Maths Policy

Approved by:	Full governing body	Date: March 11th 2024
Previously reviewed on:	March 16th 2020	
Next review due by:	March 2028	

Chair of governor's signature

Our Vision

Our vision for Moulton CEVC Primary School reflects a passionate commitment to learning and a recognition of the uniqueness of individual learners. Guided by our Christian values, it is driven by our desire to offer the best possible education for our pupils in partnership with parents, the Church and the local community.

Introduction

Mathematics helps children to make sense of the world around them through developing their ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

Rationale

• To establish an entitlement for all pupils
• To provide a clear and agreed framework for the teaching of Mathematics in our school
• To promote continuity and coherence across the school

Purpose

• To provide a framework to enable teachers to meet their statutory obligations with regards to the teaching of mathematics.
• To provide a consistent approach throughout the school to mathematics.
• To foster effective learning by suggesting appropriate ways of organising mathematics experiences in the classroom.
• To provide procedures for planning and record keeping ensuring continuity and progression throughout the school
• To meet the National Curriculum requirements

Aims

• Develop a positive attitude to maths as an interesting and attractive subject in which all children gain some success and pleasure.
• Develop mathematical understanding through systematic direct teaching of appropriate learning objectives.

• Encourage the effective use of maths as a tool in a range of activities within school and, subsequently, adult life.
• Develop children's ability to express themselves fluently, to talk about the subject with assurance, using correct mathematical language and vocabulary.
• Develop an appreciation of relationships within maths.
• Develop ability to think clearly and logically with independence of thought and flexibility of mind.
• Develop an appreciation of creative aspects of maths and awareness of its aesthetic appeal.
• Develop mathematical skills and knowledge and quick recall of basic facts in line with recommendations.

## Teaching and learning in mathematics

Curriculum Time

To provide adequate time for developing mathematical skills, pupils will typically receive five daily mathematics lessons per week. This may vary in length but will usually last for between 45 to 75 minutes. Additional mathematics may be taught within other subject lessons when appropriate.

Teachers of the Reception children base their teaching on objectives in the Framework for Reception; this ensures that they are working towards the 'Early Learning Goals for Mathematical Development'.

Teaching and Learning

Our aim is to develop children's knowledge, skills and understanding in mathematics. We do this through a daily lesson which includes whole-class and group direct teaching. During these lessons we encourage children to ask as well as answer mathematical questions. They have the opportunity to use a wide range of resources and small apparatus to support their work. In all classes there are children at different levels of attainment. We recognise this and provide suitable learning opportunities for all children through careful questioning, adapted tasks, the use of assistive technology, and effective deployment of additional adults.

Typical lesson format
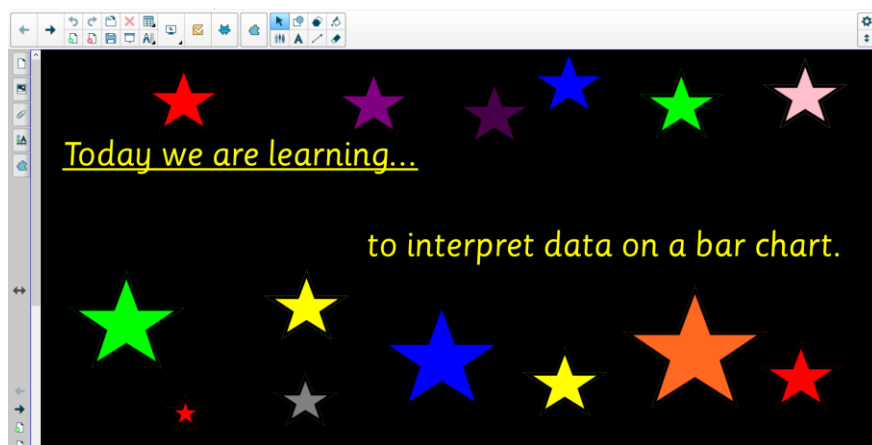
1. Each maths lessons begins with the sharing of the learning intention. Unfamiliar vocabulary is clarified, and expectations for the lesson are set out.

I say you say…

I say a number, you tell me if it is square, prime, or neither.
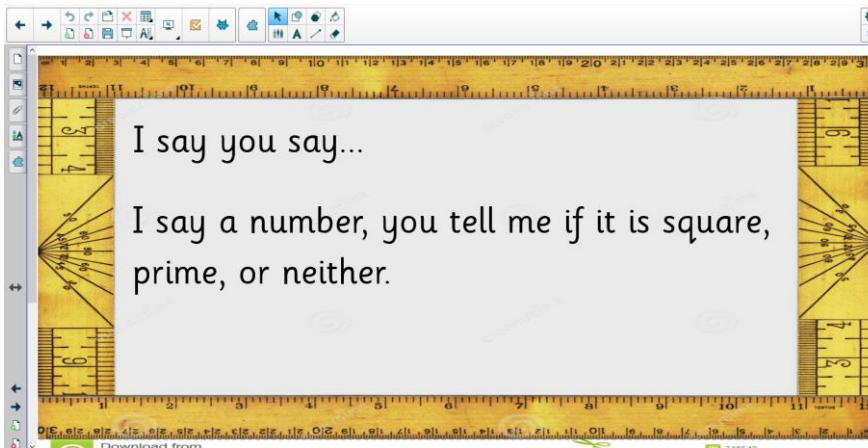
2. The 'I say, you say' objective is shared with pupils. 'I say, you say' provides approximately one minute for pupils to develop their rapid recall or quick calculation skills.

25	Square
3	Prime
6	Neither
9	

3. Questions begin with a straight forward example, which the teacher feels all children will be able to answer. Questions become progressively harder, with repeated questions and 'peculiar' examples where needed, and then ends with a straightforward question to support all pupils to finish with confidence.

Flashback 4

MMVI =

Which number is represented by the Roman Numerals?

$\frac{3}{10}$ =

Write the equivalent decimal to 3 tenths.

324 x 6 =

The number 12 has six different factors. List them.

4. Flashback Four provides pupil with the opportunity to recall previously learning. Objectives that are more challenging to commit to a pupil's long-term memory, those that are not taught frequently, and those that feature prominently on the mathematics content domain, are included regularly. Teachers can also use the White Rose Maths Flashback Four examples too.

Following this, the main teaching begins. Teachers use a variety of methods, including the following:

- The use of pictorial resources, when pupils are able to confidently use the equivalent concrete resource
- The use of 'I do, we do, you do' to develop pupils' metacognition and to provide an equitable approach to all pupils listening to the teacher's modelling.
- Concept cartoons to develop reasoning skills
- Reasoning problems

- Modelling processes and written methods
- Games

<u>Examples</u>

3   Mo, Eva and Ron are trying to simplify $\frac{5}{20}$

Mo: I cannot simplify this, because one number is odd and the other is even.

Eva: I cannot simplify this, because only one number can be halved.

Ron: I can simplify any fraction.

Do you fully agree, partly agree or completely disagree with each person?

_____

_____

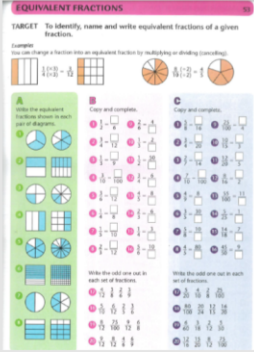

<u>Short multiplication</u>:

I do
We do
You do

38

x 6

_____

_____

10 1
2

30
40 4
2 3   50 5

Factor of 12   Factor of 15

2   7   4   9   1   3   10   5

6
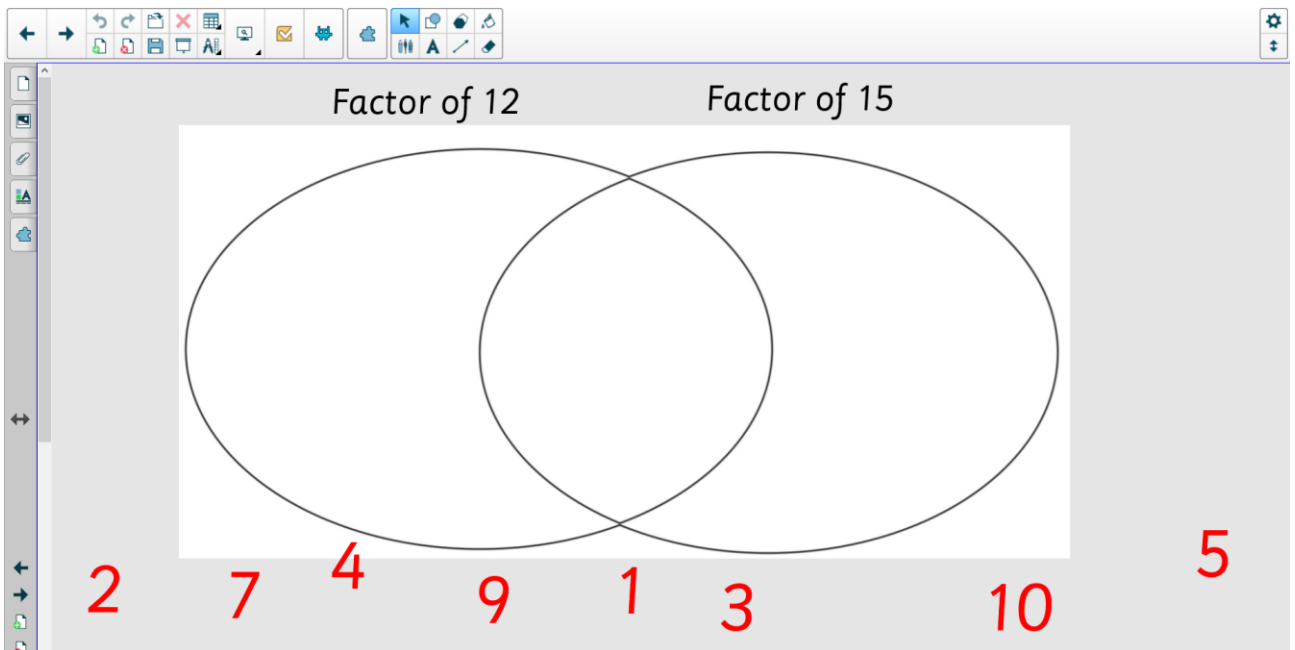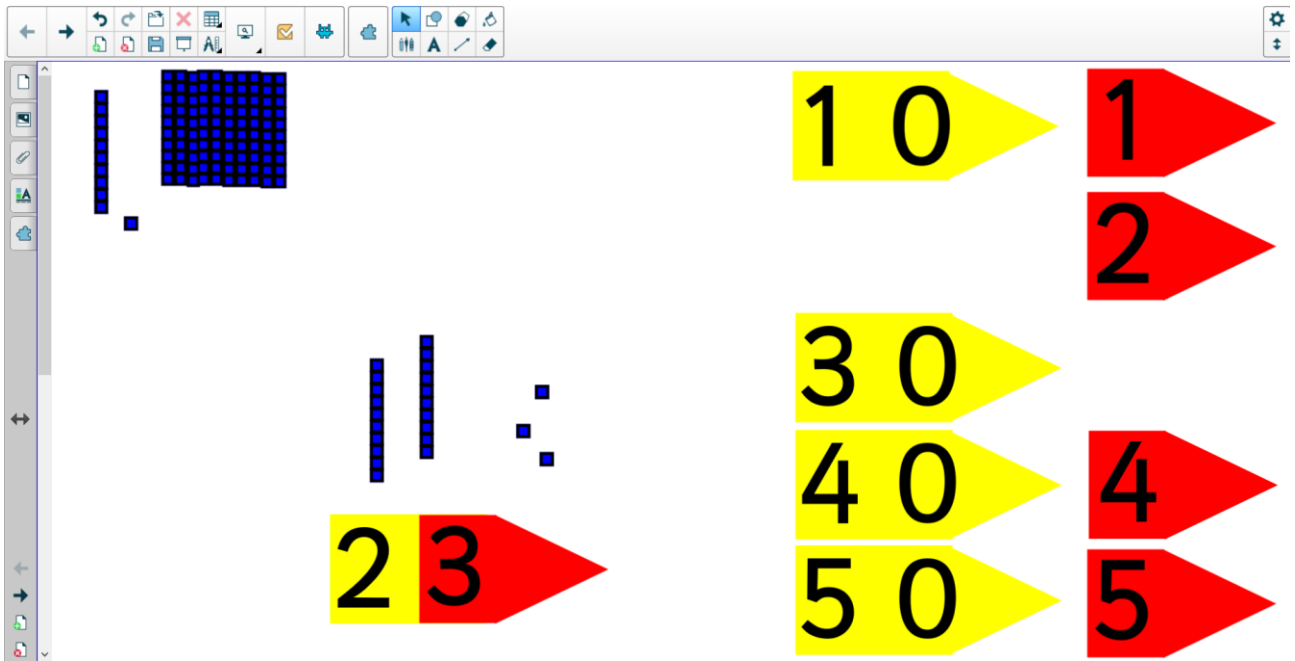
Independent Work

Pupils complete tasks based on the main teaching objective. Our school uses a 'Teaching For Understanding' and a 'Mastery approach', which means that pupils may sometimes attempt the same task. Sometimes, pupils choose a task based on their needs. Sometimes adults prepare specific tasks for groups of pupils. Adults are deployed effectively to support pupils with independent work.

Examples of tasks

You have a choice of tasks today, depending on what you think you need to practice.

Answers to this are on Google Classroom
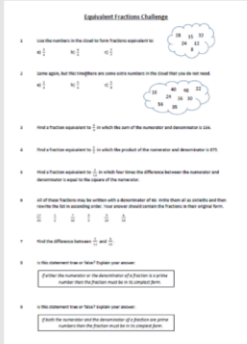
Continue with this

(Equivalent Fractions from Monday)

Continue with this

(Simplifying Fractions from Wednesday)

Try this...

(It is tricky at times - team work recommended)

III.II.MMXXII

Simplifying Fractions

Write in your book, please. You can use the times table grid to help.

III.II.MMXXII

Simplifying Fractions

Your jobs for today…

We will be playing this game.

Parents at home, if you do not have dice, there is a sheet attached with calculations on, or you can collect some dice from school.
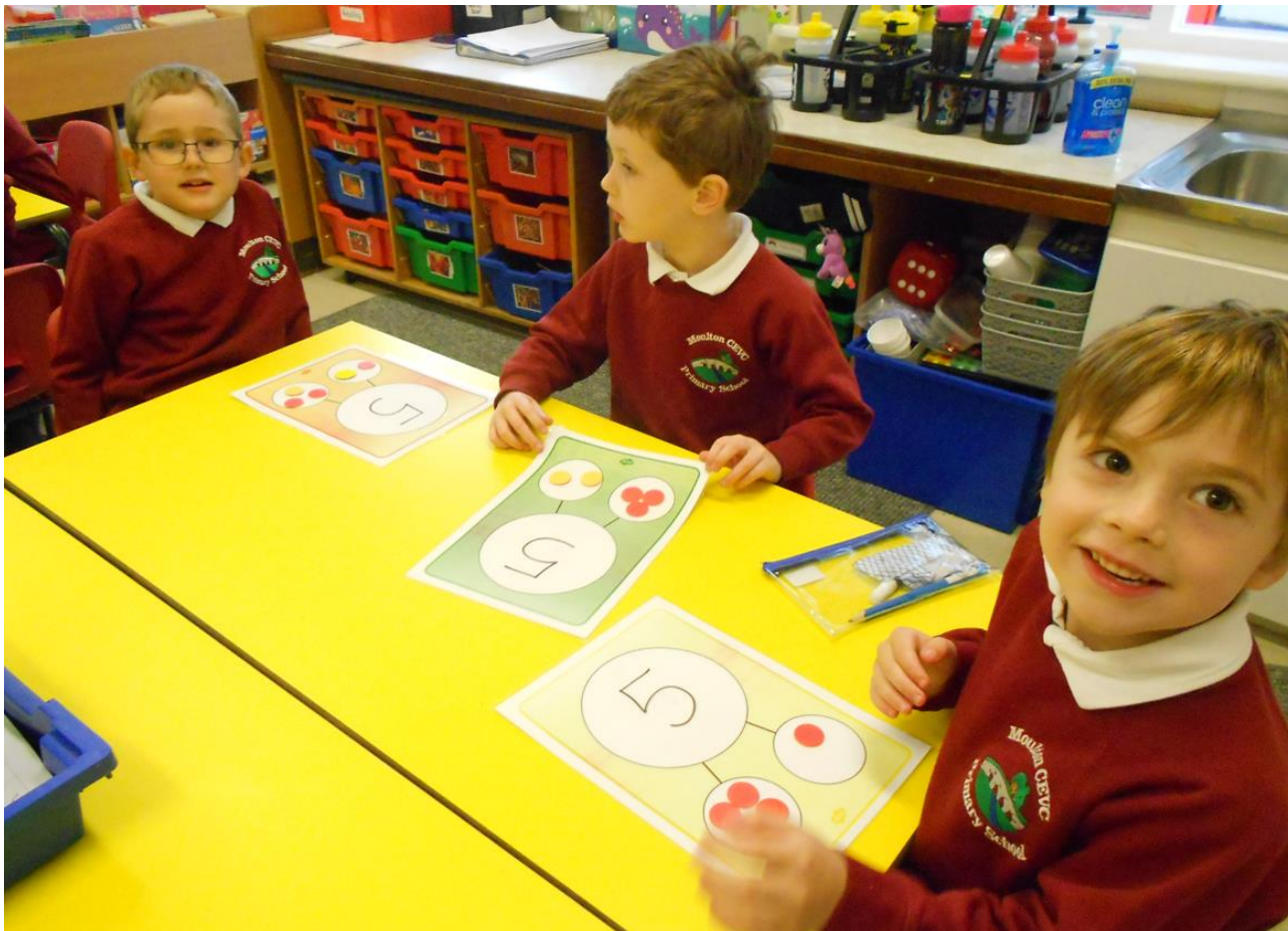
Dice Addition 4-in-a-Row

You will need:
2 dice
2 different coloured sets of 13 counters

The aim of the game is to get four of your own counters in a row.
Roll the two dice. Add the numbers together and place a counter on that number.
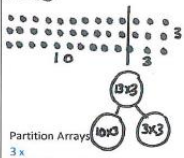Take it in turns until a player wins or the board fills up.

2	5	10	8	3
4	11	6	4	10
5	7	2	12	8
11	6	4	9	5
12	3	8	6	9

Mental and Written Calculations

The ability to calculate efficiently lies at the heart of mathematics. Both mental calculations and written calculations are taught and practised across the school. Our school has a bespoke calculation policy and a bespoke written methods progression document.

Example page from our Calculation Document

Example page from our Written Progression Document

Also see calculation policy

x	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 2			Introduce arrays 10x	5x		2x
Year 3	Recap arrays	Partition Arrays 3x	Grid Intro. (Only x by 12, 13, 15) P.v counters. 4x		Grid (Multiply by 10s, 20s, 30s, 40s, 50s Units to be 1, 2, 3, 4, 5) 8x	
Year 4	As Y3 Summer 2 Focus on multiplying by multiples of 10, e.g. 30 x 40 = 1200 6x	2-digit x 2-digit grid. (Do not multiply by 9 7 and 12) P.V counters 11x		Expanded 2-digit x 1-digit 9x	7x	Expanded 2-digit x 2-digit 12x
Year 5	As Y4 Summer 2	Short 2-digit x 1-digit	Short 3-digit x 1-digit	Short 2-digit x 2-digit	Short 3-digit x 2-digit	Short 4-digit x 2 digit

Our school uses a banded approach for times tables – Times Table Mountain. Pupils complete a one-minute test before moving on to the next level. Our bands are aligned to the National Curriculum expectations.

Red	Yellow	Blue	Green	Orange	Turquoise	Purple	Bronze	Silver	Gold
10x	10x 5x	10x 5x 2x	10x 5x 2x 3x	10x 5x 2x 3x 4x	10x 5x 2x 3x 4x 8x	10x 5x 2x 3x 4x 8x 6x	10x 5x 2x 3x 4x 8x 6x 11x 9x	10x 5x 2x 3x 4x 8x 6x 11x 9x 7x	10x 5x 2x 3x 4x 8x 6x 11x 9x 7x 12x
Year 2 children			Year 3 children			Year 4 children.			

Example of a one-minute test

Orange 10x 5x 2x 3x 4x		
A 1 Minute		
1 x 4 =	5 x 4 =	8 x 4 =
3 x 3 =	9 x 2 =	5 x 5 =
10 x 4 =	3 x 5 =	2 x 4 =
3 x 6 =	8 x 3 =	11 x 2 =
12 x 4 =	6 x 3 =	9 x 4 =
3 x 4 =	4 x 11 =	7 x 5 =
4 x 1 =	6 x 4 =	4 x 4 =
10 x 10 =	4 x 12 =	7 x 3 =
7 x 4 =	11 x 3 =	11 x 4 =

Mathematics Curriculum Planning

Mathematics is a core subject in the National Curriculum. We use the Primary Framework as the basis for implementing the statutory requirements of the programme of study for Mathematics. Our school follows the long-term suggestion plan from White Rose Maths, but each teacher has the autonomy to deviate from the plans, based on the needs of their pupils.

Plans are reviewed by the subject leader, Mrs Shipp. Class teachers plan daily maths lessons, with support from the maths subject leader, if needed. Teachers have the option to record planning in MS Word format, MS Powerpoint format, or Smart Notebook, with the latter being the preferred option to reduce teacher workload.

Home Learning

Our school recognises that maths home learning can cause stress at home, when parents and carers are not familiar with calculation methods. For this reason, most of our home learning focuses on recall, mental strategies, times table practice and reasoning.

Pupils work through Maths Targets sheets at home. These are checked by staff in school when pupils are ready to progress to the next set of questions. Parent support for each sheet can be found on the school's website. There are equivalent reasoning problems for each objective on each target sheet.

Examples

Pupils have access to Times Table Rockstars at home. We recommend that pupils in Y2 upwards play for at least five minutes each evening.

Reporting to Parents

In the autumn and spring term parent consultations, parents and carers are informed of their child's mathematical attitude and progress respectfully, including the key areas to be worked on for the future. In the spring parents' evenings, parents are informed about which Maths Target Sheet and Which Times Table Mountain level their child is working on, as well as their child's commitment to practicing these at home. In the summer term, we send home detailed reports outlining the children's achievement across the curriculum. These include written comments for maths, as well as a National Curriculum Level. In Years 2 and 6, these reports include the child's results in National Curriculum tests/tasks alongside our own teacher assessments.

Assessment

All assessments and teaching inform teachers' understanding of a child's ability in maths The school's Assessment and Feedback Policies inform high quality feedback and pupils' response to it in Mathematics.
Teachers integrate the use of formative assessment strategies such as effective questioning, clear learning objectives (which are not shared orally, rather than being written in books)
The school's progress tracking system is updated termly. Teachers sometimes use formative assessment to support their teacher assessment. In KS2, we use Test Base assessments.
National Curriculum tests are used at the end of KS1 and 2; teachers use past and sample papers to inform their assessments as they prepare pupils for these assessments.

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Role of the Subject Leader

•Ensures teachers understand the requirements of the National Curriculum and helps them to plan lessons.
•Leads by example by setting high standards in their own teaching.
•Prepares, organises and leads CPD and joint professional development.
•Works with the SENDCO
•Observes colleagues from time to time with a view to identifying the support they need.
•Attends CPD as necessary
•Keeps parents informed about Mathematics issues
•Discusses regularly with governors the progress of implementing National Curriculum for Mathematics in school
•Deploys support staff to address mathematics related needs within the school.
•Monitors and evaluates mathematics provision in the school by conducting regular work scrutiny, learning walks and assessment data analysis.