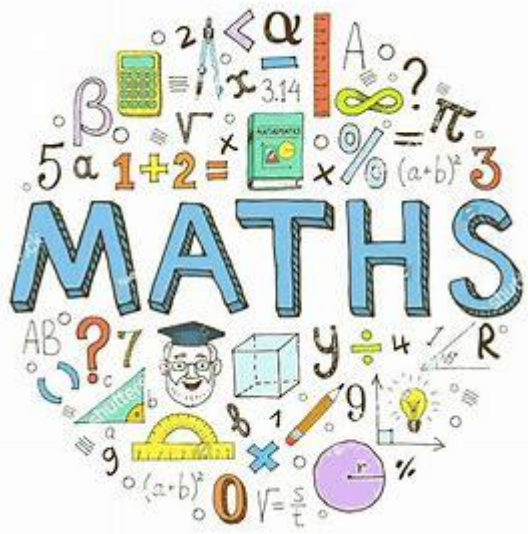


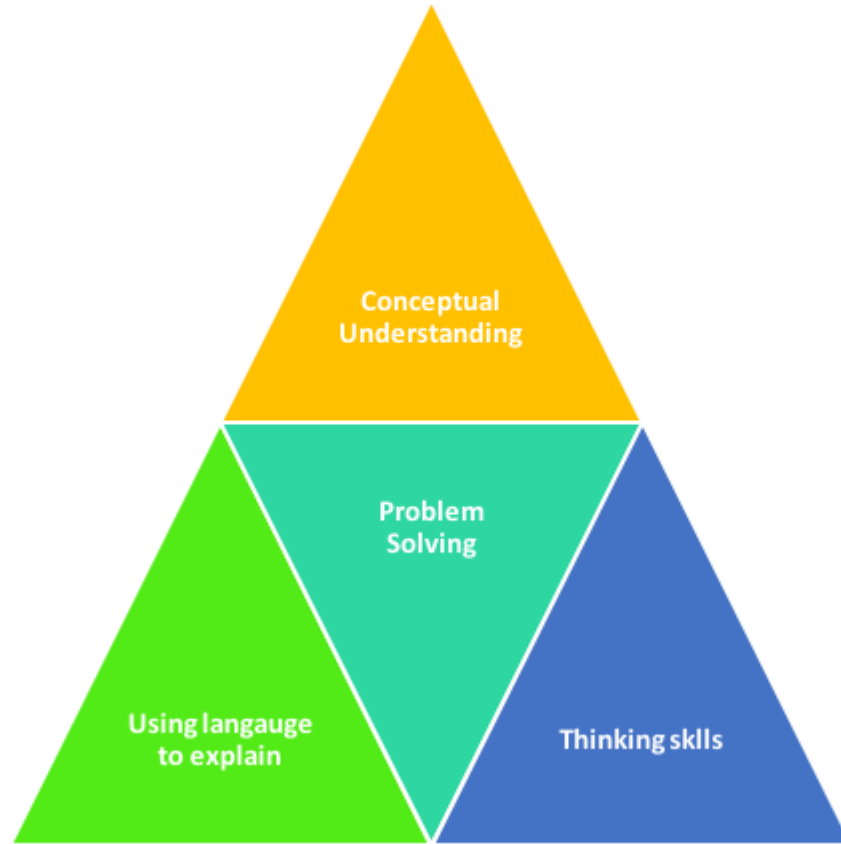


KS2 Maths workshop

Thank you for joining us to find out more about Maths in KS2



Maths at SPPS



- We intend to provide children with a foundation for understanding number, reasoning, thinking logically and problem solving **with resilience** so that they are fully prepared for the future.
- We enable children to master mathematical concepts and skills by: presenting them in multiple ways; modelling mathematical language to explain ideas; making links between areas of learning and giving opportunities to apply the concept to new problems in unfamiliar situations.

The **White Rose Maths** schemes of learning

Teaching for mastery

Our research-based schemes of learning are designed to support a mastery approach to teaching and learning and are consistent with the aims and objectives of the National Curriculum.

Putting number first

Our schemes have number at their heart. A significant amount of time is spent reinforcing number in order to build competency and ensure children can confidently access the rest of the curriculum.

Depth before breadth

Our easy-to-follow schemes support teachers to stay within the required key stage so that children acquire depth of knowledge in each topic. Opportunities to revisit previously learned skills are built into later blocks.

Working together

Children can progress through the schemes as a whole group, encouraging students of all abilities to support each other in their learning.

Fluency, reasoning and problem solving

Our schemes develop all three key areas of the National Curriculum, giving children the knowledge and skills they need to become confident mathematicians.

Concrete – Pictorial – Abstract (CPA)

Research shows that all children, when introduced to a new concept, should have the opportunity to build competency by following the CPA approach. This features throughout our schemes of learning.

Concrete

Children should have the opportunity to work with physical objects/concrete resources, in order to bring the maths to life and to build understanding of what they are doing.



Pictorial

Alongside concrete resources, children should work with pictorial representations, making links to the concrete. Visualising a problem in this way can help children to reason and to solve problems.



Abstract

With the support of both the concrete and pictorial representations, children can develop their understanding of abstract methods.

An abstract representation of the addition 5 + 7. The equation $5 + 7$ is written inside a yellow rectangular box.

If you have questions about this approach and would like to consider appropriate CPD, please visit www.whiterosemaths.com to find a course that's right for you.

Resourcing: we use a range of resources, with White Rose planning to structure the teaching of Maths.

What are the components of a Maths lesson?

All lessons begin with a review of prior learning to address any misconceptions.

All lessons continue with a warm up e.g. times tables, basic fact recall, number fluency review.

Fluency

Fluency in maths is about developing number sense and being able to choose the most appropriate method for the task at hand.

1. $82 \times 100 =$
2. $653 \times 100 =$
3. $760 \times 100 =$
4. $8,253 \times 100 =$
5. $9,631 \times 100 =$
6. $11 \times 10 \times 10 =$

Reasoning

The process of applying logical and critical thinking to a mathematical problem in order to work out the correct strategy to use (and as importantly, not to use) in reaching a solution.

Mr Toad says that 450 is 100 times bigger than 45.

Do you agree with him?
Explain your reasoning.

Problem solving

The ability to make choices, interpret, formulate, model, and investigate **problems** and communicate solutions effectively.

Isaiah thinks of a 2-digit even number. He multiplies it by 100. His answer is greater than 3,150 but less than 3,950.

What number could he be thinking of?

Warm up

1. $\underline{\hspace{2cm}} \times 4 = 12$

2. $4 \times \underline{\hspace{2cm}} = 12$

3. $4 \times \underline{\hspace{2cm}} = 16$

4. $4 \times \underline{\hspace{2cm}} = 28$

5. $8 \times \underline{\hspace{2cm}} = 32$

6. $\underline{\hspace{2cm}} \times 4 = 4$

7. $3 \times \underline{\hspace{2cm}} = 33$

8. $4 \times \underline{\hspace{2cm}} = 12$

9. $\underline{\hspace{2cm}} \times 10 = 40$

10. $3 \times \underline{\hspace{2cm}} = 24$

11. $4 \times \underline{\hspace{2cm}} = 28$

21. $8 \times \underline{\hspace{2cm}} = 64$

22. $\underline{\hspace{2cm}} \times 3 = 9$

23. $11 \times \underline{\hspace{2cm}} = 44$

24. $8 \times \underline{\hspace{2cm}} = 64$

25. $\underline{\hspace{2cm}} \times 3 = 21$

26. $3 \times \underline{\hspace{2cm}} = 15$

27. $5 \times \underline{\hspace{2cm}} = 40$

28. $\underline{\hspace{2cm}} \times 8 = 88$

29. $8 \times \underline{\hspace{2cm}} = 88$

30. $\underline{\hspace{2cm}} \times 8 = 72$

31. $7 \times \underline{\hspace{2cm}} = 56$

41. $8 \times \underline{\hspace{2cm}} = 88$

42. $\underline{\hspace{2cm}} \times 8 = 88$

43. $\underline{\hspace{2cm}} \times 7 = 28$

44. $2 \times \underline{\hspace{2cm}} = 6$

45. $\underline{\hspace{2cm}} \times 4 = 32$

46. $\underline{\hspace{2cm}} \times 4 = 32$

47. $7 \times \underline{\hspace{2cm}} = 21$

48. $\underline{\hspace{2cm}} \times 12 = 48$

49. $\underline{\hspace{2cm}} \times 7 = 21$

50. $6 \times \underline{\hspace{2cm}} = 18$

51. $8 \times \underline{\hspace{2cm}} = 56$

- 1) List the factors of 36
- 2) What are the multiples of 12
- 3) Which are square numbers

2 4 6 8 10 12 15 21 25

Recap of prior learning

Eva walks 60 m to school.

Teddy walks 10 times as far as Eva to school.

How far does Teddy walk to school?

Teddy walks m to school.

$$403 \times 10 = 4300$$

What is the mistake?

HTh	TTh	Th	H	T	O

I can multiply numbers by 100

I can move the digits
two places to the left
on the place value
chart

I can calculate each
number sentence and
use $<$ $>$ $=$ to compare

I can apply the place
value strategy to
calculate the inverse

How does this link to
our prior learning?

What can we use to
help us if we get stuck?



Key Vocabulary

multiply

ten times bigger

place value column

digit

value



Th	H	T	O
		7	8

Th	H	T	O
7	8	0	0

$$78 \times \underline{100} = 7,800$$

2

What do you notice about the digits? I notice that the digits...

How many spaces do they move? Each digit moves...

What direction do they move? Why? They each move... because...

2) To multiply a number by 100 each digit moves
2 to the left on a place value grid.

$$34 \times 100$$

—

HTh	TTh	Th	H	T	O
				3	4
		3	4	0	0

$$452 \times 100$$

—

HTh	TTh	Th	H	T	O
			4	5	2
	4	5	2	0	0

HTh	TTh	Th	H	T	O

Your Turn

$$32 \times 100 =$$

$$51 \times 100 =$$

$$652 \times 100 =$$

$$5285 \times 10 \times 10 =$$

Date:		
LO: I can multiply numbers by 100		
Success Criteria	Pupil assessment	Teacher assessment
I can move the digits two places to the left on the place value chart		
I can calculate each number sentence and use $<$ $>$ $=$ to compare		
I can apply the place value strategy to calculate the inverse		

Fluency – On Sheet

1. $82 \times 100 =$
2. $653 \times 100 =$
3. $760 \times 100 =$
4. $8,253 \times 100 =$
5. $9,631 \times 100 =$
6. $11 \times 10 \times 10 =$

Write $<$, $>$ or $=$ to compare the statement

- a) 45×100 45×10
- b) 36×100 100×36
- c) 100×27 26×100
- d) 31×100 $31 \times 10 \times 10$
- e) 30×10 3×100

Reasoning

Mr Toad says that 450 is 100 times bigger than 45.

Do you agree with him?

Explain your reasoning.

Problem Solving – On Sheet

Isaiah thinks of a 2-digit even number. He multiplies it by 100. His answer is greater than 3,150 but less than 3,950.

What number could he be thinking of?

Different apparatus/ prompts that are used in KS2 for number

Number facts: 100 square

Problem solving: Bar models

Place value: dienes, place value counters, place value grids.

Times tables: Numicon, multiplication grid

Fractions: Fraction walls, bars

Year 3

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value FREE TRIAL VIEW		Number Addition and subtraction VIEW				Number Multiplication and division A VIEW					
Spring term	Number Multiplication and division B VIEW		Measurement Length and perimeter VIEW		Number Fractions A VIEW		Measurement Mass and capacity VIEW					
Summer term	Number Fractions B VIEW	Measurement Money VIEW	Measurement Time VIEW			Geometry Shape VIEW	Statistics VIEW	Consolidation				

Year 4: Year of the Multiplication Tables Check (MTC)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value FREE TRIAL VIEW				Number Addition and subtraction VIEW		Measurement Area VIEW	Number Multiplication and division A VIEW			Consolidation	
Spring term	Number Multiplication and division B VIEW			Measurement Length and perimeter VIEW	Number Fractions VIEW				Number Decimals A VIEW			
Summer term	Number Decimals B VIEW	Measurement Money VIEW	Measurement Time VIEW	Consolidation	Geometry Shape VIEW	Statistics VIEW	Geometry Position and direction VIEW					

Year 5

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value FREE TRIAL VIEW			Number Addition and subtraction VIEW		Number Multiplication and division A VIEW		Number Fractions A VIEW				
Spring term	Number Multiplication and division B VIEW			Number Fractions B VIEW		Number Decimals and percentages VIEW		Measurement Perimeter and area VIEW	Statistics VIEW			
Summer term	Geometry Shape VIEW			Geometry Position and direction VIEW		Number Decimals VIEW		Number Negative numbers VIEW	Measurement Converting units VIEW		Measurement Volume VIEW	

We adapt the planning and provision to ensure coverage of all areas by Spring 1.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value FREE TRIAL VIEW		Number Addition, subtraction, multiplication and division VIEW				Number Fractions A VIEW		Number Fractions B VIEW		Measurement Converting units VIEW	
Spring term	Number Ratio VIEW		Number Algebra VIEW		Number Decimals VIEW		Number Fractions, decimals and percentages VIEW		Measurement Area, perimeter and volume VIEW		Statistics VIEW	
Summer term	Geometry Shape VIEW		Geometry Position and direction VIEW		Themed projects, consolidation and problem solving VIEW							

Number facts and times tables

What is the expectation for each year group?

How can you support this? Promote use of TTRS at home, challenge children to recall facts and division facts.

Nursery	Number recognition and fluency to 5
Reception	Number recognition and fluency to 10
Y1	Bonds to 10- count in 2,5 and 10
Y2	2,5,10 multiplication and division
Y3	3,4,8 (2,5,10)
Y4	6,9,7,11,12 (2,5,10,3,4,8) ALL fluent recall by Spring
Y5	Square and cube numbers, related facts e.g. 30×2
Y6	Decimal facts

Opportunities for stretch and challenge

- We make use of a number of resources to ensure our confident mathematicians are fully challenged.



Check it!

PA

The answer is 24.

How many different multiplication and division number sentences can you think of?

Multiplication & Division

* Recalls $\times$ facts to 12x12 (including $\times$ by 1 & 0 and $\times$ 3 numbers together).

Think it!

PA

Sandra had between 30 and 50 sweets.

When she counted in 4s there were 2 left over.

When she counted in 5s there was 1 left over.

How many sweets did she have?

Multiplication & Division

* Recalls $\times$ facts to 12x12 (including $\times$ by 1 & 0 and $\times$ 3 numbers together).

Websites with activities to support maths skills

- <https://uk.ixl.com>
- www.bbc.co.uk/bitesize
- <https://www.topmarks.co.uk/maths-games/hit-the-button>
- <https://play.ttrockstars.com/auth/school/student>
- <https://www.thenational.academy>

Any questions?