

Autumn  
Scheme of learning

**Year 2**

White  
Rose  
Maths

#MathsEveryoneCan

# 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 problem 5 + 7. The equation 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](http://www.whiterosemaths.com) to find a course that's right for you.

# Teacher guidance

Every block in our schemes of learning is broken down into manageable small steps, and we provide comprehensive teacher guidance for each one. Here are the features included in each step.

**Notes and guidance** that provide an overview of the content of the step and ideas for teaching, along with advice on progression and where a topic fits within the curriculum.

**Things to look out for**, which highlights common mistakes, misconceptions and areas that may require additional support.

Year 5 | Autumn Term | Block 1 – Place Value | Step 1

## Roman numerals to 1,000

**Notes and guidance**

In Year 4, children learned about Roman numerals to 100. In this small step, they explore Roman numerals to 1,000, and the symbols D (500) and M (1,000) are introduced. Children explore further the similarities and differences between the Roman number system and our number system, learning that the Roman system does not have a zero and does not use placeholders. Children use their knowledge of M and D to recognise years using Roman numerals. Asking children to write the date in Roman numerals is one way to reinforce the concept daily.

**Things to look out for**

- Children may mix up which letter stands for which number.
- Children may add the individual values together instead of interpreting the values based on their position, for example interpreting CD as 600 instead of 400
- It is often more difficult to convert numbers that require large strings of Roman numerals.
- Children may think that numbers such as 990 can be written as XM instead of CMXC.

**Key questions**

- What patterns can you see in the Roman number system?
- What rules do we use when converting numbers to Roman numerals?
- What letters are used in the Roman number system? What does each letter represent?
- How do you know what order to write the letters when using Roman numerals?
- What is the same and what is different about representing the number “five hundred and three” in the Roman number system and in our number system?

**Possible sentence stems**

- The letter \_\_\_\_\_ represents the number \_\_\_\_\_
- I know \_\_\_\_\_ is greater than \_\_\_\_\_ because \_\_\_\_\_

**National Curriculum links**

- Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals

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**Key questions** that can be posed to children to develop their mathematical vocabulary and reasoning skills, digging deeper into the content.

**Possible sentence stems** to further support children’s mathematical language and to develop their reasoning skills.

**National Curriculum links** to indicate the objective(s) being addressed by the step.




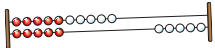
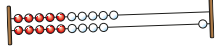




# Teacher guidance

A **Key learning** section, which provides plenty of exemplar questions that can be used when teaching the topic.


Year 2 | Autumn Term | Block 1 - Place Value | Step 1

## Numbers to 20

**Key learning**

- Complete the number tracks.
  - 0 1 2
  - 10 11 12
  - 7 8 13
- What numbers are shown?
  -   
  - Give your answers in numerals and words.
- What number is shown on each Rekenrek?
  - 
  - 
  - Give your answers in numerals and words.
- What numbers are shown?
  -    
  - Give your answers in numerals and words.
- Use words to complete the sentences.
  - The number after four is \_\_\_\_\_
  - The number before eight is \_\_\_\_\_
  - The number after nine is \_\_\_\_\_

Make each number in three different ways.

 19 fifteen 16 eleven

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Activity symbols that indicate an idea can be explored practically

**Reasoning and problem-solving** activities and questions that can be used in class to provide further challenge and to encourage deeper understanding of each topic.

Year 3 | Autumn Term | Block 1 - Place Value | Step 4

## Hundreds

**Reasoning and problem solving**

 I am going to count in 100s from zero.

Dora

Write two numbers that Dora will say.

any two multiples of 100

No

 Dora will say the number 160.

Tiny

Is Tiny correct?  
How do you know?

Mo is counting in hundreds.


 ... 8 hundred, 9 hundred, 10 hundred

Mo should have said 1 thousand, 10 hundreds is equal to 1 thousand.

How should Mo have said the last number?

Balloons come in bags of 10

Rosie has 300 balloons.



Rosie has 30 bags of balloons.

How many bags does she have?

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Answers provided where appropriate