

Mathematics Policy



Mytham Primary School

Maths Policy

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Review Frequency

Every year

Review
Date

September 2023

Ratified by Governors

QOE Each
autumn term

Website

Yes

Mission Statement

Maths is about being a creative thinker, not a calculator

Maths Intent

When teaching mathematics at Mytham, we intend to provide a curriculum which caters for the needs of all individuals and sets them up with the necessary skills and knowledge for them to become successful in their future lives and careers.

We aim to prepare them for a successful working life. We incorporate sustained levels of challenge through varied and high quality activities with a focus on fluency, reasoning and problem solving.

Pupils are required to explore maths in depth, using mathematical vocabulary to reason and explain their workings. A wide range of mathematical resources are used and pupils are taught to show their workings in a concrete, pictorial and abstract form wherever suitable. They are taught to explain their choice of methods and develop their mathematical reasoning skills. We encourage resilience, adaptability and acceptance that making errors and learning from mistakes is often a necessary step in learning. Our curriculum allows children to better make sense of the world around them relating the pattern between mathematics and everyday life.

We intend for all pupils to become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

We intend for all pupils to reason mathematically by following a line of enquiry, exploring connections, making generalisations, and developing an argument, justification or proof using mathematical language.

We intend for all pupils to solve problems by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

When they leave Mytham, our pupils will have the mathematical skills they require to access their secondary education and the world beyond.

Aims of the Maths Policy

- To provide staff with a clear guide to the progression of the teaching of Maths
- To ensure all staff are aware of outcomes expected for all pupils at Mytham.
- To enable senior leaders and subject leaders in the monitoring of Maths to ensure robust systems are in place which quality assure our curriculum.

Implementation – what does Maths Look like at Mytham?

What is our approach to Maths?

At Mytham we have implemented *White Rose Maths* Scheme of learning across the school. This scheme is used consistently in all year groups, with agreed adaptations to the EYFS curriculum. This consistent approach allows children to recap and build upon prior knowledge and skills. The systematic approach of using concrete, visual and abstract strategies enables children with all abilities to access the curriculum, from children with SEND to children achieving Greater Depth.

All teachers use the White Rose Maths premium resources when delivering sessions but are encouraged to make necessary adaptations to planning for their classes. Opportunities for children to verbalise their reasoning are planned for throughout sessions allowing children to talk like a mathematician either with a partner, group or whole class. Teachers will model how to explain their reasoning and give opportunities to children to question or provide input which may develop mathematical understanding for the rest of the class.

Teachers and Teaching and Learning assistants provide feedback at the point of learning throughout lessons to address misconceptions and celebrate success.

In KS1 floor books and Seesaw are used to show and enhance the learning journey and provide a narrative for how children are developing as mathematicians, particularly when using concrete resources. Children are provided with opportunities to demonstrate their learning in their Maths books when moving to pictorial and abstract representations of mathematical development.

In KS2 teachers use *Learning By Questions* to support the development of maths through answering questions on knowledge and understanding moving to fluency, reasoning and problem solving. Teachers use the instant assessment and feedback provided by LBQ to intervene at the point of learning and address whole class misconceptions when they occur.

At Mytham we use *Times Tables Rockstars* to promote and motivate children to learn their multiplication tables in a personal, group or competitive arena. This is to enable children to prepare for the Y4 Multiplication Table Check. In KS2 children in Y3/4 are allocated homework through *TT Rockstars* (appropriate to their ability level).

How do we assess and track pupils in Maths?

Purpose of assessment

Assessment is a daily part of the life of the school. Assessments, through monitoring of children's work are used, and marking and feedback is used by teachers to inform their teaching and ensure that children know their next step and what they need to do to improve. More formal methods of assessment provide feedback on pupil progress and ensure a rigorous approach to curriculum delivery.

The purposes of assessment are:

- to be formative, providing information for the teacher to plan the next steps in the children's learning and support children identifying their own next steps;
- to be diagnostic, providing more detailed information about individual children's strengths and weaknesses;
- to be summative, providing a snapshot of each child's achievement – these can be reported to parents;
- to be evaluative, allowing the school and individual teachers to evaluate how effective their teaching is;
- to inform the children to enable them to develop their learning.

All assessment outcomes, including standardised test results, are used to evaluate current practice and to inform future planning.

Forms of assessment

Day-to-day In-School Formative Assessment

Formative assessment is carried out by teachers every day in every lesson. It allows teachers to understand pupil performance on a continuing basis. This type of assessment is used to assess knowledge, skills and understanding, and is used to identify gaps and misconceptions. It enables teachers to identify when pupils are struggling, when they have consolidated learning and when they are ready to progress. It also enables teachers to identify if children are working on track for age related expectations or not on track. Teachers are then able to provide appropriate support or extension as necessary. The methods of formative assessment we use include; the use of pertinent questioning, marking of pupils' work using our marking guidelines (see marking and feedback policy) and observational assessment. Formative assessment enables teachers to evaluate teaching of particular objectives of the curriculum and plan future lessons accordingly. For pupils, formative assessment helps them to measure their knowledge and understanding against the lesson objective and success criteria. They can then identify how they can improve.

End of unit assessments

Children are to complete pre and post learning questions at the start and end of a unit. This is to provide teachers from Y2 upwards with a baseline in terms of their prior knowledge. Following the WhiteRose resources, staff should choose the previous years end of unit assessment as their current 'pre learning' assessment. For example; in the year 2 multiplication unit, staff should opt for the end of unit Y1 multiplication as a pre learning assessment. At the end of the unit, complete the Y2 end of unit assessment. Staff should then record the post learning data on insight, this involves inputting the actual score out of 12 and a judgement of either one of the following options. These judgements should be discussed in your hub to promote consistency.

Nº	Unit descriptor	Explanation
Blank	This unit has not yet been taught	If this unit has not been taught, leave the box empty.
0	Taught, but not yet understood	If this unit <u>has</u> specifically been taught, but the pupil lacks a significant understanding of many of the small steps in this unit. Grade this as a 0.
1	Some evidence, but not yet secure	If this unit <u>has</u> specifically been taught, but the pupil (independently) demonstrates limited or inconsistent understanding of the small steps in this unit. Grade this as a 1.
2	Objective secured	If this unit <u>has</u> specifically been taught, and the pupil (independently) demonstrates secure and consistent understanding of the small steps in this unit. Grade this as a 2.
3	Working at greater depth	If this unit <u>has</u> specifically been taught, and the pupil (independently) demonstrates secure and consistent understanding of the small steps in this unit and can apply these skills within problem solving questions when in conjunction with other mathematical skills. This pupil demonstrates their 'flair' through mathematical fluency, working through problems systematically, are able to explain their ideas using mathematical language and make very few calculation errors. If this is the case grade this pupil at a 3.

Summative Assessment

Summative assessment enables teachers to evaluate both pupil learning and the impact of their own teaching at the end of a period of time. It provides evidence of achievement against the objectives of the curriculum. It is useful in informing teaching and learning in subsequent lessons. This type of assessment is shared with parents at parent/teacher consultations and enables them to support their child's learning. In Maths, teachers use Pre and Post Learning questions to assess the children's prior knowledge when beginning a new unit of work in Maths, this is used throughout key stage 2 and introduced where there are previous learning steps that can be assessed in Key Stage 1. The progress of pupils with SEN and disabilities is reviewed and summative assessment adapted as necessary. Children who have not made expected progress or whom have fallen behind are targeted for interventions and rapid response work.

Termly Assessments

In Year 1 to Year 6 there are 3 termly assessment weeks where teachers will deliver assessments in Maths. In Years 1 and 6 children will be assessed using the end of term assessments taken from White Rose.



These assessments will be used to inform data that is produced for Pupil Progress meetings, which take place prior to assessment weeks.

Nationally Standardised Summative Assessment

At Mytham, the following statutory assessments are delivered:

Key Stage One Assessments.

Mathematics – Children are either assessed as either 'on track' or 'not on track'.

- Mathematics Paper 1 – arithmetic
- Mathematics Paper 2 – reasoning

Key Stage Two Assessments

Year 4 Multiplication Tables Check

In June of Year 4 pupils take the Multiplication Tables Check. This is delivered by class teachers and the Maths Subject Lead and the results are shared with parents in the end of year report.

End of Key Stage 2 Assessments

- Mathematics Paper 1 – arithmetic
- Mathematics Paper 2 – reasoning
- Mathematics Paper 3 - reasoning

These will be carried out in the classroom over the month of May and the children will receive a scale score where 100 is the expected attainment.

Progression within Maths

Please see the Progression within Maths appendix

Teaching & Learning

At Mytham, all teachers follow the White Rose Maths long term planning. Opportunities for skill and knowledge development are important for teachers to develop over time, the curriculum is built to ensure that previous learning is built upon and regularly revisited.

Medium and short term planning ensures complete coverage of content outlined within the long term overview, and of course, statutory guidance.

What should planning look like?

Mytham firmly support work/ life balance and managing teacher workload, so planning does not need to be lengthy or onerous. PowerPoint presentations and related resources should be stored and planned together for ease of monitoring by the subject leader(s). It should clearly indicate the 'step' that is being taught in the unit of work so that it can be matched easily with the Long Term Overview.

Subject leader(s) expect that planning from the White Rose resources is adapted to suit the needs of the children in the class. It is not acceptable, nor good practice, to teach directly from the resources without prior knowledge of what the lesson intent is and an understanding of where the learning will take the children next. Resources used by the teacher may be supplemented from other sources that will help develop the children's knowledge and skills, without deviating from the intention of the lesson and step within the long term planning.

Adaptations should be noticeable and present within planning and resources, with the intention to be a scaffold for children up to reach the expected standard and not 'dumbing' down the curriculum for children who are not working at age related expectations. We intend to build children up to the expected standard.

"In-class differentiation, through providing differentiated teaching, activities or resources, has generally not been shown to have much impact on pupils' attainment. Adapting teaching in a responsive way, for example by providing focused support to pupils who are not making progress, is likely to improve outcomes. However, this type of adaptive teaching should be clearly distinguished from forms of differentiation that cause teachers to artificially create distinct tasks for different groups of pupils or to set lower expectations for particular pupils."

Activities should be planned to enable and extend pupil's knowledge and understanding in Maths.

What does a typical Maths lesson look like at Mytham?

Planning expectations

Teachers are expected to follow the White Rose scheme of learning indicated to them on the White Rose webpage. The scheme is broken down in to each term's learning with specified units to complete. Teachers should follow the units in the order they are written to ensure consistency and coverage. Within each unit there are a number of small steps, these small steps provide a basis for fundamental knowledge to build upon, hence why the scheme is written the way it is. Subject leaders have calculated the amount of small steps to day ratio, please see Appendix 1

Essential parts of a maths lesson

Flashback 4s

During each week, previous learning should be revisited frequently through the use of Flashback 4s. These are included within each unit on the White Rose Maths scheme. It is expected that teachers revisit these at least 2 times a week. It is not expected that teachers follow each specific day's Flashback 4. They may select questions based on their knowledge of what children in their class may have struggled to maintain.

There should be evidence of at least two Flashback 4 activities within pupils' workbooks each week.

Flashback 4 material can be found here:

Premium resources

Flashback 4

Step 1 Recognise equal groups



Flashback

$2,765 \times 4 = \square$

Are the angles acute, obtuse or right angles?

← An example from a KS2 class.

Flashback 4 Year 2 | Week 8 | Day 1

1) $8 \times 5 = \square \times 10$

2) 5 tens $\div 10 = \square$

3)

Number	6		8	
Double		14		18

4) Write the number in numerals and words.
 $\square$

1.	
2.	
3.	
4.	

↑ An example from KS1

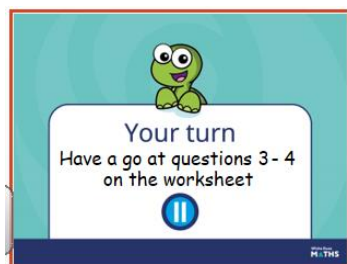
Whole class teaching materials

Teachers should primarily use the teaching slides from the premium White Rose resources. These can be found here:

Step 1 Recognise equal groups



Teachers should adapt the slide so that it becomes Dyslexia friendly, for instance hiding the background graphics and changing the background to an off white or pastel colour. Teachers should aim to use the resources as closely as possible particularly if they're teaching it for the first time. For example if changing year groups or new to school. Teachers should remove references to answering questions from worksheets within the teaching slides, see below.



Activating learning – Get Ready

Each session should begin by reactivating previous learning by either using the White Rose starters or starters chosen by the class teacher specific to the children's prior learning which should link to the learning they're about to complete. This will often be completed on whiteboards to allow teaching staff to complete initial assessment for learning.

Key Learning – Let's Learn

Step 9 The 2 times-table

← The key learning for the lesson will be taken from the name of the small step in White Rose Maths. For example:

Teachers should use the slides from the White Rose Premium Materials to teach the new concept, particularly paying attention to including representations which support the concrete, pictorial and abstract approach. This is particularly important in demonstrating calculation as these resources show the link between concrete, pictorial and abstract approaches effectively.

Recording evidence – Your turn

Written evidence of each small step or each session is not required for every single step, however when evidence is recorded in Maths Workbooks, it should be clearly named (if needed) and dated **using the short date**. It should also include the title of the Small Step which is being evidenced.

→ This then becomes the key learning objective for the lesson. For the learning to be successful the children must demonstrate that they have achieved this.

Name:	Date:
© Key Learning © To understand the 2 times table	

I used maths equipment to help me		
An adult helped me		
I worked on my own		

← This indicator will assist teachers in judging to what extent the children have required support in achieving the key learning in this session. **This should be completed by the child and the adult working with the child**

Workbook Expectations

Children's work books should showcase the high expectations set here at Mytham. Presentation expectations play an important part of this. Below are the expectations for presentation:

Presentation in books

- Short date on left – underlined with a sharp **pencil** and ruler.
- Miss a line.
- Key Learning - underlined with a sharp **pencil** and ruler.
- Miss a line.
- Start work keeping all writing to the left.
- **After marking**, rule off and continue – even if it is on the same page.
- One digit or symbol to be used per box
- Mistakes to be rubbed out or crossed through with a neat line.
- These standards **apply to all work**

In KS1, pupils should be supported to achieve these standards wherever possible. In KS2 these become non-negotiables for all pupils. Adult support/ printing of aspects of this is acceptable where pupils are unable to complete these expectations alone in a timely manner.

It is essential that teachers and TLAs enforce these expectations from the very start of the academic year in all lessons. Children will need to be trained to understand these expectations and teachers should take time to address

this. Pupils may be in a position to support one another with this too. Teachers may wish to add reminders to displays and PowerPoints if standards are not yet 'second nature' to pupils.

An example of Year 6 presentation

LI:T will add and subtract fractions.

SC1-related denominators ✓
SC2-unrelated denominators.

a) $\frac{1}{5} + \frac{4}{15} = \frac{7}{15}$ ✓
 $\frac{1}{5} \xrightarrow{\times 3} \frac{3}{15}$

c) $\frac{1}{7} + \frac{4}{21} = \frac{7}{21}$ ✓
 $\frac{1}{7} \xrightarrow{\times 3} \frac{3}{21}$

b) $\frac{4}{5} - \frac{6}{15} = \frac{6}{15}$ ✓
 $\frac{4}{5} \xrightarrow{\times 3} \frac{12}{15}$

d) $\frac{3}{4} + \frac{7}{12} = \frac{16}{12}$ ✓
 $\frac{3}{4} \xrightarrow{\times 3} \frac{9}{12}$

Name: Evie Date: 17.4.24

I used maths equipment to help me	
An adult helped me	
I worked on my own	✓

◎ **KEY LEARNING** ◎
Comparing decimals

1 Arrange in order from smallest to largest

(a) 3.7, 3.5, 3.9, 3.4, 3.8 (b) 9.2, 2.9, 5.4, 1.8, 8.7
 (c) 4.6, 4.9, 14.1, 0.9, 1.2 (d) 8.13, 8.05, 8.24, 8.09, 8.15, 8.02
 (e) 1.53, 1.48, 1.59, 1.44, 2.11, 0.98 (f) 0.59, 1.24, 0.45, 1.34, 0.88, 2.01

2 Arrange in order from smallest to largest

(a) 1.2, 1.08, 1.13, 1.6, 1.29 (b) 5.25, 5.2, 5.19, 5.08, 5.1, 5.21
 (c) 40.6, 46.1, 40.49, 40.68, 46, 46.09 (d) 0.24, 0.3, 0.125, 0.2, 0.199, 0.1

1a) 3.4, 3.5, 3.7, 3.8, 3.
 1b) 1.8, 2.4, 5.4, 8.7, 9.
 2a) 40.49, 40.6, 46, 46.09
 2b) 0.125, 0.18, 0.199, 0.

An example of Year 5 presentation

back

$$53 = 8081$$

4
3
1

Fluency:

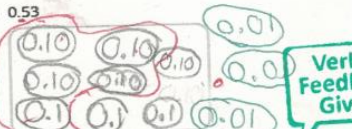
$6 \times 4 = 24$	$4 \times 7 = 28$	$9 \times 9 = 81$
$7 \times 3 = 21$	$4 \times 8 = 32$	$8 \times 9 = 72$
$8 \times 11 = 88$	$8 \times 7 = 56$	$7 \times 6 = 42$

2 Draw decimal place value counters to represent the numbers.

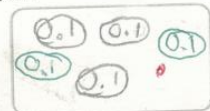
a) 0.03



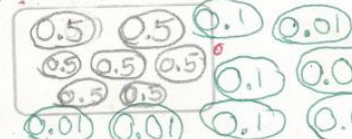
c) 0.53



b) 0.5

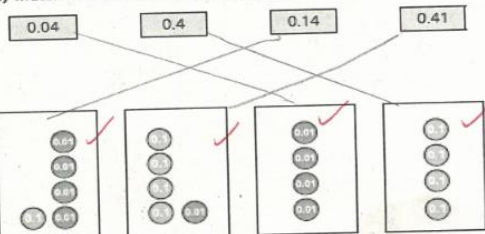


d) 0.35



3 The counters represent tenths and hundredths.

a) Match the decimals to the groups of counters.



b) Write each decimal as a fraction.

$$0.04 = \frac{4}{100} \quad 0.4 = \frac{4}{10} \quad 0.14 = \frac{14}{100} \quad 0.41 = \frac{41}{100}$$

An example of Year 4 presentation

LI: I will add, subtract, multiply and divide

Sci- use the correct strategy

$$781 - 374 = 407$$

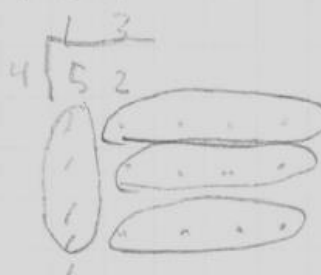
$$\begin{array}{r} 781 \\ - 374 \\ \hline 407 \end{array}$$

$$465 + 621 = 1086$$

$$\begin{array}{r} 465 \\ + 621 \\ \hline 1086 \end{array}$$

$$62 \times 3 = 186$$

$$52 : 4 = 13$$



$$438 + 362 = 800$$

$$\begin{array}{r} 438 \\ + 362 \\ \hline 800 \end{array}$$

An example of Year 3 presentation

Classroom environments to support teaching & learning

Vocabulary

The teaching of new vocabulary needs to be addressed during Maths lessons and the wider curriculum to ensure the profile of using new/ subject specific vocabulary is raised across the school. Vocabulary needs to be displayed on working walls around the classroom, or on specific vocabulary walls (if space allows) and referred to daily

Vocabulary should be updated regularly and reflect current learning. Big books, powerpoints and photos of past displays can be used to help children to recall previously taught vocabulary. It is important that vocabulary is revisited regularly throughout the year so this becomes embedded to support metacognition and links in learning.

Maths Learning Walls

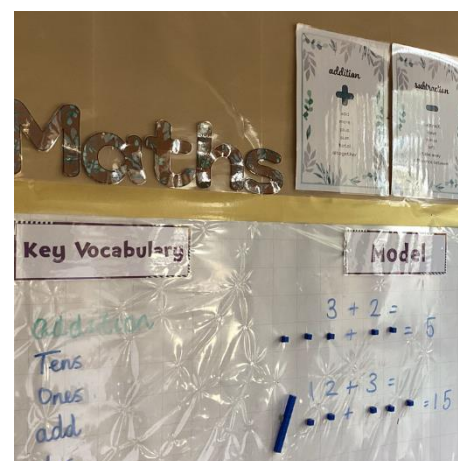
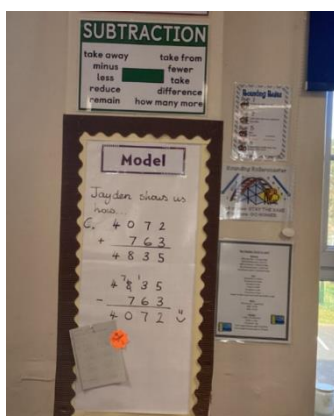
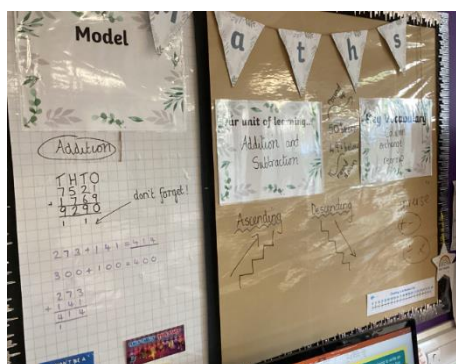
Maths working walls should reflect the current learning and should contain:

Constantly displayed:

- Unit Title
- Modelling
- Vocabulary

Displayed at varying points across the unit of work:

- Part / whole models
- Place value grids
- Examples of calculations
- WAGGOLLS/ Good examples of work
- Previous working wall items may be useful to keep for future reference but should not be displayed continuously.



Vocabulary is shared and demonstrates the ambitious language expectations here at Mytham. Continual reference to this during the week will support metacognition and encourage pupils to use it with increasing independence.

Examples of supporting and promoting maths in early years (Physical Development & Literacy):



Maths based investigations encourage children to apply their skills and knowledge in play. Here Reception class investigate who is tallest in the class and solve the 'Fee fi fo fum' foot print mystery! High levels of engagement from all children.



Maths resources and activities are modelled by skilled adults and also available in the provision. Here a reception child plays 'one more/ one less' with her friends.



Daily guided maths activities are planned to support skill and knowledge progression. In nursery children explore number songs and maths concepts through circle times. In reception class children take part in whole class and small group maths. Evidence is captured on Tapestry and in maths books.



Maths opportunities are built into a wide range of experiences to encourage exploration and application of early mathematical concepts. Here our 2YO nursery children count whilst making 'Gruffalo crumble' and Reception children visit our reward shop with their money wallets, adding, subtracting and finding totals to 10 and beyond using money.



High quality, carefully considered continuous provision ensures maths opportunities are available at all times, either in discreet maths areas or in cross-curricular ways.

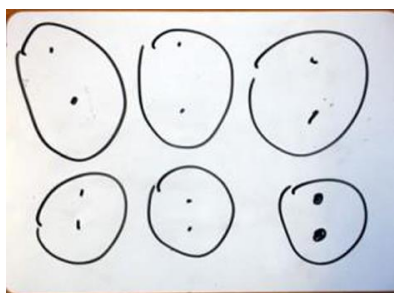
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Resources to scaffold and structure learning

Concrete/Pictorial/Abstract Approach

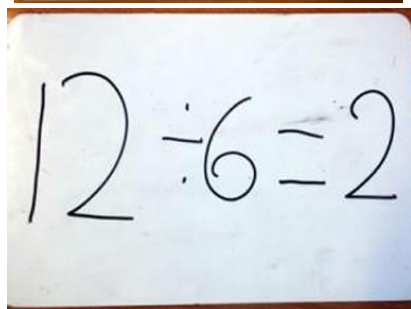
Concrete representation

The children should first be introduced to an idea or a skill by acting it out with real objects. In division, for example, this might be done by separating apples into groups of red ones and green ones or by sharing 12 biscuits amongst 6 children. This is a 'hands on' approach using real objects and it is the basis for conceptual understanding. Concrete apparatus such as Numicon, double sided counters, base 10 apparatus and place value counters are used widely across school.



Pictorial representation

This is used when a child has sufficiently understood the hands-on experiences performed and can now relate them to representations, such as a diagram or picture of the problem. In the case of division this could be the action of circling objects.



Abstract representation

The symbolic stage – a student is now capable of representing problems by using mathematical notation, for example: $12 \div 6 = 2$. This is clearly the more confusing and mysterious of the three and without the 'hands on' and pictorial steps can be tricky for children to understand.

Additional concrete resources

All Maths classes are provided with place value, base 10 and counters to support the teaching of Maths.

These boxes are clearly labelled with the class name and/or room number to ensure that resources are kept together.

These resources should be used as part of everyday teaching and should be readily available to children to support them with their learning as required. It should be an expectation that these resources will be needed, rather than might be needed, to support learning.

learning.

Learning by Questions

Learning by Questions (LBQ) is a classroom app filled with curriculum-aligned Question Sets and immediate feedback to super-charge learning. It is a scheme we use at Mytham across KS2 classes which we use alongside our other Maths resources.



It is used to improve outcomes for pupils by:

- Allowing pupils to know immediately if they have got something right or wrong.
- Taking away the fear of getting something wrong.
- Not having to wait for help from the teacher, as it provides immediate feedback.
- Supporting children who are struggling and allows those who are more confident to progress and deepen their understanding.
- Providing positive reinforcement to the children.
- Reducing the pressure of assessments by presenting them in a less threatening way.

It benefits teachers by:

- Providing immediate scaffolded feedback to pupils.
- Gives teachers continuous formative assessment.
- Providing a bank of resource materials to help better inform pupil progress.
- Developing knowledge and understanding, including embedding mathematical vocabulary.
- Having activities focussed on fluency and the practice of a specific skill.
- Challenging pupils reasoning and problem solving through the use of higher order questions.

It benefits leaders by:

- Giving them confidence that the resource is high quality and will promote quality first teaching.
- Allowing teachers to have on the spot formative assessment to make them feel more confident in their assessment of pupils.
- Knowing that pupils enjoy the learning experience.
- Knowing that pupils are being given high quality feedback.
- That all of these benefits are consistent across the school.

Expectations for Learning by Questions

It is expected that in Key Stage 2, Learning by Questions is used at least once a week as part of Maths teaching, and this should be more frequent if there are sufficient resources available to classes to achieve this.

Learning by Questions sessions should be recorded on the LBQ Session Recorder document, located within the planning folder for each class

[illegible]

Times Tables Rockstars

Times Tables Rockstars is introduced once children have been exposed to times tables knowledge and facts in their maths learning. This is introduced in the Spring Term in Year 2, once the 2x, 5x and 10x tables have been introduced.

The use of TTRockstars is embedded in Years 3 and 4, leading to the Year 4 Multiplication Check.

Although TTRockstars is not set as formal homework, the use of it at home is actively encouraged and rewarded in classes and contests, competitions and Rock Wrangles are to be used regularly throughout the year to raise the profile of times tables.



What a pupil at Mytham is like at the end of EYFS

Reading and Writing Numbers			
Three and Four-Year-Olds	Mathematics		• Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. • Experiment with their own symbols and marks as well as numerals.
Reception	Mathematics		• Link the number symbol (numeral) with its cardinal number value.
Compare and Order Numbers			
Three and Four-Year-Olds	Mathematics		• Compare quantities using language: 'more than', 'fewer than'.
Reception	Mathematics		• Compare numbers.
ELG	Mathematics	Numerical Patterns	• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
Understanding Place Value			
Reception	Mathematics		• Understand the 'one more than/one less than' relationship between consecutive numbers. • Explore the composition of numbers to 10.
ELG	Mathematics	Number	• Have a deep understanding of numbers to 10, including the composition of each number.
Solve Problems			
Three and Four-Year-Olds	Mathematics		• Solve real world mathematical problems with numbers up to 5.

Number and Place Value			
Counting			
Three and Four-Year-Olds	Mathematics		- Recite numbers past 5. - Say one number name for each item in order: 1, 2, 3, 4, 5. - Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').
Reception	Mathematics		- Count objects, actions and sounds. - Count beyond ten.
ELG	Mathematics	Numerical Patterns	Verbally count beyond 20, recognising the pattern of the counting system.
Identifying, Representing and Estimating Numbers			
Three and Four-Year-Olds	Mathematics		- Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). - Show 'finger numbers' up to 5. - Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. - Experiment with their own symbols and marks as well as numerals.
Reception	Mathematics		- Subitise. - Link the number symbol (numeral) with its cardinal number value.

- They will learn skills and strategies to be resilient and persevere when faced with a challenging problem.
- They will begin to recognise numbers and start to count objects
- They will begin to represent, read and write numbers, either using their own marks or number symbols
- They will be able to compare and order objects and use mathematical language including 'more' and 'less'
- They will be able to apply this knowledge and solve problems

What a pupil at Mytham is like at the end of KS1

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 should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

- Children are able to confidently read, write and compare whole numbers and recognise the relative value of each numbers that they read.
- They should have an understanding of the four mathematical operations.
- They should have an understanding of 2d and 3d shapes and be able to sort them according to mathematical vocabulary
- They should be able to compare values of length, capacity, weight, time and money

What a pupil at Mytham is like at the end of KS2

The principal focus of mathematics teaching in lower key stage 2 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.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

The principal focus of mathematics teaching in upper key stage 2 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.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

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.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

- Children are able to confidently read, write and compare whole, fractions and decimal numbers and recognise the relative value of each numbers that they read.
- They should have an understanding of the four mathematical operations and use algebra to solve problems using these.
- They should have an understanding of 2d and 3d shapes and be able to sort them according to mathematical vocabulary
- They should be able to compare values of length, capacity, weight, time and money

Parental Engagement

Parental engagement is an important aspect of support pupils to achieve the best possible outcomes here at Mytham. We demonstrate that we value parental engagement by:

- Updating parents regularly on home learning expectations and providing feedback to families
- Parent workshops to explain and demonstrate expectations at Mytham in Maths.
- Discussing children's progress and attainment at parent consultations and in written reports.
- Informal discussions
- Inviting parents into school to showcase our learning and to take part in activities such as reading workshops
- Regular communication sent home on school newsletter and via email regarding Maths at Mytham and recent updates and initiatives.
- Parents should be encouraged to visit the school website which contains lots of information regarding curriculum and ways to support your child at home.

Homework

See homework policy

Appendix 1

Year 1	WRM allocated weeks		Number of small steps
Place Value (within 10)	Autumn	5	15
Addition and subtraction (within 10)	Autumn	5	13
Shape	Autumn	1	5
Place value (within 20)	Spring	3	12
Addition and subtraction (within 20)	Spring	3	10
Place value (within 50)	Spring	2	8
Length and Height	Spring	2	3
Mass and volume	Spring	2	7
Multiplication and division	Summer	3	9
Fractions	Summer	2	8
Position and direction	Summer	1	5
Place value (within 100)	Summer	2	7
Money	Summer	1	4
Time	Summer	2	6
Total number of small steps			112
Number of teaching days (approximately)			185 (+73)

Year 2	WRM allocated weeks		Number of small steps
Place Value	Autumn	4	16
Addition and subtraction	Autumn	5	21
Shape	Autumn	3	12
Money	Spring	2	10
Multiplication and division	Spring	5	17
Length and Height	Spring	2	5
Mass, capacity and temperature	Spring	3	9
Fractions	Summer	3	15
Time	Summer	3	7
Statistics	Summer	2	7
Position and direction	Summer	2	5
Total number of small steps			124
Number of teaching days (approximately)			185 (+61)

Year 3	WRM allocated weeks		Number of small steps
Place Value	Autumn	3	14
Addition and subtraction	Autumn	5	22
Multiplication and division A	Autumn	4	15
Multiplication and division B	Spring	3	11
Length and perimeter	Spring	3	12
Fractions A	Spring	3	10
Mass and capacity	Spring	3	11
Fractions B	Summer	2	6
Money	Summer	2	5
Time	Summer	3	12
Shape	Summer	2	10
Statistics	Summer	2	6
Total number of small steps			134
Number of teaching days (approximately)			185 (+51)

Year 4	WRM allocated weeks		Number of small steps
Place Value	Autumn	4	17

Addition and subtraction	Autumn	3	10
Area	Autumn	1	4
Multiplication and division A	Autumn	3	13
Multiplication and division B	Spring	3	15
Length and perimeter	Spring	2	9
Fractions	Spring	4	15
Decimals A	Spring	3	10
Decimals B	Summer	2	8
Money	Summer	2	6
Time	Summer	2	5
Shape	Summer	2	8
Statistics	Summer	1	4
Position and direction	Summer	2	5
Total number of small steps			126
Number of teaching days (approximately)			185 (+56)

Year 5	WRM allocated weeks		Number of small steps
Place Value	Autumn	3	14
Addition and subtraction	Autumn	2	8
Multiplication and division A	Autumn	3	10
Fractions A	Autumn	4	17
Multiplication and division B	Spring	3	11
Fractions B	Spring	2	7
Decimals and percentages	Spring	3	15
Perimeter and Area	Spring	2	6
Statistics	Spring	2	5
Shape	Summer	3	10
Position and direction	Summer	2	6
Decimals	Summer	3	12
Negative numbers	Summer	1	5
Converting units	Summer	2	6
Volume	Summer	1	4
Total number of small steps			136
Number of teaching days (approximately)			185 (+49)

Year 6	WRM allocated weeks		Number of small steps
Place Value	Autumn	2	8
Addition, subtraction, multiplication and division	Autumn	5	17
Fractions A	Autumn	2	9
Fractions B	Autumn	2	7
Converting units	Autumn	1	5
Ratio	Spring	2	10
Algebra	Spring	2	10
Decimals	Spring	2	9
Fractions, decimals and percentages	Spring	2	9
Area, perimeter and volume	Spring	2	8
Statistics	Spring	2	6
Shape	Summer	3	11
Position and direction	Summer	1	5
Total number of small steps			114
Number of teaching days (approximately)			150 (+36)

