

Intent, Implementation and Impact

Maths

Intent

Receiving a secure grounding in maths is an essential life skill. We believe it is vital that children can see the purpose of learning number facts and applying these skills in real life. With practice, children become familiar with the properties of numbers and will develop automatic recall to arithmetic questions.

Maths is everywhere. Throughout our lives, we need to make decisions informed by mathematical reasoning. Everyday transactions and real-life problems require knowledge of measurement, manipulating shapes, organising space, handling money and recording and interpreting data.

Our aim is for children to enjoy using their maths skills to solve a problem, especially when it leads them to new discoveries or to make new connections. We guide them to look for patterns, use logical reasoning, suggest solutions and try out different approaches to problems.

Implementation

Number facts and mental arithmetic:

In our mental oral lesson starters, number facts are reinforced and embedded (the first 5-10 minutes of a lesson)

Specific mental approaches and methods to arithmetic are taught in lessons

Weekly arithmetic tests

Five questions focusing on arithmetic skills are covered at the start of lessons.

Multiplication tables recall:

Year 3 pupils are taught the following multiplication tables: 2, 3, 4, 5, 8, 10

Year 4 pupils are taught all the multiplication tables up to 12 x 12

Pupils are first encouraged to learn the multiples in each multiplication table and be able to recite them in order, then to learn them out of order and finally the corresponding division facts

We provide pupils with a variety of methods to help pupils learn their multiplication tables, including: practise booklets, activity and games packs; online games and songs and rhymes

Pupils in year 4 encouraged to recall all the multiplication tables with speed and will be assessed using the national Multiplication Tables Check

Multiplication tables continue to be embedded in years 5 and 6

Use of TTRS across all year groups

Year 4 to follow a specific schedule on TTRS to improve children's times table knowledge in the lead up to the multiplication check.

Progression of written methods:

Pupils are taught specific, progressive methods for written arithmetic as detailed in our school Written Calculations Policy, for example, pupils are first taught the expanded column method for addition and then move on when appropriate to the contracted column method

Written methods are on school website for parents to access at home to help, with homework and home learning if necessary.

Arithmetic intervention:

Children who are identified as needing support will have interventions during assembly times and after school booster sessions.

Different types of and approaches to reasoning:

Children are exposed to different types of reasoning questions including Follow the rule (working systematically), use what you know (using current knowledge as a starting point), using the inverse (number sentences with missing numbers), does it make sense? (Checking our answers against the initial problem) and more than one answer (working out all the possibilities)

White Rose, Classroom Secrets and Twinkl reasoning:

Resources saved following WR scheme of work have reasoning and problem solving questions that can be used in lessons. This follows a progressive approach and allows the children to move on in incremental stages.

End of block assessments have reasoning questions in and allow the children to demonstrate their understanding of the topic just taught.

Application of mathematical concepts to problem solving:

Children are given the opportunity to answer 'think' questions in most lessons, where they have to apply learnt concepts in a different or real life context

Teachers regularly explain when mathematical concepts are used or would be useful in 'real world application'

Next Steps feedback and/or lesson plenaries are often problem solving based

Weekly problem of the week has been running for three years.

Impact

Arithmetic:

Arithmetic scores increasing in tests based on daily 5 question quiz at the start of the lesson

Evidence in data on assessment sheets that maths average target met score has increased.

TTRS:

Results clearly show an increase in Times Table recall since implementing TTRS.

Results for year 4 Pilot Multiplication Tables Check (June 2019)				
	80 pupils took the MTC			
	Secure precision and fluency	Developing rapid recall	Limited recall	Total
	>20	15-19	<14	
Number of children	21	23	36	80
Percentage	26%	29%	45%	100
Average score across the year group: 15				
Results for year 4 Multiplication Tables Check (June 2021)				
	91 pupils took the MTC			
	Secure precision and fluency	Developing rapid recall	Limited recall	Total
	>20	15-19	<14	
Number of children	21	28	42	91
Percentage	23%	31%	46%	100
Average score across the year group: 15				
Results for year 4 Multiplication Tables Check (June 2022)				
	91 pupils took the MTC			
	Secure precision and fluency	Developing rapid recall	Limited recall	Total
	>20	15-19	<14	
Number of children	65	13	13	91
Percentage	72%	13%	14%	100
Average score across the year group: 20				

Written methods:

Children know previous method taught when they move up a year

Parents have used method videos at home to assist children with solving calculations - feedback given during lockdown was they helped.

Workshops have been run, to increase parents understanding of four operation methods used in school and feedback has been positive.

Reasoning:

Look at end of block assessments to see how well reasoning questions are being answered.