Mathematics at Mithian School

Intent, Implementation, Impact

D. Faint February 2020

Reviewed January 2022

Maths Co-ordinator

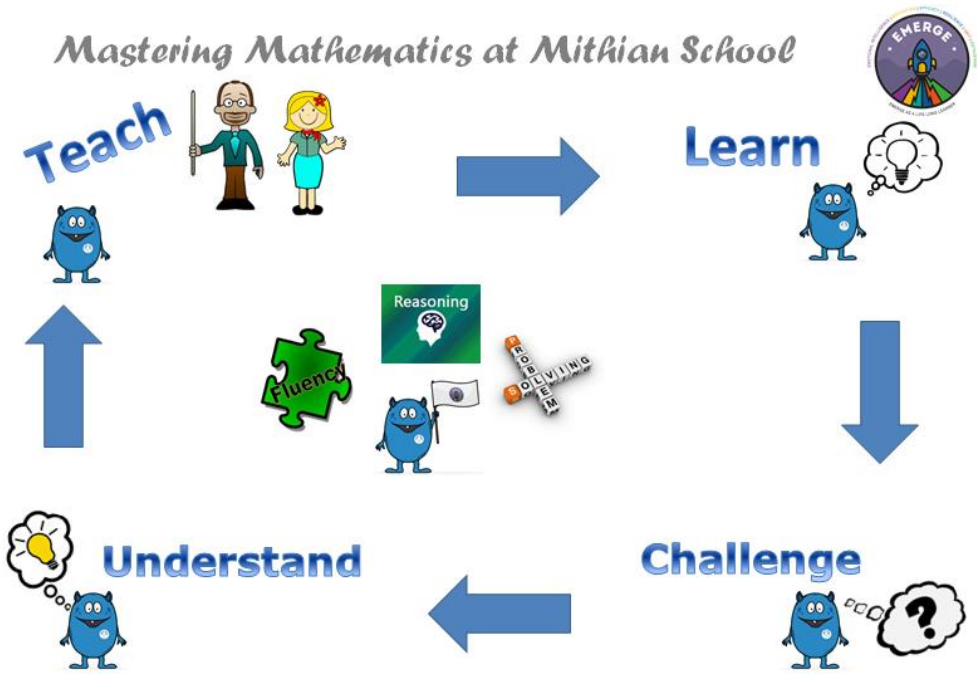
Our Intent

At Mithian School, our mathematics curriculum has been developed to ensure our pupils leave us prepared to tackle mathematics at secondary school and beyond.

Through our ethos of 'teach, learn, challenge and understand' our pupils are constantly practising and consolidating their understanding of mathematics.

Teachers plan series of bespoke lessons with elements of fluency, problem solving and reasoning, whilst also making key links across curriculum areas, meaning pupils are able to apply their understanding to a wide variety of different contexts.

Finally, we believe in constantly challenging pupil resilience as well as ensuring they have an understanding of the importance of mathematics in their everyday lives.



Our maths poster: on display in every classroom to ensure learners' understand the structure of their learning. ('Lift Off- EMERGE)

Our Implementation

At Mithian School, we understand the importance of developing pupil understanding of place value and number, whilst also instilling pupil confidence in appropriate usages of written methods for the four operations.

Times Tables

We also understand how pupils' table knowledge, and fluent application of this table knowledge, empowers pupils to notice and use patterns in their mathematics.

Pupils are explicitly taught their tables in the following order from reception onwards:

x 10 x 5 x 2 x 4 x 8 x 3 x 6 x 9 x 7

From Year 3 onwards, pupils are tested weekly on 'speed tables'. Pupils have 10 minutes to complete anything from 60 to 120 problems which encourage them to develop their fluency in their understanding of their tables.

Pupils take these sheets home to practise, and pupils are required to scores 95% on their table in order to move 'up' a level.

7x0.8	0.6x3	1.2x0.5	3x1.1	0.12x3
0.2x0.06	0.9x0.09	1.2x0.12	0.6x8	0.2x0.02
0.6x0.12	11x1.1	0.2x0.4	1x0.12	1.1x0.7
80x0.8	7x1.2	0.7x0.4	0.3x0.4	0.6x7.0
0.6x90	0.09x7	2x0.7	1.2x0.8	0.2x0.9
1.2x1.1	0.7x800	0.7x0.7	9x0.6	0.3x8
1.1x0.6	0.08x0.9	60x0.7	6x0.6	0.6x5
0.8x5	0.3x0.7	4x0.4	1.1x9	1.1x0.9
0.9x0.5	3x0.3	40x0.8	10x1.1	0.9x0.04
0.4x1.2	0.6x4	10x0.5	0.2x1.2	600x0.6
0.12x0.12	0.1x0.1	7x0.5	1.2x0.9	0.4x0.5
0x0.008	0.5x0.5	800x0.8	3x0.9	0.3x0.5

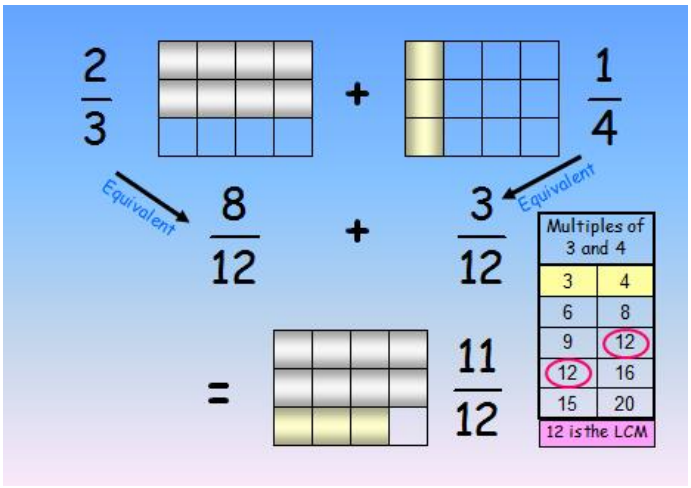
Planning, Lesson Design and Books

At Mithian School, teachers plan sequence of lessons using the structure of:

'Teach, Learn, Challenge, Understand'

This model will be presented sometimes within a single lesson but mostly it will be evident within a group of lessons which will be highlighted within the child's maths book.

Teachers plan lessons using the national curriculum objectives in combination with the White Rose Hub supplementary documents. Teachers plan series of lessons using a wide range of inputs, including powerpoints, activities (from websites such as Nrich), and puzzles whilst always ensuring pupils begin with practical resources to establish their understanding.



Pupil work is usually made bespoke to the pupils in class and may include images, and number work in which the teacher has thought carefully about number choice to develop pupil's ability to pattern seek.

27. $\frac{3}{4} - \frac{2}{3} = \frac{\quad}{12} - \frac{\quad}{12} = \quad$

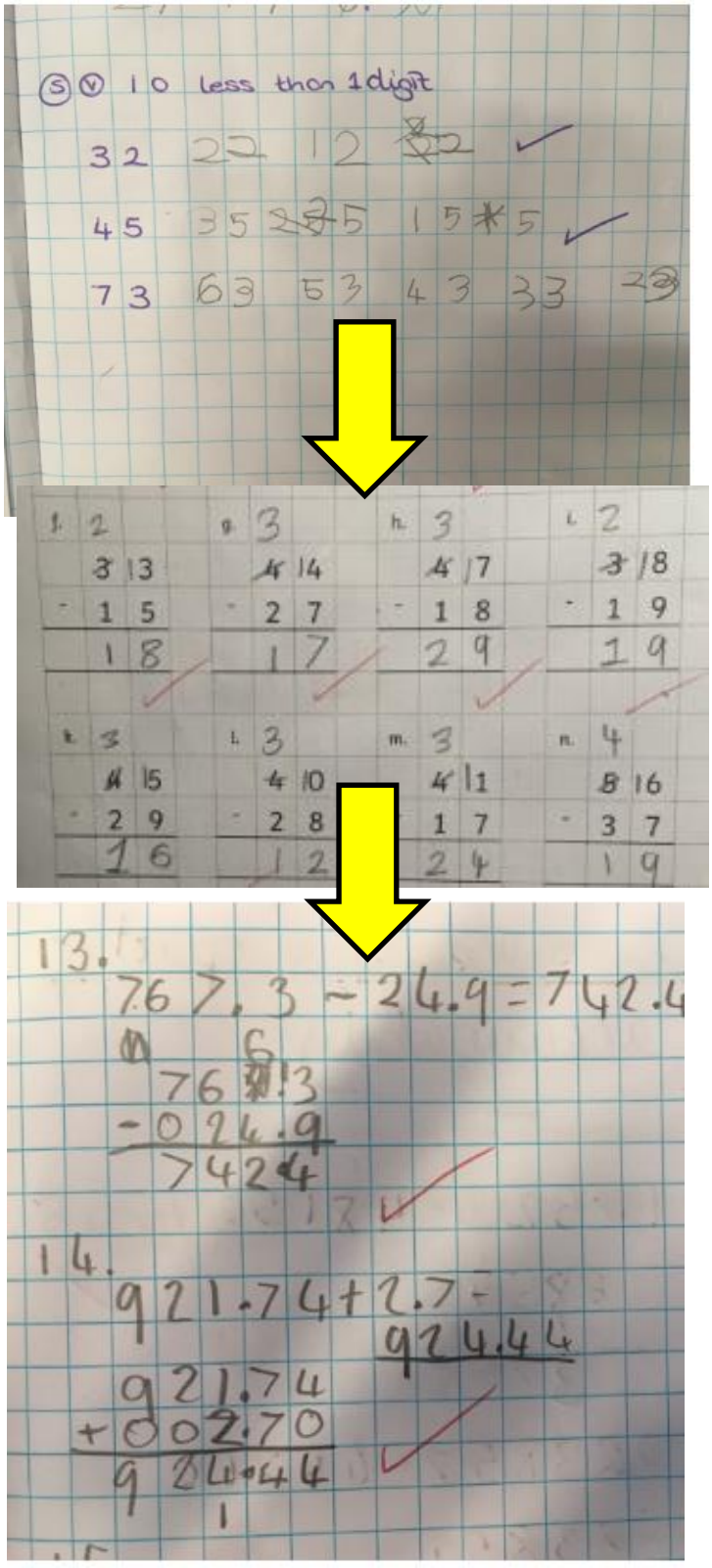
28. $\frac{7}{8} - \frac{1}{2} = \frac{\quad}{\quad} - \frac{\quad}{\quad} = \quad$

29. $\frac{9}{10} - \frac{3}{7} = \frac{\quad}{\quad} - \frac{\quad}{\quad} = \quad$

30. $\frac{9}{11} - \frac{2}{5} = \frac{\quad}{\quad} - \frac{\quad}{\quad} = \quad$

Pupils' Maths Books

We have a high expectation of presentation within books where children will write in one digit per square in their books. Each lesson will have the short date and an L.O to describe the learning. Where numbers have been reversed or written incorrectly, this will be highlighted within marking (KS1) and children will have to rewrite the number several times to practice. Where a mistake has been made, this will be shown when marked and pupils will complete these with a green pen.



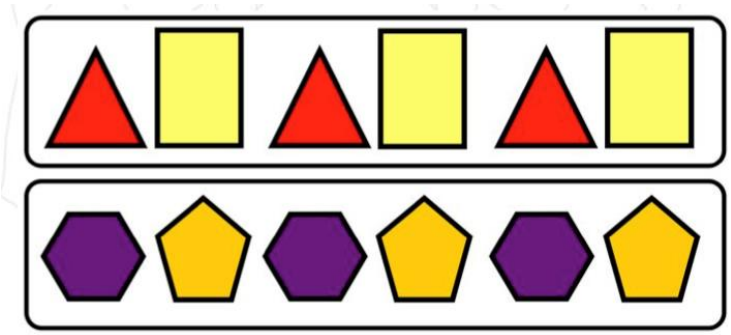
Teachers will explicitly demarcate activities which were fluency, problem solving or reasoning-based.

Where pupils have made an error, pupils are encouraged to self-correct using a green pen.

Teachers may also include additional questions or challenges to consolidate, or extend pupil learning.

Types of activities pupils undertake

Pattern seeking and odd one out

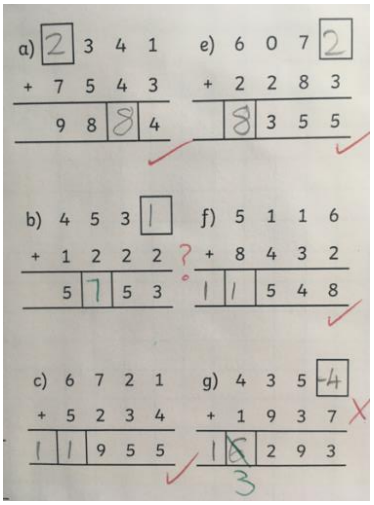


3	33	15	36
12	27	34	18
72	39	30	6
24	21	9	42

Why 34 is Odd One Out?

Missing digit problems

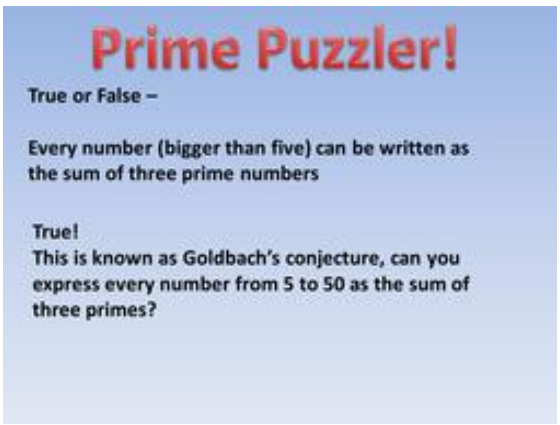
KS2



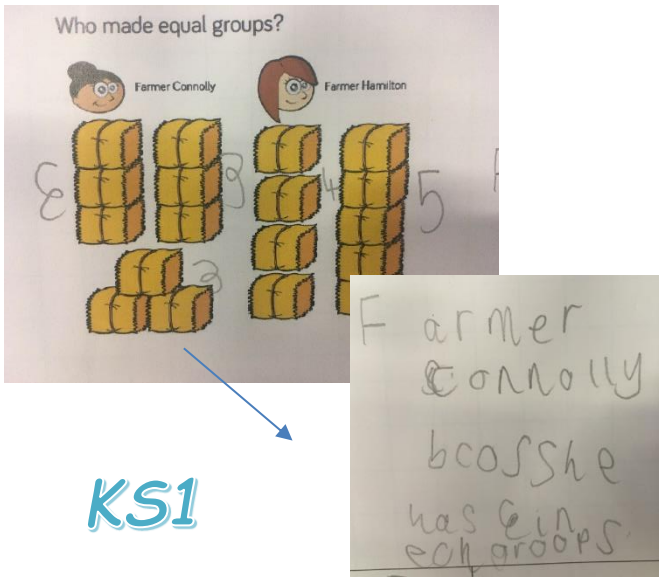
Write the missing digits to make this correct.

KS1

Conjecture (Lift Off thinks…) Always, Sometimes Never and Convince Me



KS2



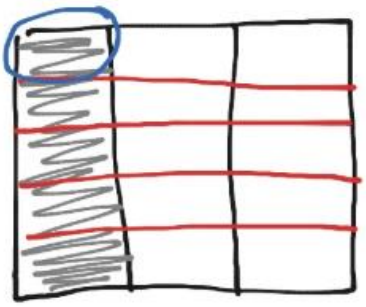
KS1

Visual/pictorial representations of mathematic concepts

After a birthday party, 1/3 of a large cake was left. If this leftover cake was shared equally among the 5 people, what fraction of the whole cake did each person receive?

$\frac{1}{3} \div 5 = \frac{1}{15}$

KS2



Dividing Fractions UKS2

Investigative work

How Many Times?

Age 7 to 11 ★

On a digital 24 hour clock, at certain times, all the digits are consecutive (in counting order). You can count forwards or backwards.

For example, 1:23 or 5:43.

How many times like this are there between midnight and 7:00?
How many are there between 7:00 and midday?
How many are there between midday and midnight?

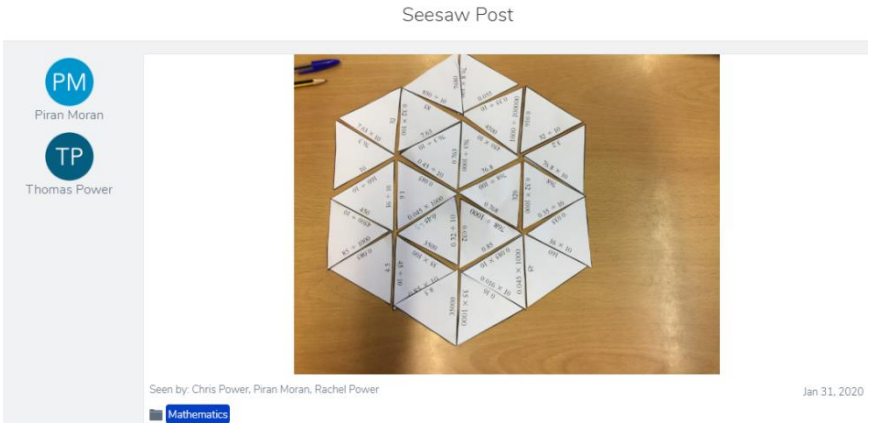
(nrich-style activities)

Our Impact

Whole School Community

As a school we are aware of the need for all members of the school community to be part of maths learning. Regular pupil conferencing, in conjunction with maths subject governor meetings, ensures we as a school are constantly reflecting on our practice and seeking ways to improve.

Parents are engaged with their children's learning through the use of the online app 'Seesaw', in which parents can see images and videos taken by both teaching staff and pupils. Parents are also invited to 'maths workshops' in which they are shown the curriculum (and how we teach it) so that they can better support their children at home.



Intervention

Intervention is led by both teaching assistants and, where possible, teachers themselves. The intervention is reactive, based on pupils' performance during morning maths lessons to ensure they can engage in the following day's lessons.

Intervention can be (but is not exclusively) in pupils' maths books, where pupil success and points to improve on will be noted by teaching assistants using 'orange pen'.

DATA (note that 1 child = 7%)

(End of Foundation Stage)

	Met Maths ELG	*Exceeded Maths ELG*
2019	*85%*	*7.7%*
2018	*86%*	*14%*
2017	*80%*	*6.7%*

(End of Key Stage One)

	At EXS	*At GD*
2019	*80%*	*22%*
2018	*93%*	*22%*
2017	*87%*	*21%*

(End of Key Stage Two)

	At EXS	*At GD*	*Progress*
2019	*81%*	*31%*	*-1.1*
2018	*94%*	*31%*	*+1.5*
2017	*73%*	*13%*	*-0.6*