

# Year 6 NCETM Curriculum Map 2021



	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2				
Unit	1	2	3	4	5	6	7	8	KS2 tests		9	10	11	12	13

	Number and place value
	Number facts
	Addition and subtraction
	Multiplication and division
	Fractions
	Geometry
	Other

## Assessment Questions for Y6 from the DFE Guidance

<https://www.ncetm.org.uk/media/lxtlqmf5/cp-rtp-assessment-year-6.zip>

Unit 1	Calculating using knowledge of structures (1) (6 Weeks)	
RtPs	<b>6AS/MD–1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number).</b> <b>6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.</b>	
NCETM spine ref.	<b>1.28 Common structures and the part–part–whole relationship</b> <b>1.29 Using equivalence and the compensation property to calculate</b>	
Small step learning outcomes	<ol style="list-style-type: none"> <li>1 Pupils explain how a combination of different parts can be equivalent to the same whole and can represent this in an expression</li> <li>2 Pupils identify structures within stories and use their knowledge of structures to create stories</li> <li>3 Pupils identify the missing part using their knowledge of part whole relationships and structures</li> <li>4 Pupils interpret and represent a part-whole problem with 3 addends using a model</li> <li>5 Pupils create stories to correctly match a structure presented in a model</li> <li>6 Pupils use their knowledge of additive structures to solve problems</li> <li>7 Pupils calculate the value of a missing part (1)</li> <li>8 Pupils calculate the value of a missing part (2)</li> <li>9 Pupils correctly represent an equation in a part-whole model</li> <li>10 Pupils explain how adjusting both addends affects the sum (2 digit numbers)</li> <li>11 Pupils explain how adjusting both addends affects the sum (decimal fractions)</li> <li>12 Pupils use the 'same sum' rule to balance equations</li> <li>13 Pupils use the 'same sum' rule to balance equations with an unknown</li> <li>14 Pupils explain how adjusting one addend affects the sum</li> <li>15 Pupils solve addition calculations mentally by using known facts</li> <li>16 Pupils solve calculations with missing addends</li> <li>17 Pupils explain how adjusting both the minuend and subtrahend by the same amount affects the difference</li> <li>18 Pupils explain how using the 'same difference' rule can make mental calculation easier (1)</li> <li>19 Pupils explain how using the 'same difference' rule can make written calculation easier (2)</li> <li>20 Pupils use the 'same difference' rule to balance equations</li> <li>21 Pupils explain how increasing or decreasing the minuend affects the difference (1)</li> <li>22 Pupils explain how increasing or decreasing the minuend affects the difference (2)</li> <li>23 Pupils solve subtraction calculations mentally by using known facts</li> <li>24 Pupils explain how adjusting the minuend can make mental calculation easier</li> <li>25 Pupils explain how adjusting the subtrahend affects the difference</li> <li>26 Pupils explain how increasing or decreasing the subtrahend affects the difference</li> <li>27 Pupils calculate the difference using their knowledge of an adjusted subtrahend (1)</li> <li>28 Pupils calculate the difference using their knowledge of an adjusted subtrahend (2)</li> </ol>	
Download Links	<b>Classroom Slides</b> <a href="https://www.ncetm.org.uk/media/suwfix0e/cp-year-6-unit-1-calculating-using-knowledge-of-structures-1.pptx">https://www.ncetm.org.uk/media/suwfix0e/cp-year-6-unit-1-calculating-using-knowledge-of-structures-1.pptx</a>	

	<p><b>Specific RtP Link</b>  <a href="#">6AS/MD-1 Page 298</a>  <a href="#">6AS/MD-2 Page 302</a></p> <p><b>Spine Materials Teacher Guidance</b>  1.28 <a href="https://www.ncetm.org.uk/media/tuzdfxwh/ncetm_mm_sp1_y5_se28_teach.pdf#page=5">https://www.ncetm.org.uk/media/tuzdfxwh/ncetm_mm_sp1_y5_se28_teach.pdf#page=5</a>  1.29 <a href="https://www.ncetm.org.uk/media/k1ocl1bp/ncetm_mm_sp1_y5_se29_teach.pdf#page=5">https://www.ncetm.org.uk/media/k1ocl1bp/ncetm_mm_sp1_y5_se29_teach.pdf#page=5</a></p>
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<b>Unit 2</b>	<b>Multiples of 1,000 (2 weeks)</b>
<b>RtPs</b>	<b>No RtP</b>
NCETM spine ref.	<b>1.26 Composition and calculation: multiples of 1,000 up to 1,000,000</b>
Small step learning outcomes	<ol style="list-style-type: none"> <li>1 Pupils explain how ten thousand can be composed</li> <li>2 Pupils explain how one hundred thousand can be composed</li> <li>3 Pupils read and write numbers up to one million (1)</li> <li>4 Pupils read and write numbers up to one million (2)</li> <li>5 Pupils identify and place the position of five-digit multiple of one thousand numbers, on a marked, but unlabelled number line</li> <li>6 Pupils identify and place the position of six-digit multiple of one thousand numbers, on a marked, but unlabelled number line</li> <li>7 Pupils count forwards and backwards in steps of powers of 10, from any multiple of 1,000</li> <li>8 Pupils explain that 10,000 is composed of 5,000s 2,500s and 2,000s</li> <li>9 Pupils explain that 100,000 is composed of 50,000s 25,000s and 20,000s</li> <li>10 Pupils read scales in graphing and measures contexts, by using their knowledge of the composition of 10,000 and 100,000</li> </ol>
Download Links	<p><b>Classroom Slides</b>  <a href="https://www.ncetm.org.uk/media/bebjaz4l/cp-year-6-unit-2-multiples-of-1000.pptx">https://www.ncetm.org.uk/media/bebjaz4l/cp-year-6-unit-2-multiples-of-1000.pptx</a></p> <p><b>Specific RtP Link</b>  No RtP</p> <p><b>Spine Materials Teacher Guidance</b>  1.26 <a href="https://www.ncetm.org.uk/media/amxludws/ncetm_mm_sp1_y5_se26_teach.pdf#page=5">https://www.ncetm.org.uk/media/amxludws/ncetm_mm_sp1_y5_se26_teach.pdf#page=5</a></p>

<b>Unit 3</b>	<b>Numbers up to 10,000,000 (4 weeks)</b>
<b>RtPs</b>	<p><b>6NPV–1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).</b></p> <p><b>6NPV–2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning.</b></p> <p><b>6NPV–3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.</b></p> <p><b>6NPV–4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.</b></p>
NCETM spine ref.	<b>1.30 Composition and calculation: numbers up to 10,000,000</b>
Small step learning outcomes	<ol style="list-style-type: none"> <li>1 Pupils use representations to identify and explain patterns in powers of 10</li> <li>2 Pupils compose seven or eight-digit numbers using common intervals</li> <li>3 Pupils use their knowledge of the composition of up to eight-digit numbers to solve problems</li> <li>4 Pupils explain how to read numbers with up to seven digits efficiently</li> <li>5 Pupils recognise and create numbers that contain place-holding zeroes</li> <li>6 Pupils determine the value of digits in numbers up to tens of millions</li> <li>7 Pupils explain how to compare up to eight-digit numbers</li> <li>8 Pupils use their knowledge of the composition of seven-digit numbers to solve problems</li> <li>9 Pupils add and subtract mentally without bridging a boundary (only one and more than one digit changes)</li> <li>10 Pupils add numbers whilst crossing the millions boundary</li> </ol>

	<p>11 Pupils subtract numbers whilst crossing the millions boundary (multiples of 100,000 and different powers of 10)</p> <p>12 Pupils explain how a seven-digit number can be composed and decomposed into parts</p> <p>13 Pupils identify and explain a pattern in a counting sequence</p> <p>14 Pupils identify numbers with up to seven digits on marked number lines</p> <p>15 Pupils estimate the value and position of numbers on unmarked or partially marked number lines</p> <p>16 Pupils explain why we round and how to round seven-digit numbers to the nearest million</p> <p>17 Pupils explain how to round seven-digit numbers to the nearest hundred thousand</p> <p>18 Pupils explain how to round up to seven-digit numbers to any power of 10 in context</p> <p>19 Pupils identify and explain the most efficient way to solve a calculation</p> <p>20 Pupils add and subtract numbers with up to seven digits using column addition and subtraction</p> <p>21 Pupils explore and explain different written and mental strategies to solving addition and subtraction problems</p> <p>22 Pupils solve addition and subtraction problems and explain whether a mental or written strategy would be most efficient</p>
Download Links	<p><b>Classroom Slides</b>  <a href="https://www.ncetm.org.uk/media/sptdce0j/cp-year-6-unit-3-numbers-up-to-10-000-000.pptx">https://www.ncetm.org.uk/media/sptdce0j/cp-year-6-unit-3-numbers-up-to-10-000-000.pptx</a></p> <p><b>Specific RtP Link</b>  <a href="#">6NPV-1 Page 282</a>  <a href="#">6NPV-2 Page 286</a>  <a href="#">6NPV-3 Page 289</a>  <a href="#">6NPV-4 Page 294</a></p> <p><b>Spine Materials Teacher Guidance</b>  1.30 <a href="https://www.ncetm.org.uk/media/sbrc5pmz/ncetm_mm_sp1_y6_se30_teach.pdf#page=4">https://www.ncetm.org.uk/media/sbrc5pmz/ncetm_mm_sp1_y6_se30_teach.pdf#page=4</a></p>

<b>Unit 4</b>	<b>Draw, compose and decompose shapes (2 weeks)</b>
<b>RtPs</b>	<b>6G–1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.</b>
NCETM spine ref.	<b>No spine</b>
Small step learning outcomes	<p>1 Use knowledge of shape properties to draw, sketch and identify shapes</p> <p>2 The same 3D shape can be composed from different 2D nets</p> <p>3 When a 2D shape is decomposed and the parts rearranged, the area remains the same. The area of a compound shape is therefore equal to the total of the areas of the constituent parts</p> <p>4 Any parallelogram can be decomposed and the parts rearranged to form a rectangular parallelogram</p> <p>5 Two congruent triangles can be composed to form a parallelogram</p> <p>6 Shapes with the same area can have different perimeters. Shapes with the same perimeters can have different areas</p> <p>7 We can use the relationship between area and side length, and perimeter and side length, to reason about measurements of shapes, including compound shapes</p>
Download Links	<p><b>Classroom Slides</b>  <a href="https://www.ncetm.org.uk/media/5sndx4ag/cp-year-6-unit-4-draw-compose-decompose-shapes.pptx">https://www.ncetm.org.uk/media/5sndx4ag/cp-year-6-unit-4-draw-compose-decompose-shapes.pptx</a></p> <p><b>Specific RtP Link</b>  <a href="#">6G-1 Page 322</a></p> <p><b>Spine Materials Teacher Guidance</b>  No spine</p>

<b>Unit 5</b>	<b>Multiplication and division (4 weeks)</b>	
<b>RtPs</b>	<b>6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.</b>	
NCETM spine ref.	<b>2.18 Using equivalence to calculate</b> <b>2.23 Multiplication strategies for larger numbers and long multiplication</b> <b>2.24 Division: dividing by two-digit divisors</b> <b>2.25 Using compensation to calculate</b>	
Small step learning outcomes	1	Pupils explain why the product stays the same when one factor is doubled and the other is halved
	2	Pupils explain the effect on the product when scaling the factors by the same amount
	3	Pupils use their knowledge of equivalence when scaling factors to solve problems
	4	Pupils explain the effect on the quotient when scaling the dividend and divisor by 10
	5	Pupils explain the effect on the quotient when scaling the dividend and divisor by the same amount
	6	Pupils explain how to multiply a three-digit by a two-digit number
	7	Pupils explain how to accurately use the method of long multiplication to multiply two, two-digit numbers (no regrouping of ones to tens)
	8	Pupils explain how to accurately use the method of long multiplication (with regrouping of ones to tens)
	9	Pupils explain how to accurately use the method of long multiplication (with regrouping of ones to tens & tens to hundreds)
	10	Pupils explain how to accurately use the method of long multiplication to multiply a three-digit by a two-digit number
	11	Pupils explain how to accurately use the method of long multiplication to multiply a four-digit by a two-digit number
	12	Pupils explain how to use the associative law to multiply efficiently
	13	Pupils explain when it is more efficient to use long multiplication or factorising to multiply by two-digit numbers
	14	Pupils explain how to use accurately the methods of short and long division (two and three-digit number by multiples of 10)
	15	Pupils explain how to use accurately the method of long division with and without remainders (two-digit by two-digit numbers)
	16	Pupils use knowledge of long division to solve problems in a range of contexts (with and without remainders)
	17	Pupils explain how to use a ratio chart to solve efficiently: short division
	18	Pupils explain how to use a ratio chart to solve efficiently: long division
	19	Pupils explain how to use a ratio chart to solve efficiently: long division (II)
	20	Pupils explain how to use accurately the method of long division with and without remainders (three-digit by two-digit, four-digit by two-digit numbers)
	21	Pupils use long division with decimal remainders (1 decimal place)
	22	Pupils use long division with fraction remainders
	23	Pupils use long division with decimal remainders (2 decimal places)
	24	Pupils use knowledge of the best way to interpret and represent remainders from a range of division contexts
	25	Pupils explain how and why a product changes when a factor changes multiplicatively
	26	Pupils use their knowledge of multiplicative change to solve problems efficiently (multiplication)
	27	Pupils explain how and why a quotient changes when a dividend changes multiplicatively (increase or decrease)
	28	Pupils explain how and why a quotient changes when a divisor changes multiplicatively
	29	Pupils identify and explain the relationship between divisors and quotients
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<b>Unit 6</b>	<b>Area, perimeter, position and direction (2 weeks)</b>	
<b>RtPs</b>	<b>No RtP</b>	
NCETM spine ref.	<b>2.30 Multiplicative contexts: area and perimeter 2</b>	
Small step learning outcomes	1	Pupils explain how to calculate the area of a parallelogram
	2	Pupils explain how to calculate the area of a triangle
	3	Pupils explain why shapes can have the same perimeters but different areas
	4	Pupils explain why shapes can have the same areas but different perimeters
	5	Pupils describe the relationship between scale factors and side lengths of two shapes
	6	Pupils describe the relationship between scale factors and perimeters of two shapes
	7	Pupils describe positions on the full coordinate grid (all four quadrants)
	8	Pupils draw and translate simple shapes on the coordinate plane and reflect them in the axes
Download Links	<b>Classroom Slides</b> <a href="https://www.ncetm.org.uk/media/sb4oqxau/cp-year-6-unit-6-area-perimeter-position-and-direction.pptx">https://www.ncetm.org.uk/media/sb4oqxau/cp-year-6-unit-6-area-perimeter-position-and-direction.pptx</a>  <b>Specific RtP Link</b> No RtP  <b>Spine Materials Teacher Guidance</b> 2.30 <a href="https://www.ncetm.org.uk/media/mbmej2b2/ncetm_spine2_segment30_y6.pdf#page=4">https://www.ncetm.org.uk/media/mbmej2b2/ncetm_spine2_segment30_y6.pdf#page=4</a>	

<b>Unit 7</b>	<b>Fractions and percentages (6 weeks)</b>	
<b>RtPs</b>	<b>6F–1 Recognise when fractions can be simplified, and use common factors to simplify fractions.</b> <b>6F–2 Express fractions in a common denomination and use this to compare fractions that are similar in value.</b> <b>6F–3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.</b>	
NCETM spine ref.	<b>3.7 Finding equivalent fractions and simplifying fractions</b> <b>3.8 Common denomination: more adding and subtracting</b> <b>3.9 Multiplying fractions and dividing fractions by a whole number</b> <b>3.10 Linking fractions, decimals and percentages</b>	
Small step learning outcomes	1	Pupils explain how to write a fraction in its simplest form
	2	Pupils reason and apply their knowledge of how to write a fraction in its simplest form
	3	Pupils use their knowledge of how to write a fraction in its simplest form when solving addition and subtraction problems (1)
	4	Pupils use their knowledge of how to write a fraction in its simplest form when solving addition and subtraction problems (2)
	5	Pupils use their knowledge of how to write a fraction in its simplest form when solving multiplication problems
	6	Pupils explain, using an image, how to add related fractions (unit fractions)
	7	Pupils explain what is meant by 'related fractions'
	8	Pupils explain, without using an image, how to add related fractions
	9	Pupils use their knowledge of adding related fractions to solve problems in a range of contexts
	10	Pupils explain, with and without using an image, how to subtract related fractions (unit fractions)
	11	Pupils use their knowledge of adding and subtracting related fractions to solve problems in a range of contexts
	12	Pupils explain, with and without using an image, how to add and subtract related fractions (non-unit fractions)
	13	Pupils explain, with and without using an image, how to add and subtract related fractions (non-unit fractions that bridge the whole)
	14	Pupils use their fraction sense to fraction addition, subtraction and comparison
	15	Pupils explain how to add or subtract non-related fractions with different denominators
	16	Pupils use their knowledge of adding or subtracting non-related fractions with different denominators to solve problems in a range of contexts (non related fractions)
	17	Pupils explain how to compare pairs of non-related fractions (converting to common denominators)



	<p>18 Pupils explain how to compare pairs of non-related fractions (using fraction sense)</p> <p>19 Pupils explain how to compare pairs of non-related fractions (using common numerators)</p> <p>20 Pupils explain which method for comparing non-related fractions is most efficient</p> <p>21 Pupils explain how to multiply two unit fractions</p> <p>22 Pupils explain how to multiply two non-unit fractions</p> <p>23 Pupils explain how to divide a unit fraction by a whole number</p> <p>24 Pupils explain how to divide a non-unit fraction by a whole number</p> <p>25 Pupils explain when and how to divide efficiently a fraction by a whole number</p> <p>26 Pupils explain what percent means</p> <p>27 Pupils explain how to represent a percentage in different ways</p> <p>28 Pupils explain how to convert percentages to decimals and fractions (with a denominator of 100)</p> <p>29 Pupils explain how to convert a percentage to a fraction (without denominator of 100)</p> <p>30 Pupils use their knowledge of fraction-decimal-percentage conversions to solve conversion problems in a range of contexts</p> <p>31 Pupils use their knowledge of calculating 50%, 10% and 1% of a number to solve problems in a range of contexts</p> <p>32 Pupils use their knowledge of calculating common percentages of a number to solve problems in a range of contexts</p> <p>33 Pupils use their knowledge of calculating any percentage of a number to solve problems in a range of contexts</p> <p>34 Pupils explain how to solve problems where the percentage part and the size of the part is known and the whole is unknown</p> <p>35 Pupils explain how to solve problems where the known percentage part and the size of the part changes the whole</p>
Download Links	<p><b>Classroom Slides</b>  <a href="https://www.ncetm.org.uk/media/b4rhtsxm/cp-year-6-unit-7-fractions-and-percentages.pptx">https://www.ncetm.org.uk/media/b4rhtsxm/cp-year-6-unit-7-fractions-and-percentages.pptx</a></p> <p><b>Specific RtP Link</b>  <a href="#">6F-1 Page 312</a>  <a href="#">6F-2 Page 316</a>  <a href="#">6F-3 Page 319</a></p> <p><b>Spine Materials Teacher Guidance</b>  3.7 <a href="https://www.ncetm.org.uk/media/d45jqisc/ncetm_spine3_segment07_y5.pdf#page=36">https://www.ncetm.org.uk/media/d45jqisc/ncetm_spine3_segment07_y5.pdf#page=36</a>  3.8 <a href="https://www.ncetm.org.uk/media/uxlfqsg5/ncetm_spine3_segment08_y5.pdf#page=4">https://www.ncetm.org.uk/media/uxlfqsg5/ncetm_spine3_segment08_y5.pdf#page=4</a>  3.9 <a href="https://www.ncetm.org.uk/media/a05nb5mi/ncetm_spine3_segment09_y6.pdf#page=13">https://www.ncetm.org.uk/media/a05nb5mi/ncetm_spine3_segment09_y6.pdf#page=13</a>  3.10 <a href="https://www.ncetm.org.uk/media/bjbla4ci/ncetm_spine3_segment10_y6.pdf#page=22">https://www.ncetm.org.uk/media/bjbla4ci/ncetm_spine3_segment10_y6.pdf#page=22</a></p>

<b>Unit 8</b>	<b>Statistics (1 week)</b>
RtPs	This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.
NCETM spine ref.	<b>No spine</b>
Small step learning outcomes	<p><b>National curriculum statutory requirements (p45)</b></p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• interpret and construct pie charts and line graphs and use these to solve problems</li> <li>• calculate and interpret the mean as an average.</li> <li>•</li> </ul> <p><b>National curriculum notes and guidance (non-statutory)</b></p> <p>Pupils connect their work on angles, fractions and percentages to the interpretation of pie charts. Pupils both encounter and draw graphs relating two variables, arising from their own enquiry and in other subjects. They should connect conversion from kilometres to miles in measurement to its graphical representation. Pupils know when it is appropriate to find the mean of a data set.</p>
Download Links	<p><b>Classroom Slides</b>  No slides but see the NCETM website for further guidance:  <a href="https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-8-statistics/">https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-8-statistics/</a></p> <p><b>Specific RtP Link</b>  No RtP</p> <p><b>Spine Materials Teacher Guidance</b>  No spine</p>

<b>Unit 9</b>	<b>Ratio and proportion (2 weeks)</b>	
<b>RtPs</b>	<b>6AS/MD–3 Solve problems involving ratio relationships.</b>	
NCETM spine ref.	<b>2.27 Scale factors, ratio and proportional reasoning</b>	
Small step learning outcomes	1	Pupils describe the relationship between two factors (in a ratio context)
	2	Pupils explain how to use multiplication and division to calculate unknown values (two variables)
	3	Pupils explain how to use multiplication and division to calculate unknown values (three variables)
	4	Pupils explain how to use a ratio grid to calculate unknown values
	5	Pupils explain how to use multiplication to solve correspondence problems
	6	Pupils explain how and why scaling is used to make and interpret maps
	7	Pupils will use their knowledge of multiplication and division to solve scaling problems in a range of contexts
	8	Pupils identify and describe the relationship between two shapes using scale factors (squares)
	9	Pupils identify and describe the relationship between two shapes using scale factors and ratios (regular polygons)
	10	Pupils identify and describe the relationship between two shapes using scale factors and ratios (irregular polygons)
Download Links	<b>Classroom Slides</b> <a href="https://www.ncetm.org.uk/media/c4gbb2my/cp-year-6-unit-9-ratio-and-proportion.pptx">https://www.ncetm.org.uk/media/c4gbb2my/cp-year-6-unit-9-ratio-and-proportion.pptx</a>  <b>Specific RtP Link</b> <a href="#">6AS/MD 3 Page 305</a>  <b>Spine Materials Teacher Guidance</b> 2.27 <a href="https://www.ncetm.org.uk/media/bspfn3zj/ncetm_spine2_segment27_y6.pdf#page=4">https://www.ncetm.org.uk/media/bspfn3zj/ncetm_spine2_segment27_y6.pdf#page=4</a>	

<b>Unit 10</b>	<b>Calculating using knowledge of structures (2) (1 week)</b>	
<b>RtPs</b>	<b>6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.</b>	
NCETM spine ref.	<b>1.29 Using equivalence and the compensation property to calculate</b>	
Small step learning outcomes	1	Pupils explain how to balance equations with addition expressions
	2	Pupils explain how to balance equations with subtraction expressions
	3	Pupils explain how to balance equations with addition or subtraction expressions
	4	Pupils explain how to balance equations with addition and subtraction expressions
	5	Pupils use their knowledge of balancing equations to solve problems
Download Links	<b>Classroom Slides</b> <a href="https://www.ncetm.org.uk/media/dfon1cyt/cp-year-6-unit-10-calculating-using-knowledge-of-structures-2.pptx">https://www.ncetm.org.uk/media/dfon1cyt/cp-year-6-unit-10-calculating-using-knowledge-of-structures-2.pptx</a>  <b>Specific RtP Link</b> <a href="#">6AS/MD-2 Page 302</a>  <b>Spine Materials Teacher Guidance</b> 1.29 <a href="https://www.ncetm.org.uk/media/k1ocl1bp/ncetm_mm_sp1_y5_se29_teach.pdf#page=49">https://www.ncetm.org.uk/media/k1ocl1bp/ncetm_mm_sp1_y5_se29_teach.pdf#page=49</a>	

Unit 11	Solving problems with two unknowns (2 weeks)	
RtPs	6AS/MD-4 Solve problems with 2 unknowns.	
NCETM spine ref.	1.31 Problems with two unknowns	
Small step learning outcomes	1	Pupils compare the structure of problems with one or two unknowns
	2	Pupils compare the structure of problems with two unknowns
	3	Pupils represent the structure of contextual problems with two unknowns
	4	Pupils represent a problem with two unknowns using a bar model
	5	Pupils explain why sometimes there is only one solution to a sum and difference problem
	6	Pupils explain why sometimes there is only one solution to a sum and multiple problem
	7	Pupils explain the values a part-whole model could represent
	8	Pupils use a bar model to visualise how to solve a problem with two unknowns
	9	Pupils use diagrams to explain how to solve a spatial problem
	10	Pupils explain how to represent an equation with a bar model
	11	Pupils solve problems with two unknowns in a range of contexts
	12	Pupils systematically solve problems with two unknowns using 'trial and improvement' (one and several solutions)
	13	Pupils explain how I know I have found all possible solutions to problems with two unknowns
	14	Pupils explain how to balance an equation with two unknowns
	15	Pupils systematically solve problems with two unknowns using 'trial and improvement' (one, several and infinite solutions)
Download Links	<b>Classroom Slides</b> <a href="https://www.ncetm.org.uk/media/bosbyjq/cp-year-6-unit-11-solving-problems-with-two-unknowns.pptx">https://www.ncetm.org.uk/media/bosbyjq/cp-year-6-unit-11-solving-problems-with-two-unknowns.pptx</a>  <b>Specific RtP Link</b> <a href="#">6AS/MD-4 Page 308</a>  <b>Spine Materials Teacher Guidance</b> 1.31 <a href="https://www.ncetm.org.uk/media/bclpgdik/ncetm_mm_sp1_y6_se31_teach.pdf#page=6">https://www.ncetm.org.uk/media/bclpgdik/ncetm_mm_sp1_y6_se31_teach.pdf#page=6</a>	

Unit 12	Order of operations	
RtPs	No RtP	
NCETM spine ref.	2.22 Combining multiplication with addition and subtraction 2.28 Combining division with addition and subtraction	
Small step learning outcomes	1	Pupils explain how addition and subtraction can help to solve multiplication problems efficiently (I)
	2	Pupils explain how addition and subtraction can help to solve multiplication problems efficiently (II)
	3	Pupils explain how the distributive law applies to multiplication expressions with a common factor (addition)
	4	Pupils use their knowledge of the distributive law to solve equations including multiplication, addition and subtraction
	5	Pupils explain how addition and subtraction can help to solve division problems efficiently
	6	Pupils explain how the distributive law applies to division expressions with a common divisor (addition)
	7	Pupils explain how the distributive law applies to division expressions with a common divisor (subtraction)
	8	Pupils use their knowledge of the distributive law to solve equations including division, addition and subtraction
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Unit 13	Mean average	
RtPs	No RtP	
NCETM spine ref.	2.26 Mean average and equal shares	
Small step learning outcomes	1	Pupils explain the relationship between the mean and sharing equally
	2	Pupils explain how to calculate the mean of a set of data
	3	Pupils explain how the mean changes when the total quantity or number of values changes
	4	Pupils explain how to calculate the mean when one of the values in the data set is zero or missing
	5	Pupils explain how to use the mean to make comparisons between two sets of information
	6	Pupils explain when the mean is not an appropriate representation of a set of data
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