MATHEMATICS

RESPONSIBILITY FOR REVIEW: Assistant Principal

Updated- March 2023

Our Values

The academy believes that a firm grounding in mathematics is essential to a successful future. Skilled and focused teaching of mathematical concepts is required to ensure pupils leave Dixons Marchbank Primary as confident mathematicians and resilient problem solvers.

The aims are:

- To equip students with a secure understanding of place value, a fluency in mental methods and an ability to quickly recall number facts and tables.
- To provide students with the knowledge and skills to use all four operations easily and efficiently and to use the above skills in problem solving contexts and to reason mathematically.
- To develop independence and resilience in students so that they can solve a wide range of mathematical problems and confidently explain their reasoning.
- To enable students to transfer their mathematical, reasoning and problem solving skills across the curriculum, especially in science, showing mastery and well-developed understanding. This is the most important factor in a student's success in mathematics.
- For students to gain a sense of awe and wonder of numbers and to understand the importance of mathematics in the wider world.
- Reason mathematically by following a line of enquiry, understanding relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- Solve increasingly complex 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.

Procedures

The Maths Leader will:

- Set high expectations and monitor teaching through coaching and lesson drop ins.
- Regular monitoring of books and cycle data to see evidence of learning journey and progress.
- Ensure the mastery model of teaching is delivered across school with a focus on representation, fluency, probing questions and explaining and reasoning.
- Ensure the National Curriculum is being covered across school and that, although the majority of students will move through the programmes of study at broadly the same pace, interventions for those who are struggling and challenge for those who are confident is evident in all classes.
- Encourage an academy wide approach, keeping parents, governors and all support staff well informed.
- Lead by example, showing a thorough understanding of how students learn mathematics
- Offer support to teachers in planning, teaching and assessment.
- Deliver INSET

Undertake research and scrutinies within the Mat and Lap to ensure problem solving and reasoning skills are one of the main methods to assess mastery of a skill / concept area.

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Teaching Mathematics at Dixons Marchbank Primary- Mastery maths working wall
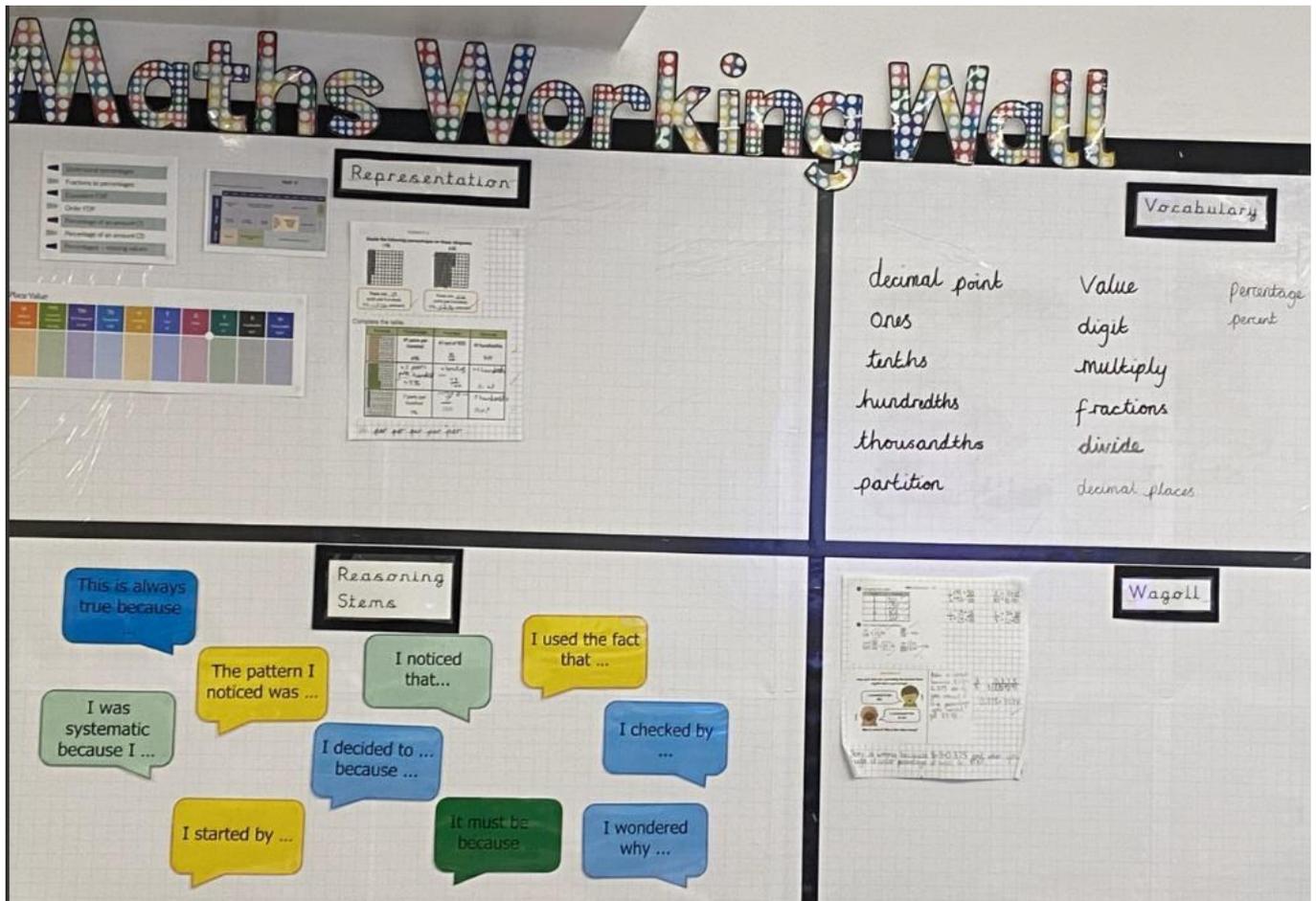
APPENDICES: Appendix 1: ROLES OF STAKEHOLDERS

<u>**Teachers will:**</u>

- Value the achievements and progress of all students and ensure high expectations of learning and provide appropriate challenge.
- Have secure subject knowledge and use a variety of teaching and learning approaches including the use of practical equipment to support representation.
- In accordance with the school Teaching and Learning Policy, use teaching methods and styles to take account of the needs of all students
- Share the small steps for the learning journey for each mathematical objective being taught.
- Use a range of teaching styles including:

- Whole class teaching including the teaching of times tables, arithmetic and maths lessons.
- Shared/modelled work using MTYT TTYP strategies
- Independent work
- Guided group work encouraging pupil independence when necessary
- Providing activities and resources in the provision
- Use of manipulatives to support student understanding

- Provide daily practice of mental skills including counting, rapid recall, newly learned facts and calculation strategies; ensuring students become fluent in the fundamentals of mathematics including through varied and frequent practice
- Use the WRM overview to plan the key objectives for the year and the termly breakdown of activities. Use other resources on the school system to support the teaching of maths.
- Ensure problem solving and reasoning are key components in all areas of mathematics and in many lessons and is not just taught in restricted instances.
- Consistently follow the procedures laid down in the school Calculations Policy and teach times tables using the term by term breakdown from the Times Table Termly Planner document.

Support staff will:

- Be included in staff training for mathematics where appropriate;
- Have a clear understanding of their role in each part of the lesson;
- Share the learning intentions for each lesson and know the key vocabulary to be developed.
- Deliver intervention for specific students as directed and planned by the class teacher. This will include further support on times tables, arithmetic and gaps identified from lessons and cycle assessments.

Parents will:

- Be encouraged to develop positive attitudes to mathematics and actively support their children when homework is given. This will include online homework on TT Rockstars and Sats Bootcamp

- Attend maths workshops to see how maths is taught in school and ideas to support students at home.
- Be well informed of students progress through annual reports, and parents' evenings.

Students will:

- Gain confidence in mathematics and see its relevance to real life .
- Develop mental calculation strategies so that their first reaction to a question is 'Can I do this in my head?'
- Understand a wide range of mathematical vocabulary and use it confidently.
- Use their knowledge to solve problems, see patterns, make predictions, present information clearly, interpret data and reason mathematically.
- Give oral explanations of their methods and explain their reasoning.

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Appendices

See Separate WRM- Calculation Policy

Times Tables

Year 1	
Autumn 1 & 2	Count in 2's up to 24, linking with even numbers and supporting doubles. Count in multiples of 10 in order up to 120.
Spring 1 & 2	Focus on counting in multiples of 5 up to 60, linking with knowledge of counting in 10s. Continue to develop fluency of counting in 2's and 10's.
Summer 1	Count in multiples of 10, 2 and 5 in order with growing fluency.
Summer 2	Count in multiples of 10, 2 and 5 in order fluently.

Teaching methodologies:

- Count pairs of objects
- Count straws bundled in tens
- Sing counting songs
- Hundred square
- Number lines
- Pictorial representations on display
- Rolling Numbers

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Year 2

Autumn 1	Consolidate counting in steps of 2, 5 and 10 in order from 0 up to 12x. `5 Minutes`
Autumn 2	Count in steps of 2 and 5 from 0 up to 12x fluently. Recall multiples of 10 up to 12x10 in any order, including missing numbers and related division facts with growing fluency. `5 Minutes`
Spring 1	Recall multiples of 2 up to 12x2 in any order, including missing numbersand related division facts. Recall multiples of 10 up to 12x10 fluently. `5 Minutes`
Spring 2	Recall multiples of 5 up to 12x5 in any order, including missing numbersand related division facts. Recall multiples of 2 up to 12x2 in any order, including missing numbers and related division facts with growing fluency. `5 Minutes`
Summer 1	Count in multiples of 3 to 12x3 in order from 0. Recall multiples of 2 up to 12x2 in any order, including missing numbersand related division facts fluently. Recall multiples of 5 up to 12x5 in any order, including missing numbers and related division facts with growing fluency. `5 Minutes`
Summer 2	Count in multiples of 3 to 12x3 in order from 0 with growing fluency. Recall multiples of 5 up to 12x5 in any order, including missing numbers and related division facts fluently. `5 Minutes`

Teaching methodologies:

- Counting objects in groups of 2, 5, 10 & 3
- Sing counting songs
- Hundred square
- Number lines
- Array with concrete resources
- Pictorial representations on display
- Rolling Numbers

Year 3

Autumn 1	Count in multiples of 3 to 12x3 in order from 0 fluently. **5 Minutes**
Autumn 2	Recall multiples of 3 up to 12x3 in any order, including missing numbers and related division facts with growing fluency. Count in multiples of 4 to 12x4 in order from 0 with growing fluency. Introduce (relating to x4) and begin to count in multiples of 8 from 0 to 12x8. **5 Minutes**
Spring 1	Recall multiples of 3 up to 12x3 in any order, including missing numbers and related division facts fluently. Count in multiples of 4 to 12x4 in order from 0 with fluently. Count in multiples of 8 to 12x8 in order from 0 with growing fluency. **4 Minutes**
Spring 2	Recall multiples of 4 up to 12x4 in any order, including missing numbers and related division facts with growing fluency. Count in multiples of 8 to 12x8 in order from 0 fluently. **4 Minutes**
Summer 1	Recall multiples of 4 up to 12x4 in any order, including missing numbers and related division facts fluently. Recall multiples of 8 up to 12x8 in any order, including missing numbers and related division facts with growing fluency. **4 Minutes**
Summer 2	Recall multiples of 8 up to 12x8 in any order, including missing numbers and related division facts fluently. **4 Minutes**

Teaching methodologies:

- Counting objects in groups of 3, 4 and 8
- Hundred square
- Number lines
- Array with concrete resources
- Pictorial representations on display
- Rolling Numbers

Year 4

Autumn 1	Recall multiples of 3,4 and 8 up to 12x in any order, including missing numbers and related division facts fluently. Fluently count in 6's in order up to 12x6, using multiples of 3 to support. **4 Minutes**
Autumn 2	Recall multiples of 6 in any order, including missing numbers and related division facts with growing fluency. Fluently count in 7's in order up to 12x7. **4 Minutes**
Spring 1	Recall multiples of 6 in any order, including missing numbers and related division facts fluently. Recall multiples of 7 in any order, including missing numbers and related division facts with growing fluency. **3 Minutes**
Spring 2	Recall multiples of 7 in any order, including missing numbers and related division facts fluently. Fluently count in 9's in order up to 12x9. Fluently count in 11's in order up to 12x11. **3 Minutes**
Summer 1	Recall multiples of 9 in any order, including missing numbers and related division facts with growing fluency (using 10x and adjusting by 1 group to find 9x as a strategy) Recall multiples of 11 in any order, including missing numbers and related division facts fluently. Fluently count in 12's in order up to 12x12. **3 Minutes**
Summer 2	Recall multiples of 9 in any order, including missing numbers and related division facts fluently. Recall multiples of 12 in any order, including missing numbers and related division facts with growing fluency (using 10x and adjusting by adding 2 more groups). **3 Minutes**

Teaching methodologies:

Hundred square
Number lines
Pictorial representations on display
Rolling Numbers

Year 5

Autumn Term	Recall multiples of 12 in any order, including missing numbers and related division facts fluently. Recall multiples of all times tables up to 12x12 in any order, including missing numbers and related division facts with growing fluency. 3 Minutes

Teaching methodologies:

- Pictorial representations on display
- Rolling Numbers

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- Rolling Numbers