Mathematics Mastery

Year 2 Programme of Study

Amended for 2020-21 in response to school closures

School closure during the 2019-20 academic year will have had a significant impact on all pupils' mathematics learning. In some cases, this will have been beneficial for children's learning, providing them with more opportunities to explore maths in real-life contexts. Teachers have worked hard to provide home learning solutions, including online classrooms, investigations, and other home-learning materials; all of these will have supported pupils in making progress in mathematics. However, as pupils return to school, there will be uncertainty about the learning which has taken place. We have created amended Programmes of Study and Maths Meeting Guidance to help you understand the curriculum content which has likely been missed and plan for this.

What amended resources are we providing?

To support you in planning for the academic year 2020-2021, we are providing the following:

- amended Programmes of Study for Years 2 to 6
- amended Maths Meeting guidance, with summer term learning from the previous year group included in red, as this content may not have been taught
- an amended Yearly Planner which allows for the additional time required to teach extra lessons

The Yearly Planner is an editable Excel document and is available on our online platform.

How have we created the amended Programmes of Study?

We have taken the learning content that pupils may have missed during the summer term of the Mathematics Mastery curriculum of Years 1 to 5 and mapped out where this learning is required in Years 2 to 6. Using this, we have produced amended Programmes of Study for Years 2 to 6, which:

- explain key learning from the previous year and where it can be found
- suggest where you might want to teach lessons from the previous year's curriculum
- suggest revised durations for each unit

The number of extra lessons and unit length suggestions are for guidance only. The amount of time required for each unit will depend on the experiences your pupils have had during school closure. Do keep an eye on the Yearly Planner to ensure you are broadly on track to cover all the expected curriculum content across the year.

How should I use these additional resources?

The amended Programmes of Study are written on the assumption that the pupils have missed the previous summer term's learning. Of course, this may not always be the case where home learning has taken place. We recommend firstly speaking to your pupils' teacher(s) from the previous year to find out what home learning was provided during school closure (whilst acknowledging that not all pupils may have accessed this). They will also be able to tell you which parts of the previous year's curriculum they had covered before school closure, bearing in mind that the amended Programmes of Study only take account of missed summer term learning.

We then advise reading through the whole amended Programme of Study for the year you are teaching, to get a sense of the learning which has been missed and how we have recommended ensuring it is covered. We recommend visiting the professional development on our online platform for missed units from the previous year to familiarise yourself with the content.

There are links to the previous year's missed units in the amended Programme of Study.

Once you have a good understanding of where the key bits of missed learning fit within the year, consider where you can use Maths Meetings to pre-teach concepts and/or language. If the missed learning is only required in the summer term, you may be able to sufficiently cover any missed learning throughout the year, through Maths Meetings and in other areas of the curriculum, so that the summer term units for 2029-21 can be taught as planned.

In some cases, we have lengthened units by a week. In these cases, you may wish to keep the learning blocked as we have planned, or you may prefer to split the unit into two shorter units, particularly where the content is more self-contained, e.g. shape.

Will I still be able to teach the whole curriculum in a year?

The normal Mathematics Mastery curriculum consists of 30 weeks of planned lessons (including consolidation lessons) per year group. There are 38 weeks in the school teaching year. To accommodate the missed learning, we have recommended lengthening some units. You will therefore notice that the Yearly Planner is 'fuller' than normal, with fewer consolidation weeks. By following the amended Programme of Study, which introduces any missed content 'just in time', you should be able to ensure pupils catch up on any missed learning as well as covering all the essential elements of the year's curriculum.

Can I just teach lessons from the previous year without adapting them?

Where we have suggested teaching lessons from the previous year, adaptations will be necessary, as is always the case. This may be simply altering the context of a lesson to something with which pupils are familiar. It could also involve adapting the representations and language used as well as the tasks themselves.

In some cases, we have suggested reading through a sequence of lessons and adapting these according to your pupils' needs. For example, two lessons may have a similar focus and you might amalgamate them, choosing a task from each, as you know your pupils will benefit from them. Alternatively, you might take the key learning from three lessons and plan one lesson which incorporates the main ideas side-by-side.

Mathematics Mastery

Amended Year 2 Programme of Study

These are Mathematics Mastery's suggestions for amendments to units based on content that pupils will have missed in the summer term in the previous academic year.

The Year 1 summer term units are:

- Unit 12: Numbers 50 to 100 and beyond (2 weeks)
- Unit 13: Addition and subtraction within 100 (2 weeks)
- Unit 14: Money (2 weeks)
- Unit 15: Multiplication and division (2 weeks)
- Unit 16: Capacity and volume (2 weeks)

In the first half of the autumn term of Year 2, we recommend spending the seven weeks on Units 1 and 2. These units would normally be scheduled to last four weeks, but we assume pupils will require more time to revisit and consolidate the underlying principles of unitising (making a group of ten) and applying understanding of number bonds to addition and subtraction.

Money first appears in Year 2 Unit 10, so there should be time to pre-teach the essentials in Maths Meetings before getting to the Year 2 unit in the spring term. Equally, Year 2 Unit 13 in the summer term is the first time that capacity and volume are taught, so you should be able to cover the Year 1 content before this point. See the Maths Meeting guidance for recommendations.

Please also refer to the Yearly Planner to see how we expect the unit lengths to fit into the school calendar.

The pink boxes are abridged curriculum notes. These are Mathematics Mastery's suggestions for amendments to units based on content that pupils will have missed in the summer term of the previous academic year.

Autumn term

Unit 1 **Number within 100** (4 weeks)	Pupils will have missed Year 1 Unit 12: numbers 50 to 100 and beyond, which familiarises them with numbers 50 to 100. Dienes are introduced in this unit, so their introduction in Year 2 may need more scaffolding. Similarly to Year 2 Unit 1, Year 1 Unit 12 provides opportunities for pupils to unitise by creating groups of ten and then begin to observe how this relates to our base 10 recording system for numbers. Bear in mind that more time may be required to explore this if these experiences have been missed for some pupils. There are three lessons from Year 1 Unit 12 that we think you may want to add into Year 2 Unit 1, as the content is not explicitly covered in Year 2 Unit 1. We recommend the following unit structure: • Y2 U1 Lessons 1-4 • Y1 U12 Lesson 3 (The number 100) • Y2 U1 Lessons 5-6 • Y1 U12 Lesson 6 (Comparing numbers on a number line) • Y2 U1 7-8 • Y1 U12 Lesson 5 (1 more/fewer, 10 more/fewer) • Y2 U1 Lesson 9-10

	Y2 U1 is normally a two-week unit with 10 planned lessons. With three additional lessons from Y1 U12 and allowing time for extra exploration and consolidation, we suggest planning this as a three- to four-week unit.
	• use place value and number facts to solve problems • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers to 100 using different representations, including the number line • compare and order numbers from 0 up to 100; use <, > and = signs • read and write numbers to at least 100 in numerals and in words • count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
Unit 2 **Addition and subtraction of 2-digit numbers** (2 or 3 weeks)	Pupils will have missed Year 1 Unit 13: addition and subtraction within 100, which explores addition and subtraction (e.g. TO+O, TO-O). The main experience that pupils will have missed from Year 1 Unit 13 is extensive use of the bead string to represent addition and subtraction calculations. Year 2 Unit 2 uses mainly Dienes and part-whole models. This follows on well from Year 2 Unit 1, and because Unit 2 begins with two lessons which provide consolidation from Year 1, we think Year 2 Unit 2 can be taught as planned, with the caveat that more time may be required for this unit, based on teacher formative assessment. This is normally a 2-week unit and this year we have scheduled 3 weeks for it on the yearly planner. We recommend that bead string work, particularly to reinforce the 'Make ten' strategy (introduced in Year 1), is included regularly in Maths Meetings, e.g. representing 17 + 5 or 22 – 5 using a bead string. You can find an explanation of this strategy in the Progression in Calculations document. **Note**: Year 1 Unit 13 introduces the word 'regroup' to describe the process which takes place when, for example, calculating 28 + 5 using Dienes. Pupils see that when they add 5 ones to 8 ones, they can 'regroup' ten ones for one ten. However, Year 2 Unit 2 does not cover any calculations which require regrouping. This is taught in Year 2 Unit 9 (see below).
	• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers
Unit 3 **Addition and subtraction word problems**	• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems • solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods

(2 weeks)	
Unit 4 **Measures: length** (2 weeks)	• choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) to the nearest appropriate unit, using rulers and scales • compare and order length and record the results using >, < and = • apply knowledge of numbers to 100 to read scales to the nearest appropriate standard unit in the context of length (m/cm)
Unit 5 **Graphs** (1 week)	• interpret and construct simple pictograms, tally charts, block diagrams and simple tables • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data
Unit 6 **Multiplication and division** **2, 5 and 10** (4 weeks)	Pupils will have missed Year 1 Unit 15: multiplication and division which lays the foundations for multiplication and division through exploration of equal groups. Year 2 Unit 6 assumes pupils have had these initial experiences and builds on them by introducing the symbols for multiplication and division. However, if these foundations have not been laid, Year 2 Unit 6 will prove a very abrupt introduction to what is known to be a challenging concept for young learners. We therefore recommend you choose one of the options set out below, depending on timings within the term. Ideally you will be able to begin this unit at the end of the autumn term. If so, we recommend reading the Unit Narrative and watching the Unit Tutorial for Year 1 Unit 15 and either teaching this unit in full, or adapting it as appropriate, at the end of the autumn term. Then, begin with Year 2 Unit 6 in the spring term, as this will build upon ideas introduced before the holiday. If you have spent more time consolidating previous learning in the autumn term and therefore plan to begin teaching this unit in January, we recommend the following unit structure, which aims to ensure pupils' introduction to new ideas is scaffolded: • Teach an amalgamation of **Year 1 Unit 15 Lessons 2 to 4**. Depending on your pupils' starting points, you may want to teach all three lessons as they are, or plan one or two lessons exploring the concepts. These lessons introduce the word 'multiplication' to describe repeated addition, but do not introduce the '×' symbol. Part-whole models with equal parts are a key representation. • Teach Year 2 Unit 6 Lessons 1 and 2. These lessons build on the Year 1 lessons, continuing to focus on repeated addition but also introducing the '×' symbol as a way of recording. Arrays are a key representation; these are normally introduced in Year 1. Be sure to give pupils plenty of time to create their own arrays using counters or cubes and talk about what they can see. • Teach one or both of **Year 1 Unit 15 Lessons 5 and 6**, depending on pupils' level of understanding. These lessons explore division as sharing equally, but without using the symbol '÷'. You could make the focus on introducing the word 'divide'.

	• Teach Year 2 Unit 6 Lesson 3, which builds on the ideas from Year 1, introducing the division symbol and using part-whole models to represent division. Again, arrays are a key representation. Be sure to give pupils plenty of time to create their own arrays using counters or cubes and talk about what they can see. • Teach **Year 1 Unit 15 Lesson 7**. This introduces division as making equal groups from a total. • Teach Year 2 Unit 15 Lesson 4, which builds on the Year 1 lesson on grouping. • Teach the remainder of Year 2 Unit 6 in order. Year 2 Unit 6 is normally a three-week unit of 13 planned lessons and 2 consolidation lessons. If all of the recommended additional Year 1 lessons are taught in their entirety, this brings the total unit length to 19 lessons. We therefore suggest trying to keep the unit to a maximum of four weeks.
	• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

Spring term

Unit 7 **Time** (2 weeks)	• tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times • know the number of minutes in an hour and the number of hours in a day • compare and sequence intervals of time
Unit 8 **Fractions** (2 weeks)	• recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity • write simple fractions for example, $\frac{1}{2}$ of 6 = 3 • recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$
Unit 9 **Addition and subtraction of 2-digit numbers (regrouping**	The extent to which you adapt this unit to include Year 1 content will depend on your teacher assessment throughout the year so far, as well as what you have covered in Maths Meetings. As pupils missed Year 1 Unit 13: addition and subtraction within 100, they will not yet have encountered the word 'regroup'. This word is used to describe the process of unitising (e.g. ten ones become one ten) or exchanging (e.g. one ten becomes ten ones) when applying understanding of the base 10 system to add or subtract. It was

and adjusting) (3 weeks)	introduced in Year 1 Unit 13 Lessons 4 and 5. This concept first appears in Lesson 2 of this unit. We recommend the following structure for Year 2 Unit 9: • Teach Year 2 Unit 9 Lesson 1 • Plan a bridging lesson before teaching Y2 U9 L2, using Dienes instead of a bead string/number line. We propose basing this lesson on the Develop Learning from Year 1 Unit 13 Lesson 4, where pupils use Dienes and a part-whole model to add a two-digit number and a one-digit number, e.g. 47 + 8 or 36 + 7. This should prepare pupils for the next lesson where they will add two 2-digit numbers with regrouping. Be sure to explore the meaning of the word 'regroup' in addition • Teach Year 2 Unit 9 Lesson 2, in which pupils add two 2-digit numbers where regrouping is required, e.g. 39 + 16 or 25 + 17. • Teach Year 2 Unit 9 Lessons 3 and 4 • Plan a bridging lesson before teaching Y2 U9 L5, using Dienes instead of a bead string/number line. We propose basing this lesson on the Develop Learning from Year 1 Unit 13 Lesson 5, where pupils use Dienes and a part-whole model to subtract a one-digit number from a two-digit number e.g. 32 – 7 or 73 – 5 . This should prepare pupils for the next lesson where they will subtract a 2-digit number from a 2-digit number with regrouping. Again, explore the meaning of the word 'regroup' in subtraction. • Teach Unit 9 Lesson 5, which builds on the previous suggested lesson, this time subtracting 2-digit numbers from 2-digit numbers where regrouping is required. • Teach the remainder of Year 2 Unit 9 as planned. You may find you need to spend more time on these strategies as pupils may not be as familiar with the bead string / number line as a representation if they have missed these experiences in Year 1. However, bear in mind that Unit 9 introduces these strategies to support pupils in developing number sense and a range of approaches to calculation, and they will be revisited later in the year. Year 2 Unit 9 is normally a three-week unit with 9 planned lessons and 1 consolidation lesson. With the addition of two extra bridging lessons, this makes it an 11-lesson unit. Giving time for a few consolidation lessons, we recommend this unit be taught over three weeks.
	• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers • solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods

Unit 10 **Money** (2 weeks)	Year 2 Unit 10 assumes pupils have learnt about the value of all the coins and notes in Year 1 Unit 14: money. If you have used Maths Meetings to ensure pupils are secure in this knowledge (the name of each coin and note and its value, including comparing values of sets of coins), you may want to go straight into Year 2 Unit 10. Otherwise, you may like to use an amalgamation of Year 1 Unit 14 Lessons 2, 3 and 4 to teach the value of coins and notes. These lessons teach a few coins/notes at a time, so you might combine them into one or two lessons, depending on pupils' current knowledge. Consider using a bead string to help pupils develop their understanding of the values all the coins up to £1. Year 1 Unit 14 also contains simple problems involving money and introduces the concept of change. However, Year 2 Unit 10 does not assume prior knowledge of this and approaches it as a new concept. Owing to pupils' lack of familiarity, you may need to spend use additional consolidation lessons to secure understanding. Year 2 Unit 10 is normally a two-week unit with 8 planned lessons and 2 consolidation lessons. We recommend this unit be taught over two weeks if possible.
	• recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value • find different combinations of coins that equal the same amounts of money • solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
Unit 11 **Faces, shapes and patterns; lines and turns** (3 weeks)	• identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] • identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • compare and sort common 2-D and 3-D shapes and everyday objects • order and arrange combinations of mathematical objects in patterns and sequences • use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise)

Summer term

Unit 12 **Number within 1000** (1 week)	• use place value and number facts to solve problems • identify, represent and estimate numbers to 1000 using different representations (Y3) • recognise the place value of each digit in a three-digit number (hundreds, tens, ones) (Y3) • compare and order numbers up to 1000 (Y3) • read and write numbers up to 1000 in numerals and in words (Y3) • count from 0 in multiples of 100; find 10 or 100 more or less than a given number (Y3)

Unit 13 **Measures: capacity and volume** (2 weeks)	Pupils will have missed Year 1 Unit 16, which explores non-standard measures for capacity and volume, as well as introducing litres as a standard unit. Hopefully by this point in the year, pupils will have had other opportunities, probably outside of the maths lesson, to explore capacity and volume using a range of different containers, so it may be appropriate to teach Year 2 Unit 13 as it is planned. However, bear in mind that the words 'capacity', 'volume' and 'litre' are all introduced in Year 1 Unit 16 and so pupils' introduction to this language may require consideration. If you have time, you may want to consider teaching **Year 1 Unit 16 Lesson 2** before Year 2 Unit 13 Lesson 3. In the Year 1 lesson, pupils compare capacity using non-standard measures. This could be used to familiarise pupils with the language of capacity and volume, before going onto Year 2 Unit 6 Lesson 3, in which litres are introduced. Year 2 Unit 13 is a two-week unit with 9 planned lessons and 1 consolidation lesson. We suggest teaching this unit over two weeks, as planned.
	• choose and use appropriate standard units to estimate and measure capacity (litres/ml) and temperature (°C) to the nearest appropriate unit, using scales, thermometers and measuring vessels • compare and order volume and capacity and record the results using >, < and = • apply knowledge of numbers to 1000 to read scales to the nearest appropriate standard unit in the context of capacity (litres/ml) and temperature (°C) • using known facts to derive new facts (2ml + 2ml =4ml so 200ml + 200ml =400ml)
Unit 14 **Measures: mass** (1 week)	• choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order mass and record the results using >, < and = • apply knowledge of numbers to 1000 to read scales to the nearest appropriate standard unit in the context of mass (kg/g) • using known facts to derive new facts (2g + 2g =4g so 200g + 200g =400g)
Unit 15 **Exploring calculation strategies** (2 weeks)	• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • add and subtract numbers mentally, including: a two-digit number and ones; a two-digit number and tens; adding three one-digit numbers • add and subtract numbers with up to two digits, using written methods
Unit 16 **Multiplication and division**	• recall and use multiplication and division facts for the 3 and 4 multiplication tables (Y3) • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs

(3x and 4x tables) (3 weeks)	• solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot