: March '21
Review date: September '24

Signed by the Headteacher: _____

Signed by the Chair of Governors _____

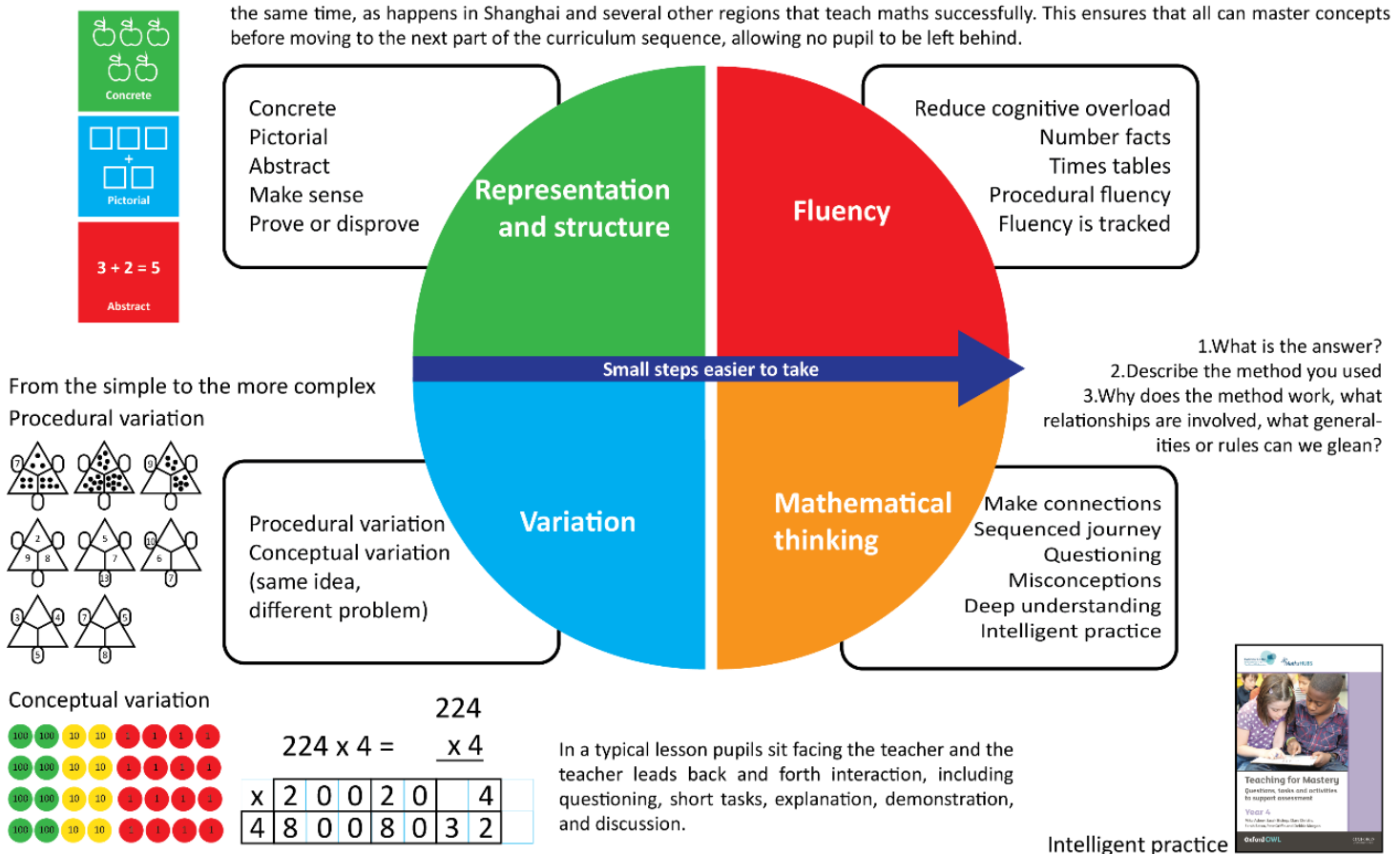
School Aim

Through a high quality and challenging mathematics programme, Moreton C.E Primary School aims to develop confident and competent mathematical thinkers who can apply their mathematical knowledge fluently in a range of situations. We want pupils to be able to reason mathematically and to be able to solve problems by applying their mathematical skills and by persevering. We want all children to develop a curious and positive attitude to mathematics, to enjoy mathematics and to reach their full potential. This will be achieved by teaching using a Maths Mastery approach (see image).

See: The essence of maths teaching for mastery

Maths Mastery

Pupils are taught through whole-class interactive teaching, where the focus is on all pupils working together on the same lesson content at the same time, as happens in Shanghai and several other regions that teach maths successfully. This ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind.



School Implementation

Our school is committed to the National Curriculum and ensuring that all children, who attend Moreton C.E Primary School, are given the opportunity to reach their potential within mathematics.

The programmes of study for mathematics are set out year-by-year for Key Stages 1 and 2. The relevant programme of study will be taught by the end of the Key Stage. The school will be flexible with regard to introducing content earlier or later than set out in the programme of study in order to meet the needs of the children. The school curriculum for mathematics is available online.

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This will involve working with numerals, words and the four operations, including with practical resources. At this stage, pupils will develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching will also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

The principal focus of mathematics teaching in Lower Key Stage 2 (Years 3 and 4) is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

The principal focus of mathematics teaching in Upper Key Stage 2 (Years 5 and 6) is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. To see when calculations and procedures are introduced for each topic and year group, please read the Calculation Policy.

Pupils should use, read and spell mathematical vocabulary correctly.

Problem Solving and Reasoning

Children will need to develop their problem solving and reasoning skills from an early age. All children from Early Years – Year 6 should use their Conceptual Understanding and Procedural Fluency to tackle increasingly more challenging problems which will use their mathematical thinking and Variation skills.

In an ordinary teaching week, Problem Solving and Reasoning style challenges should be taught and practiced within the current mathematical concept alongside varied fluency and in a variety of ways such as main activities following input, as starters or end of lesson challenges. In addition to teacher made resources teachers have year group packs of resources they can draw upon such as TTS 'dip and pick' problem solving cards and 'can you convince me' cards

Regular investigations are planned to encourage children to challenge their own ideas and each-others while allowing exploration of mathematical concepts. These are taken from recognised providers such as NRich, White Rose Maths, Have you got maths eyes and NCTEM.

Computing and Information Computer Technology (ICT)

Teachers are expected to use technology within Maths lessons at least once a fortnight thus adding to the variety of ways in which children are engaged in Maths and experience the subject in different contexts. Resources such as iPads, Chrome book sets, reflectors are available to be used in class through a booking system or as part of our bank of apps.

Calculators will only be introduced near the end of Key Stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure.

Calculators can also be used in Year 4 as an introductory tool for self/peer assessment. Children should be encouraged, where possible, to check their work and learn how to use calculators correctly for simple arithmetic.

Teaching and Learning

- Lessons will be planned and taught daily to provide appropriate challenge for all pupils, to extend more able and provide appropriate levels of support in order for all pupils to make progress. Children will be encouraged to develop the attributes of more-able learner's e.g. resilient problem solving, cross-application of ideas in new contexts and the use of mathematics knowledge in other curriculum areas.
- The learning environment will enable all pupils to recognise their own and others' strengths and areas for improvement and provide them with appropriate tasks to improve and succeed. Children will have access to relevant topic specific mathematical toolkits (especially those requiring additional support who may have their own toolkits). Children should also have immediate access to resources which are necessary to help them become better independent mathematicians.
- Different teaching styles will be used to engage a variety of learners, providing them with the opportunity to learn from visual, auditory and kinaesthetic activities.
- Lessons will provide appropriate activities and resources, which enable pupils to develop as independent enquirers, creative thinkers, reflective learners, team workers, self-managers and effective participators.
- All teachers should take note of the common misconceptions and mistakes children make, which are highlighted in the calculation policy, and where appropriate use them to help direct their planning. In order to ensure that all staff are able to meet this need, they should be using the Misconceptions Document in all of their weekly and termly planning.

Assertive Mentoring

Every morning, children from Year 1 – Year 6 will complete work from the weekly assertive mentoring blocks upon arriving at school. The format for following this scheme is as follows: Monday: Column A of the weekly sheet. Tuesday: Address common errors or misconceptions from previous day. Wednesday: Column B of the weekly sheet. Thursday: Address common errors or misconceptions from previous day. Friday: Complete column C and address any errors or misconceptions. Children are to work independently until they have completed the task set and are ready to mark. Children will self-marked at the end of the session, information gathered regarding successes alongside areas to

develop and recorded by the teacher to inform the following session and progress made. Children complete their recording sheet at the end of every week. The 15 week cycle is completed and then repeated from the start. This allows assessment regarding the security of concepts and to enable children to see the progress they have made over the course of the year.

Assertive Mentoring ensures the consistent and continuous revision of mathematical concepts throughout the school year regardless of the topic being covered in completed in Maths lessons. Furthermore, the scheme allows for the introduction of mathematical concepts prior to children exploring them in lessons thus enabling them to become familiar with vocabulary and processes they will see in the future.

Key Vocabulary

Mathematical terms are used from Early Years through to Year 6 and beyond and it is vital that children can use and understand the key vocabulary for Mathematics in order to access the full range of work they will encounter. Teachers will teach this vocabulary explicitly in every lesson. They will have the vocabulary on display on the whiteboard and the class working walls for children to refer to and look back at.

Times Tables

All children from Early Years -Year 6, will have dedicated times tables time, at least once a week, within school using Times Table Rock Stars or Numbots. In addition, time accessing these facilities at home will be promoted and celebrated. Competitions between classes and within class will be set up to promote and engage the children within these resources. Teachers will monitor and assess the progress of children within their times tables and adapt the programme to meet the ongoing needs of each individual child.

Children will be expected to know the tables out of sequence and be able to recall the inverse operation in order to be secure.

A Times Tables test for Year 4 students (8-9 year olds) will be administered every year online – this is a statutory assessment.

Resources

Mathematical manipulatives are crucial in supporting children. Practical apparatus that we use in our classrooms include: Numicon, Base Ten, Multilink cubes, counters, place value counters, bead strings, Cuisenaire rods and also those that use numerals such as place value cards, hundred squares, digit cards, dice and dominoes. These allow children across all year groups to get to grips with the very abstract notions of numbers, the relationships between them and the ways in which they work in the number system. Manipulatives can be powerful tools to support sense making, mathematical thinking and reasoning when they are used as tools to support these processes. At Moreton C.E Primary School, we allow immediate access to a range of resources that children can choose from to support their learning as well as to demonstrate their thinking or problem solving and reasoning. This is done through a range of resources being accessible and visible in the classroom.

The role of parents/carers

We expect pupils in every year group to be rehearsing their number bonds in KS1 and Times Tables from Year 2 daily. In the younger years they should be focussing on counting objects and taking away objects as well as counting forwards and backwards as part of everyday routines. Parents are encouraged to support this and to find ways they can do these activities as part of everyday life.

Homework

There is an expectation that all children complete maths homework. Homework is set every two weeks by each class teacher and is generally set on Google Classroom or Seesaw where children will receive differentiated homework based on the current topic. Homework should be set from work covered within the schoolwork and should not be new so that children can complete it independently. Year 5 and 6 will move towards from using this resource to more challenging homework set in the more traditional manner.

Homework can also be used for revision practice in the lead up to assessments and should be used to encourage the learning and consolidation of Times Tables.

Assessment and Recording

By the end of each Key Stage, the majority of pupils will be expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. As well as National testing in the form of the end of Key Stage SATs and the Year 4 Times Table check, we assess pupils from Early Years onwards using Assertive Mentoring test resources. Some children identified on the SEN register, may be assessed using a different year group test to their own in accordance with their own progression needs. The results of these are collated on Pupil Asset and analysed by the subject lead and leadership team in order to identify areas of the curriculum that need further work, and individual pupils who may need additional support. Training for teachers and interventions for pupils are then put in place where needed.

In deciding on a pupil's level of attainment, teachers will base their judgement on the information that has accumulated through continuous monitoring and assessment. This will include the following:

- Oral and written feedback from pupils;
- Work in Maths books
- Adult Supporting Learning (ASL) feedback;
- Use of unit assessments either formally or practically

Data will be formally input into Pupil Asset where it will then allow for teachers, subject leaders and SLT to analyse class, key stage and whole school data pertaining to the subject. Data will be input into Pupil Asset prior to the end of term on the date given on the school operational planner. Assessments will take place at regular times according to the flow chart below:

Daily	Weekly	Unit	Termly	Annual
Assertive Mentoring columns and addressing misconceptions/ errors	Times Table Rockstars/ Numbots	White Rose Maths End of unit assessments	Assertive Mentoring assessments	SATS (Year 2 and 6) Multiplication Tables Check (MTC) (Year 4)

In addition to the tests and weekly sheets, Assertive Mentoring also offers tools and resources whereby teachers can input data from assessments given, which in turn identifies key target intervention areas for groups of children or individuals. These resources are not expected to be used outside of the normal recording of data, but are suggested as a useful tool to support informing planning and interventions.

Adults Supporting Learning (ASL)

ASL includes classroom assistants, teaching assistants, HLTA, learning mentors and volunteer parents.

Additional support staff will be used during curriculum and non- curriculum time in order to:

- Support the delivery of mathematic lessons;
- Extend and develop children in their understanding;
- Enrich or enhance an activity pupils are undertaking;
- Provide training opportunities for staff;
- To support children with SEND.

All ASL will receive appropriate access to school, school to school and LA training and support to ensure their knowledge and understanding of delivering curriculum mathematics is in line with statutory requirements and recommended good practice.

The Headteacher will always maintain responsibility for safer recruitment procedures.

The class teacher will always maintain overall responsibility for what is taught and the conduct, health and well-being of the pupils.

ASL may work alone if competence has been monitored. They will be managed effectively by either the teacher, SENCo or SLT who remain legally responsible for the students in their care, whether through direct or indirect supervision of the ASL.

Monitoring and Evaluating

Subject monitoring and evaluation will be carried out by the Subject Leader with support from the SLT where appropriate. The school will utilise the following strategies and measures in order to evaluate standards:

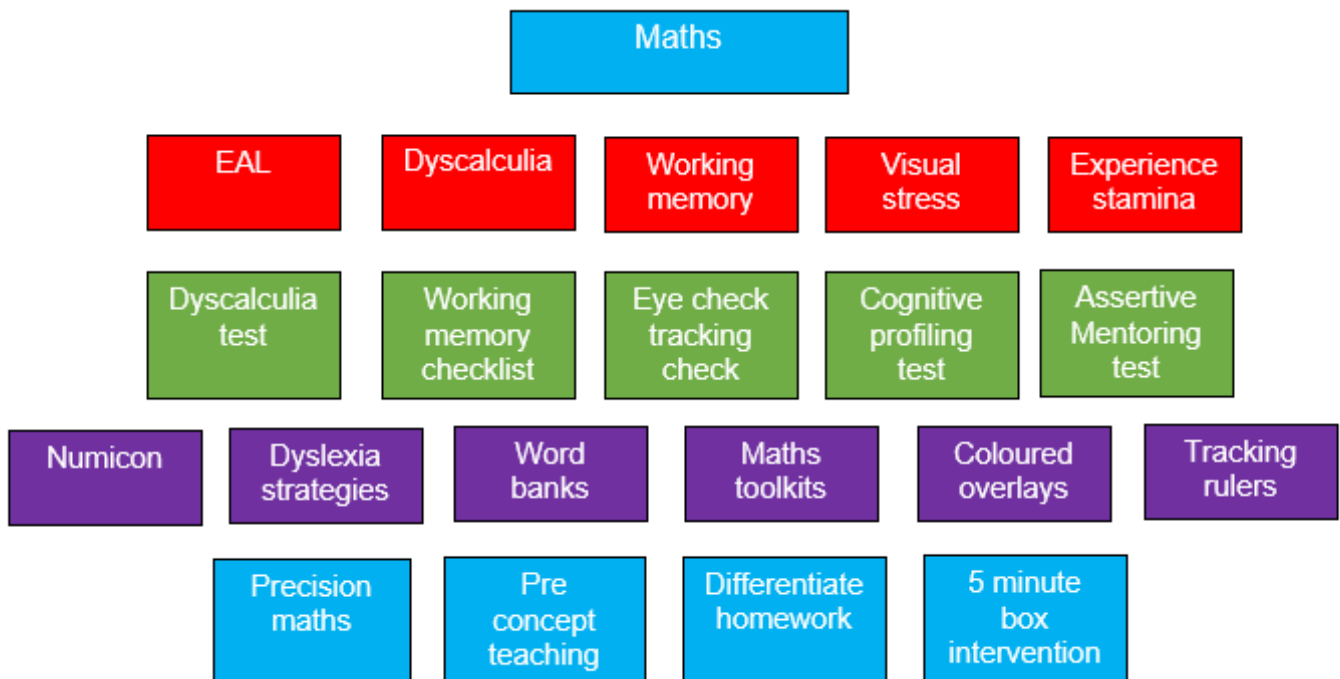
- Observation of teaching and learning, including support staff, to assist in the identification of strengths and development needs;
- Drop ins;
- Assessment of pupil progress and achievement;
- Pupil interviews;
- Work scrutiny;
- Assessment data evaluation.

Interventions

All classes will be expected to run regular pupil interventions and/or booster groups as appropriate. These groups are to be used to either extend or consolidate students' understanding of mathematical procedures and concepts.

All sessions should be documented and progress checked at the start and end of each period of intervention to show progress. Interventions will be organised in conjunction with the SENCo

Support for Maths



Where pupils are not making good progress in Maths it is important that we understand the reasons. There may be a specific need or difficulty, but there also may just be gaps in understanding that need supporting. We use a range of methods outlined above. Any intervention put in place to support a child would be in consultation with the class Teacher, parents and after an assessment to identify the area of need.