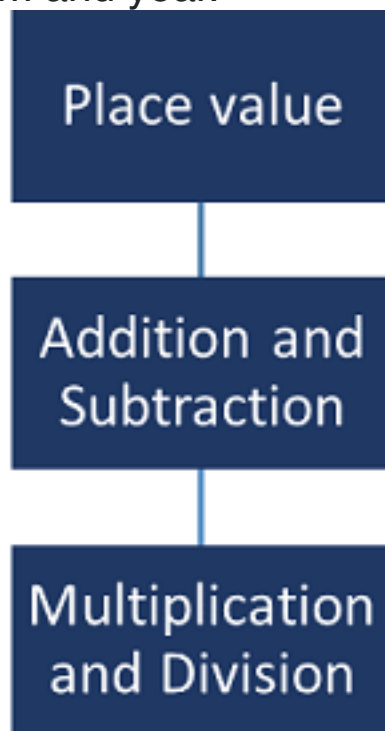


Progression

The basic principles

To learn mathematics effectively, some things have to be learned before others, e.g. place value needs to be understood before working with addition and subtraction, addition needs to be learnt before looking at multiplication (as a model of repeated addition). You will see this emphasis on number skills first, carefully ordered, throughout our primary curriculum. For some other topics, the order isn't as crucial, e.g. Shapes and Statistics need to come after number, but don't depend on each other. We try to mix these so pupils have as wide a variety of mathematical experiences as possible in each term and year.



The fundamental idea behind our curriculum design is to support pupils to be able to perform simpler tasks so they can then move on to perform more complex tasks. For example, we cannot expect pupils to add two numbers together before they understand what each individual number represents.

This thinking gives rise to a typical sequence of '**blocks**' of mathematics that you will see in most of our year groups.

Within each of these blocks we then have ‘**small steps**’ which are again sequenced in order of difficulty and dependency. Here are the first seven steps (of 18) in our Year 3 Addition and Subtraction block:

- ▶ Add and subtract multiples of 100
- ▶ Add and subtract 3-digit and 1-digit numbers – not crossing 10
- ▶ Add 3-digit and 1-digit numbers – crossing 10
- ▶ Subtract a 1-digit number from a 3-digit number – crossing 10
- ▶ Add and subtract 3-digit and 2-digit numbers – not crossing 100
- ▶ Add 3-digit and 2-digit numbers – crossing 100
- ▶ Subtract a 2-digit number from a 3-digit number – crossing 100

As you can see, nothing is left to chance – each step builds carefully from the previous step, building on pupils’ prior knowledge to develop new skills, with nothing left out. Pupils are ready for this having covered addition with 2-digit numbers in Year 2 and Place Value up to 1,000 in the first block of Year 3.

Our curriculum is designed to use skills that have already been learnt in different contexts (sometimes called ‘interleaving’) whenever we can. This helps pupils to remember and to make connections between different parts of the curriculum. Taking the Year 3 example, after the Addition and Subtraction block, pupils will revisit and practice these skills again in these blocks later in the year:

- Multiplication and Division
- Money
- Length and Perimeter
- Mass and Capacity

...and then they are built on and extended in Year 4 and beyond.

The worksheets that accompany our small steps are available with our **Premium Resources** subscription. The subscription also includes other useful resources to help pupils remember:

- **Flashback 4** – a daily starter activity consisting of one question each from a topic covered last lesson, last week, two or three weeks ago and last term or last year

- **True of False** – a question for each step that can be used whenever the teacher wants to bring that topic back to the front of pupils' minds

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So...is the White Rose curriculum 'mastery' or 'spiral'?

Sometimes educational debate can be very divided into 'black or white' positions such as 'traditional' or 'progressive' teaching, 'conceptual' versus 'procedural' learning and, of course, 'mastery' or 'spiral' curricula. Often there are good points to both sides of any argument, and there is need for a more nuanced and balanced approach.

We've tried to combine the best of both 'mastery' and 'spiral' approaches in our curriculum. It certainly follows many of the mastery principles – spending longer on topics to help gain deeper understanding, making connections, keeping the class working together on the same topic and a fundamental belief that, through effort, all pupils are capable of understanding, doing and improving at mathematics. But we also recognise that just spending a good chunk of time on a topic doesn't mean that all pupils will 'master' it the first time they see it, and that they need to see it again and again in different contexts and in different years to help them truly develop their understanding on their journey to mastery, so we've built in the revisiting and reinforcing features of spiral curricula too.

And going back to the order, is it all to do with one topic depending on another?

Mainly, but not entirely. For example, it doesn't really matter whether angles is taught before statistics or the other way round, so for these more 'stand-alone' topics (they all have some dependency, e.g. on number, if not on each other) we try to organise these to give as varied a curriculum as possible. We also try to avoid one topic always being at the end of Summer term, or similar, to minimise the chance of something not being covered.

What about the order of fluency, reasoning and problem solving?

These key components of learning mathematics are included in all our small steps. We certainly don't advocate that all the fluency in a

block is done first, then the reasoning and then the problem solving. We believe these should be integrated into classroom practice as much as possible in the order that is appropriate for the step, e.g. the process of division may be introduced by a problem about sharing or grouping for which we need to become fluent at the procedure.