Year 1 *Curriculum for Depth* 2014-15

Welcome to the Mathematics Mastery *Curriculum for Depth* for Year 1.

Problem solving is at the heart of the mastery approach, so we make sure we dedicate sufficient time to each new concept or skill for every pupil to gain the **fluency** and **reasoning** they need to solve new problems in unfamiliar contexts. Our *Curriculum for Depth* is a cumulative curriculum. This means that each school year begins with a focus on the concepts and skills (such as place value) that have the most connections, and the most opportunities for consolidation, throughout the year. Once a new concept has been introduced, it is applied and connected to many other areas of mathematics. For more information about the underlying principles of the mastery approach, please visit www.mathematicsmastery.org

We make sure that the requirements of the 2014 National Curriculum for England are fully met. Each year group's *Curriculum for Depth* includes all of the National Curriculum objectives for that year, plus a small number from the year above – usually from number – where we feel these wil help pupils make connections with their learning (in measures, for example). References to the statutory requirements of the National Curriculum are in bold [e.g. 'They will, "**represent and use number bonds and related subtraction facts within 20**" (NC Y1: p7)']. This Year 1 *Curriculum for Depth* includes every single statutory requirement of the 2014 National Curriculum for Year 1. References to the non-statutory 'notes and guidance' in the 2014 National Curriculum are in italics. [e.g. 'As per the notes and guidance, "*Pupils combine and increase numbers, counting forwards and backwards*" (NC Y1: p7).']. There are approximately 5 planned weeks for each half term. Any additional time for mathematics should be planned around the specific needs of the pupils, including clarifying any misconceptions, opportunities for consolidation, and further application and problem solving.

Autumn 1

Weeks	Autumn 1	Mathematics lesson foci
3 weeks	**Unit 1** **Numbers to 10**	We begin Year 1 by strengthening the essential foundations of number. This is absolutely vital to pupils' ongoing success with number, and with mathematics. Time invested in key concepts now will reap significant rewards later in Year 1, and in later years. In these three weeks, children demonstrate that they can, "**count to ten, forwards and backwards, beginning with 0 or 1, or from any given number; count, read and write numbers to 10 in numerals and words"** (NC Y1: p6)**.** Although many children will already be able to 'do' this at the start of Year 1, and many from considerably younger, this apparent fluency should not be mistaken for the required depth of conceptual understanding. Number representation is important for children to deepen their understanding of these numbers. Pupils "**identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least**" (NC Y1: p6) and through this are able to, "**given a number, identify one more and one less**" (NC Y1: p6). In this 3 week unit, pupils also use ordinal numbers (first, second, up to tenth) and symbols (1st, 2nd …10th). "*Pupils practise counting (1, 2, 3…), ordering (for example, first, second, third…), and to indicate a quantity (for example, 3 apples, 2 centimetres), including solving simple concrete problems, until they are fluent*" (NC Y1: p6 In transitions throughout the year, pupils will "**count in multiples of twos, fives and tens**" (NC Y1: p6). At the start of the Autumn term, transition chants might include counting forwards or backwards within 10, moving on to multiples of two within ten or songs about odd and even numbers when these have been covered in lessons and or Maths Meetings. "*They practise counting as reciting numbers and counting as enumerating objects, and counting in twos, fives and tens from different multiples to develop their recognition of patterns in the number system (for example, odd and even numbers), including varied and frequent practice through increasingly complex questions.*" (NC Y1: p6)
3 weeks	**Unit 2** **Addition and subtraction within 10**	Building on Unit 1, in Unit 2 children continue to represent numbers within 10 in multiple ways. They "**represent and use number bonds and related subtraction facts [within 10]**" (NC Y1: p7) and come to, "*memorise and reason with number bonds to 10 … in several forms... They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.*" (NC Y1: p7). "*Pupils combine and increase numbers, counting forwards and backwards*" (NC Y1: p7). "**add and subtract one-digit … numbers [to 10], including zero**" (NC Y1: p7). There is a significant emphasis on communication. Pupils "*discuss and solve problems in familiar practical contexts, including using quantities. Problems should, over time, include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly*" (NC Y1: p7). Pupils begin to record addition and subtraction equations using mathematical notation. They "**read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs**" (NC Y1: p7). The use of this language will be further developed throughout Year 1, particularly in units 5, 9 and 12. Across the unit, pupils, "**solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ – 9.**" (NC Y1: p7).

Autumn 2

Week	Autumn 2	Mathematics lesson foci
2 weeks	**Unit 3** **Shapes and patterns**	Throughout Year 1, in Maths Meetings, and in maths and other lessons, pupils "**recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles]; 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].**" (NC Y1: p10). In Unit 3 of Year 1, they, "*handle common 2-D and 3-D shapes, naming these and related everyday objects fluently. They recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other*" (NC Y1: p10). "*They recognise and create repeating patterns with objects and with shapes*" (NC Y1: p6). "*Pupils make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face.*" (NC Y1: p10) and "**describe position, direction and movement, including whole, half, quarter and three-quarter turns**" (NC Y1: p10). "*Pupils use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside*" (NC Y1: p10).
1 week	**Unit 4** **Numbers to 20**	Unit 4 builds on Units 1 and 2 to extend the representational work with number to include number to twenty. Pupils "**count to twenty, forwards and backwards, beginning with 0 or 1, or from any given number; count, read and write numbers from 1 to 20 in numerals and words**" (NC Y1: p6). As in Unit 1, there is a considerable focus on pupils having opportunities to "**identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least**" (NC Y1: p6). Year 1 Unit 4 lays the essential foundations of place value. In transitions throughout the year, pupils will "**count in multiples of twos, fives and tens**" (NC Y1: p6). By the end of the Autumn term, transition chants might include multiples of two within twenty, songs about odd and even numbers, or counting forwards or backwards within 20. As per the notes and guidance, "*they practise counting as reciting numbers and counting as enumerating objects, and counting in twos, fives and tens from different multiples to develop their recognition of patterns in the number system (for example, odd and even numbers), including varied and frequent practice through increasingly complex questions*" (NC Y1: p6).
2 weeks	**Unit 5** **Addition and subtraction within 20**	Building on units 1, 2 and 4, in Unit 5 children represent numbers within 20 in multiple ways. They "**represent and use number bonds and related subtraction facts within 20**" (NC Y1: p7) and come to, "*memorise and reason with number bonds to 10 and 20 in several forms (for example, 9 + 7 = 16; 16 − 7 = 9; 7 = 16 − 9). They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.*" (NC Y1: p7). "*Pupils combine and increase numbers, counting forwards and backwards*" (NC Y1: p7). They "**add and subtract one-digit and two-digit numbers to 20, including zero**" (NC Y1: p7). There is a significant emphasis on communication. Pupils "*discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly*" (NC Y1: p7). Pupils begin to record addition and subtraction equations using mathematical notation. They "**read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs**" (NC Y1: p7). The use of this language will be further developed throughout Year 1, particularly in units 5, 9 and 12. Across the unit, pupils, "**solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ − 9**" (NC Y1: p7).

Spring 1

Week	Spring 1	Mathematics lesson foci
2 weeks	**Unit 6** **Exploring calculation strategies within 20**	Unit 6 builds on Unit 5, as children continue to represent numbers within 20 in multiple ways. They "**represent and use number bonds and related subtraction facts within 20**" (NC Y1: p7) and come to, "*memorise and reason with number bonds to 10 and 20 in several forms (for example, 9 + 7 = 16; 16 – 7 = 9; 7 = 16 – 9). They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.*" (NC Y1: p7). "*Pupils combine and increase numbers, counting forwards and backwards*" (NC Y1: p7). They "**add and subtract one-digit and two-digit numbers to 20, including zero**" (NC Y1: p7) There is a significant emphasis on communication. Pupils "*discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly*" (NC Y1: p7). Pupils begin to record addition and subtraction equations using mathematical notation. They "**read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs**" (NC Y1: p7). The use of this language will be further developed throughout Year 1, particularly in units 5, 9 and 12. Across the unit, pupils, "**solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9**" (NC Y1: p7).
1 week	**Unit 7** **Time**	As per the notes and guidance, "*Pupils use the language of time, including telling the time throughout the day, first using o'clock and then half past*" (NC Y1: p8). The involvement of parents can be particularly helpful here, as telling the time benefits from frequent practice and reinforcement. Pupils tell the time to the nearest five minutes in Year 2, and to the nearest minute in Year 3; in Year 1 they "**tell the time to the hour and half past the hour and draw the hands on a clock face to show these times**" (NC Y1: p8). As per the notes and guidance, "p*upils connect turning clockwise with movement on a clock face*" (NC Y1: p10). Much of pupils' experience and practice with telling the time takes place in Maths Meetings and other opportunities throughout the year. Such opportunities are also used for pupils to learn to, "**recognise and use language relating to dates, including days of the week, weeks, months and years**" (NC Y1: p8). The emphasis in Unit 7 is consequently less on telling the time, and more on communicating ideas connected with time, and practical activity. Pupils "**compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later] and measure and begin to record time (hours, minutes, seconds)**" (NC Y1: p8). Pupils "**sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]**" (NC Y1: p8).
2 weeks	**Unit 8** **Numbers to 40**	Unit 8 builds on Units 1, 2, 4 and 5 to extend the representational work with number to include number to forty. As per the notes and guidance, "*Pupils begin to recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by objects and pictorial representations*" (NC Y1: p6). Pupils "**count to forty, forwards and backwards, beginning with 0 or 1, or from any given number; count, read and write numbers from 1 to 20 in numerals and words**" (NC Y1: p6). There is a considerable focus on pupils having opportunities to "**identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least**" (NC Y1: p6) and "**given a number, identify one more and one less**" (NC Y1: p6). Year 1 Unit 8 builds on the essential foundations of place value, in preparation for working with numbers to 100 in Unit 11. Pupils begin to "**recognise the place value of each digit in a two-digit number** (tens, ones)" (NC Y2: p11).

Week	Spring 2	Mathematics lesson foci
2 weeks	**Unit 9** **Adding and subtracting within 40**	Building on units 1, 2, 4, 5 and 8, in Unit 9 children continue to represent numbers within 40 in multiple ways. They "**represent and use number bonds and related subtraction facts within 20**" (NC Y1: p7) and come to, "*memorise and reason with number bonds to 10 and 20 in several forms (for example, 9 + 7 = 16; 16 – 7 = 9; 7 = 16 – 9). They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.*" (NC Y1: p7). "*Pupils combine and increase numbers, counting forwards and backwards*" (NC Y1: p7). They "**add and subtract one-digit and two-digit numbers to 20, including zero**" (NC Y1: p7). In order to reinforce the place value of numbers to 40, pupils "**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**" (NC Y2: p12) There is a significant emphasis on communication. Pupils "*discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly*" (NC Y1: p7). Pupils begin to record addition and subtraction equations using mathematical notation. They "**read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs**" (NC Y1: p7). The use of this language will be further developed throughout Year 1, particularly in units 5, 9 and 12. Across the unit, pupils, "**solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9**" (NC Y1: p7).
3 weeks	**Unit 10** **Length, weight and volume**	In Year 1, pupils, "**compare, describe and solve practical problems for:** • **lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]** • **mass/weight [for example, heavy/light, heavier than, lighter than]** • **capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]**" (NC Y1: p8) Having worked with number within 40 in Units 8 and 9, representing the numbers in different ways, pupils "**measure and begin to record the following:** • **lengths and heights** • **mass/weight** • **capacity and volume**" (NC Y1: p8) "*The pairs of terms: mass and weight, volume and capacity, are used interchangeably at this stage.*" (NC Y1: p8) Much of pupils' measuring at this stage is with non-standard units, such as cubes and paper clips. As per the notes and guidance, "*pupils move from using and comparing different types of quantities and measures using non-standard units, including discrete (for example, counting) and continuous (for example, liquid) measurement, to using manageable common standard units; in order to become familiar with standard measures, pupils begin to use measuring tools such as a ruler, weighing scales and containers*" (NC Y1: p8).

Week	Summer 1	Mathematics lesson foci
3 weeks	**Unit 11** **Numbers to 100**	As per the notes and guidance, in Unit 11, "*Pupils begin to recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by objects and pictorial representations*" (NC Y1: p6). Unit 11 builds on Units 1, 2, 4, 5, 8 and 9 to extend the representational work with number to include number to forty. As per the notes and guidance, "*Pupils begin to recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by objects and pictorial representations*" (NC Y1: p6). Pupils "**count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number; count, read and write numbers to 100 in numerals"** (NC Y1: p6). This is not simply a case of chanting the numbers by rote. Rather, pupils gain an understanding of a number such as, say, 68, by representing it in many different ways. They, "**identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least**" (NC Y1: p6). Pupils will "**recognise the place value of each digit in a two-digit number (tens, ones)**" (NC Y2: p11) through frequent opportunities to "**identify, represent and estimate numbers to 100 using different representations** (NC Y2: p11). As a consequence of this number sense, children can, "**given a number, identify one more and one less**" (NC Y1: p6). In line with expectations in literacy, pupils "**read and write numbers to at least 100 in numerals and in words**" (NC Y2: p11).
3 weeks	**Unit 12** **Adding and subtracting within 100**	Building on Units 1, 2, 4, 5, 8, 9 and 11, in Unit 2 children continue to represent numbers within 100 in multiple ways. They "**represent and use number bonds and related subtraction facts within 20**" (NC Y1: p7) and come to, "*memorise and reason with number bonds to 10 and 20 in several forms (for example, 9 + 7 = 16; 16 − 7 = 9; 7 = 16 − 9). They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.*" (NC Y1: p7). "*Pupils combine and increase numbers, counting forwards and backwards*" (NC Y1: p7). They "**add and subtract one-digit and two-digit numbers to 20, including zero**" (NC Y1: p7). In order to reinforce the place value of numbers to 100, pupils "**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**" (NC Y2: p12) There is a significant emphasis on communication. Pupils "*discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly*" (NC Y1: p7). Pupils begin to record addition and subtraction equations using mathematical notation. They "**read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs**" (NC Y1: p7). The use of this language will be further developed throughout Year 1, particularly in units 5, 9 and 12. Across the unit, pupils, "**solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ − 9**" (NC Y1: p7).

Summer 2

Week	Summer 2	Mathematics lesson foci
2 weeks	**Unit 13** **Money**	Unit 13 focuses on pupils learning to "**recognise and know the value of different denominations of coins and notes**" (NC Y1: p8). Many pupils will already be familiar with these, from everyday life and from Maths Meetings. Pupils will use the symbols £ and p. They might use shop role play to learn about exchanging money for an item of equivalent value and investigate the idea that different coins can be used to make the same amount of money. Pupils are also introduced to the concept of receiving change. It is a two week unit that builds on previous learning from units 11 and 12. It gives pupils the opportunity to apply their understanding of numbers up to 100. It also allows them to build on their work on addition and subtraction problems in the context of money. Across the unit, pupils, "solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ − 9" (NC Y1: p7).
2 weeks	**Unit 14** **Multiplication and division**	This unit introduces multiplication and division in the context of grouping and sharing. Pupils will have the opportunity to apply this learning in the context of simple one-step problems. Pupils will count in multiples including ones, twos, fives and tens. Pupils will recognise, find and name a half as one of two equal parts and a quarter as one of four equal parts. They will also describe position, directions and movement, including half, quarter and three quarter turns. They "**solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher**" (NC Y1: p8). "*Through grouping and sharing small quantities, pupils begin to understand: multiplication and division; doubling numbers and quantities; and finding simple fractions of objects, numbers and quantities*" (NC Y1: p8). "*They make connections between arrays, number patterns, and counting in twos, fives and tens.*" (NC Y1: p8). Throughout the year, including in Maths Meetings, pupils "**recognise, find and name a half as one of two equal parts of an object, shape or quantity**; **recognise, find and name a quarter as one of four equal parts of an object, shape or quantity**" (NC Y1: p8). "*Pupils are taught half and quarter as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. For example, they could recognise and find half a length, quantity, set of objects or shape. Pupils connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.*" (NC Y1: p8)