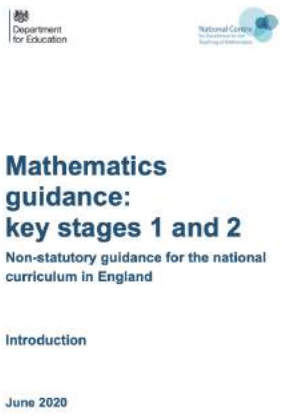
Web Version Forward

New Government Guidance for Primary Schools

Good morning Andrew. You may or may not have heard that the DfE published some new guidance this week. It's only aimed at English schools, not the whole UK, but contains some useful material whoever you are.

I thought it might be useful if I summarise the key points for you.


Department for Education

Mathematics guidance: key stages 1 and 2

Non-statutory guidance for the national curriculum in England

Introduction

June 2020

What Are The Aims of The Guidance?

The guidance states two aims:

To bring greater coherence to the national curriculum by exposing core concepts in the national curriculum and demonstrating progression from year 1 to year 6;

To summarise the most important knowledge and understanding within each year group and important connections between these mathematical topics.

N.B. This in no way replaces the curriculum; it is simply, in the words of one of the authors, driven by a desire to prioritise elements of the curriculum and bring greater coherence and consistency.

Where can I download it?

There are four easy ways. The link is here, or you can copy and paste this into your browser:

https://www.gov.uk/government/publications/teaching-mathematics-in-primary-schools

You can even use the QR code on the left.

You can download each year group separately or the whole lot in a single document. This is

useful if you are a maths lead and want to share the relevant sections with class teachers.

Finally, you can just hit the button at the bottom of this email once you've finished reading!

What's in the Document?

Specific guidance around some key areas of the curriculum. NB: It does NOT cover the whole curriculum; just some key areas where misconceptions can sit.

Number and place value (NPV)

Number facts (NF

Addition and subtraction (AS)

Multiplication and division (MD)

Fractions (F)

Geometry (G)

What Does the Guidance Look Like?

It's pretty straightforward. The emphasis is on being 'ready to move on' and the chart below is typical. It shows what children need to have understood in Multiplication and Division to progress to the following year's curriculum.

Bear in mind, though, that each key stage can be done in the order the school deems appropriate.

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
MD		**2MD–1** Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.	**3MD–1** Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.	**4MD–1** Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. →	**5MD–1** Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.	For year 6, MD ready-to-progress criteria are combined with AS ready-to-progress criteria (please see above).
		2MD–2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).		**4MD–2** Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.	**5MD–2** Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.	
				4MD–3 Understand and apply the distributive property of multiplication. →	**5MD–3** Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.	
					5MD–4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.	

For each year group there are 'ready to progress' criteria. Here is an example from Year 3.

Ready-to-progress criteria

Year 2 conceptual prerequisite	Year 3 ready-to-progress criteria	Future applications
Know that 10 ones are equivalent to 1 ten, and that 40 (for example) can be composed from 40 ones or 4 tens. Know how many tens there are in multiples of 10 up to 100.	3NPV–1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10.	Solve multiplication problems that that involve a scaling structure, such as 'ten times as long'.
Recognise the place value of each digit in *two*-digit numbers, and compose and decompose *two*-digit numbers using standard and non-standard partitioning.	3NPV–2 Recognise the place value of each digit in *three*-digit numbers, and compose and decompose *three*-digit numbers using standard and non-standard partitioning.	Compare and order numbers. Add and subtract using mental and formal written methods.

Notice that it usefully shows the Y2 and Y4 ideas too; I have been banging this drum for so long so I am really pleased to see it included.

Does it cover the whole Curriculum?

NO - and this is important. It would be very unwise to simply treat this as a scheme of work. It simply aims to cover the key things that children often get wrong. It does however have lots of detailed support for those areas of the curriculum that children often get wrong. For example, complements to 100 is looked at like this:

Incorrect complement to 100	Correct complement to 100

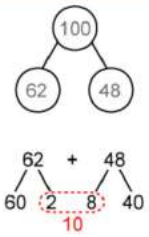
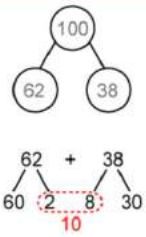

	

Figure 16: partitioning diagram and calculation showing incorrect complement to 100: 62 and 48	**Figure 17: partitioning diagram and calculation showing correct complement to 100: 62 and 38**

A shaded 100 grid can be used to show why there are only 9 full tens in the correct complements to 100. The 10th ten is composed of the ones digits.

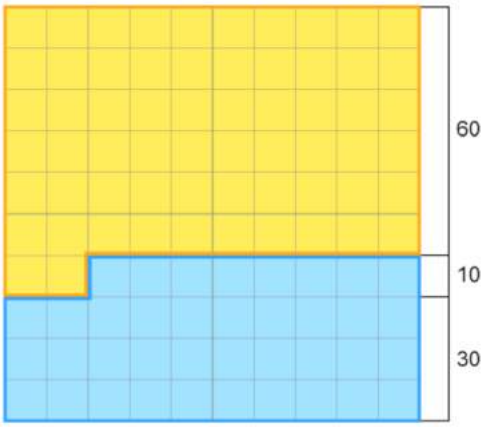


Figure 18: a 100 grid shaded in 2 colours to represent 62 and 38 as a complement to 100

There is also advice around using tens frames, place value counters and numberlines.

3NPV–1 Equivalence of 10 hundreds and 1 thousand

Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10.

3NPV–1 Teaching guidance

Pupils need to experience:

- what 100 items looks like
- making a unit of 1 hundred out of 10 units of 10, for example using 10 bundles of 10 straws to make 100, or using ten 10-value place-value counters

Figure 1: ten 10-value place-value counters in a tens frame

Language focus

"10 tens is equal to 1 hundred."

Pupils must then be able to work out how many tens there are in other three-digit multiples of 10.

Figure 2: eighteen 10-value place-value counters in 2 tens frames

3NPV–2 Teaching guidance

Pupils should be able to identify the place value of each digit in a three-digit number. They must be able to combine units of ones, tens and hundreds to compose three-digit numbers, and partition three-digit numbers into these units. Pupils need to experience variation in the order of presentation of the units, so that they understand that $40+300+2$ is equal to 342, not 432.

Figure 4: two representations of the place-value composition of 342

Pupils also need to solve problems relating to subtraction of any single place-value part from the whole number, for example:

$342 - 300 = \square$

$342 - \square = 302$

There is evidence that we are learning from Singapore - the use of Bar Models is made very explicit, and there are lots of good examples of precise mathematical language, a feature that mentioned but not expanded upon in the 2014 curriculum document.

One thing that WAS talked about in NC2014 was the importance of making connections. Appropriately, this is given more attention in this document, and there are even hyperlinks to other parts of the document; a good idea.

Here is a good example:

Language focus

"To find $\frac{1}{5}$ of 15, we divide 15 into 5 equal parts."

"15 divided by 5 is equal to 3, so $\frac{1}{5}$ of 15 is equal to 3."

Making connections

This criterion builds directly on 3F–1, where pupils learnt to associate fraction notation with dividing a shape, measure or set into a number of equal parts.

The focus of this criterion is understanding that finding a unit fraction of a quantity is the same structure as partitive division (3MD–1).

In 3NF–1 pupils develop fluency in the 5, 10, 2, 4 and 8 multiplication tables and associated division facts. These division facts are applied here to find $\frac{1}{5}$, $\frac{1}{10}$, $\frac{1}{2}$, $\frac{1}{4}$ or $\frac{1}{8}$ of quantities.

TAKE ME TO THE GUIDANCE

I hope this has been useful. If you have any questions or would like some further training for you or your staff, feel free to get in touch. If there is enough interest, I might run a webinar on the new guidance. Let me know.

As ever, stay safe and keep kind.

Andrew.