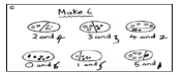
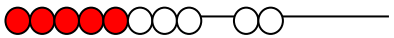
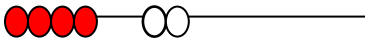
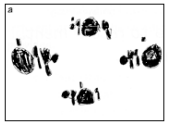
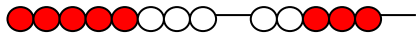
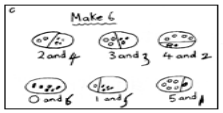
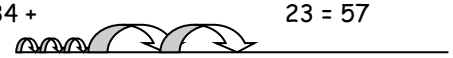
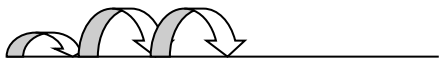
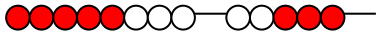
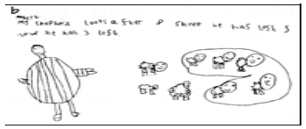
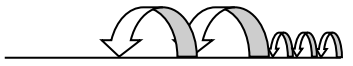
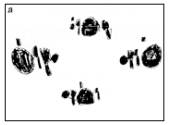
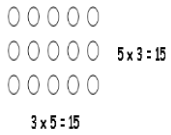
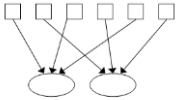
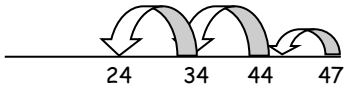
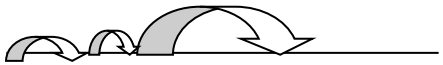
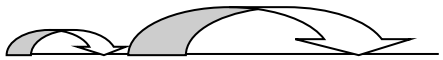
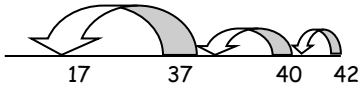
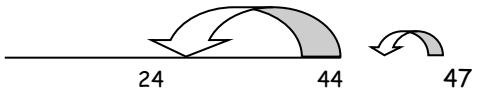
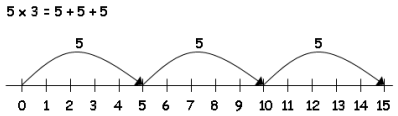
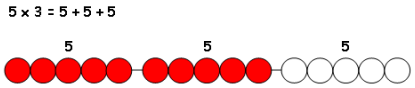
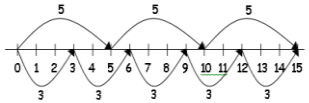
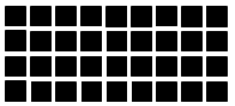
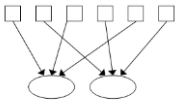
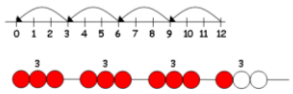
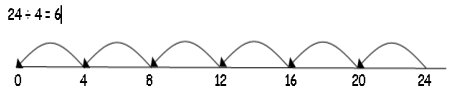
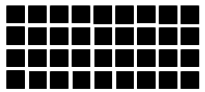
	Addition	Subtraction	Multiplication	Division
Rec	Children are encouraged to work practically to explore ways to add objects and show these in a range of representations. They will begin to use standard signs and symbols.  They will use practical equipment such as bead strings or bead bars that can be used to illustrate addition  8+2=10 They use numberlines and practical resources to support calculation and teachers *demonstrate* the use of the number line and standard notation where appropriate.	Children are encouraged to work practically to explore ways to subtract objects and show these in a range of representations. They will begin to use standard signs and symbols.  They will use practical equipment such as bead strings or bead bars that can be used to illustrate subtraction.  **6-2=4** They use number lines and practical resources to support calculation and teachers *demonstrate* the use of the number line and standard notation where appropriate.	They will work on practical problem solving activities involving equal sets or groups. They will begin to use standard signs and symbols **<u>where appropriate</u>**.  Teachers *demonstrate* the use of standard notation where appropriate. Children will explore grouping objects and identifying equal groups. They will begin to identify patterns in numbers and group, leading to counting in 2s, 10 **<u>and then</u>** 5s.	Children will explore ways of sharing into groups and grouping objects into sets including in play and problem solving. They will count in 2s and 10s **<u>and later</u>** in 5s.  They will begin to use standard signs and symbols where appropriate. Teachers *demonstrate* the use of standard notation where appropriate.

	Addition	Subtraction	Multiplication	Division
Y1	Children will use practical equipment such as bead strings or bead bars that can be used to illustrate addition including crossing the tens boundary by counting on 2 then counting on 3.  (8 + 5 = 8 + 2 + 3) They will use standard signs and symbols (+ and =).  They use numbered lines and practical resources to support calculation and teachers demonstrate the use of an 'empty number line'. Children will learn to recognise patterns in the addition of tens mentally and visually. Children will begin to use 'empty number lines' themselves starting with the larger number and counting on to support mental calculations. ✓ First counting on in tens and ones. 34 + 23 = 57  34 35 36 37 47 57 ✓ Then helping children to become more efficient by adding the units in one jump (by using the known fact 4 + 3 = 7).  34 37 47 57	Children will use practical equipment such as bead strings or bead bars that can be used to illustrate subtraction including bridging through ten by counting back 3 then counting back 2.  **13-5=8** They will use standard signs and symbols (- and =).  Children then begin to use numbered lines to support their own calculations - using a numbered line to count back in ones. Children will learn to recognise patterns in the subtraction of tens mentally and visually. The number line should also be used to show that 6 - 3 means the 'difference between 6 and 3' or 'the difference between 3 and 6' and how many jumps they are apart. Children will begin to use empty number lines to support mental calculations. **Counting back:** ✓ First counting back in ones and tens. 47 – 23 = 24  24 34 44 45 46 47 ✓ Moving on to become more efficient by subtracting the units in one jump (by using the known fact 7 – 3 = 4).	Children will explore grouping objects and identifying equal groups. They will count in 2s and 10s and begin to count in 5s. They will work on practical problem solving activities involving equal sets or groups. They will use standard signs and symbols (x and =) where appropriate. They will use pictorial representations;  and arrays  to solve problems. The teacher will model how to use arrays to solve problems. Children will be taught about times tables and strategies to learn them. They will be able to begin to recall times tables facts relating to the multiples that they are counting in and relate them to division facts.	Children will explore ways of sharing into groups and grouping objects into sets including in play and problem solving. They will count in 2s and 10s and later in 5s.  ✓ **Sharing equally** 6 sweets shared between 2 people, how many do they each get?  They will use standard signs and symbols (÷ and =) where appropriate. ✓ **Grouping** They will understand and explore grouping. For example, 6 sweets are grouped into 2s for each person. How many people get two sweets? **00 00 00** During practical exploration of sharing and grouping children will be introduced to remainders.

	Addition	Subtraction	Multiplication	Division
	Children will explore ways to make up different totals up to 20 and begin to use + and = in their own recording, as well as pictures.	47 – 23 = 24  Children will use their explorations of addition to support investigating subtraction, beginning to use – and = as well as their own pictures.		

	Addition	Subtraction	Multiplication	Division
Y2	Children will continue to use the 'empty' number line, beginning with the largest number first, and will also begin to ✓ Bridge through ten will help them to become more efficient. 37 + 15 = 52  37 40 42 52 They will have confidence and a strategy in adding ones and tens including when crossing the tens boundary. For example counting to the nearest 10, then adding the remainder. ✓ They will develop this to add the ones in one jump and the tens in one jump. 37 + 15 = 52  37 42 52 Children will develop a good understanding of how to partition numbers to add. They will start by partitioning the smallest number only. 37 + 15 37 + 10 + 5 37 + 5 = 42 42 + 10 = 52 Children will learn that tens or ones can be added first, resulting in :	Children will continue to use the 'empty' number line and will Bridge through ten to help them to become more efficient. 42 – 25 = 17  17 37 40 42 They will have confidence and a strategy in subtracting ones and tens including crossing the tens boundary. ✓ Move on to subtracting the tens in one jump and the units in one jump. 47 – 23 = 24  24 44 47 Children will develop a good understanding of how to partition numbers to support subtraction. 52 – 15 52 – 5 =47 47 – 10 = 37 Children will learn that tens or ones can be subtracted first, as long as the first number stays whole, resulting in : 52 – 15 52 – 10 =42 42 – 5 = 37	Children will continue to explore multiplying numbers practically in a range of contexts. Children will develop their understanding of multiplication and use jottings to support mental calculations: **Repeated addition** 3 times 5 is 5 + 5 + 5 = 15 or 3 lots of 5 or 5 x3 Repeated addition can be shown easily on a number line:  and on a bead bar:  ✓ **Commutativity** Children should know that 3 x 5 has the same answer as 5 x 3. This can also be shown on the number line.  Children should be able to model a multiplication calculation using an array.  9 x 4 = 36 9 x 4 = 36 They begin to complete equations using inverse operations where symbols stand for unknown numbers; e.g. ☐ x 5 = 20 3 x △ = 18 ☐ x O = 32	Children will develop their understanding of division as sharing or grouping : ✓ **Sharing equally** 6 sweets shared between 2 people, how many do they each get?  They will use standard signs and symbols (÷ and =) where appropriate. ✓ **Grouping** They will understand and explore grouping. For example, 6 sweets are grouped into 2s for each person. How many people get two sweets? **00 00 00** During practical exploration of sharing and grouping children will be introduced to remainders. Jottings should be used to support mental calculations and begin to use grouping to solve division: **Grouping or repeated subtraction** There are 6 sweets, how many people can have 2 sweets each?  They use repeated subtraction using a number line or bead bar 12 ÷ 3 = 4

	Addition	Subtraction	Multiplication	Division
	37 + 15 37 + 10 + 5 37 + 10 = 47 47 + 5 = 52 They will then develop a good understanding of how to partition both numbers to add before moving onto formal column methods. 67 + 24 60 + 20 = 80 7 + 4 = 11 80 + 11 = 91 Children will move on to recording addition in columns, supporting place value, to prepare for formal written methods with larger numbers later. Always starting with adding the least significant digits (ones) first 67 + 24 11 (7+ 4) 80 (60 + 20) 91 267 + 85 12 (7 + 5) 140 (60 + 80) 200 352	Children **must** be confident at adding and subtracting multiples of 10 to a number and partitioning before moving on to formal column methods. Children will move on to recording subtraction in expanded columns with friendly numbers. 89-57 80 + 9 -50 + 7 --------- 30 + 2 = 32 If children are ready to use other numbers that require exchanging, they should only do this in an expanded way (see year 3).	Children should be able to confidently recall 2, 10 and 5 times tables and related division facts.	 The bead bar will help children with interpreting division calculations such as 10 ÷ 5 as 'how many 5s make 10?' They then move on to using repeated subtraction on an 'empty' number line to solve problems Children will use an empty number line to support their calculation.  Begin to experience remainders in practical context and what this would look like on a number line. **Children should understand that sharing and grouping will result in the same outcome but are different concepts. These concepts must be secure before moving onto formal methods.** They begin to complete equations using inverse operations where symbols stand for unknown numbers; e.g. □ ÷ 2 = 4 20 ÷ △ = 4 □ ÷ △ = 4

	Addition	Subtraction	Multiplication	Division
Y3 & 4	Children will continue to use informal pencil and paper methods (jottings) to support record and explain partial mental methods building on existing mental strategies. e.g. adding 10 and 100 to any number compliments to 100 They will continue to develop their understanding of formal written methods, alongside informal methods, adding the least significant digits first 67 + 24 11 (7 + 4) 80 (60 + 20) 91 267 + 85 12 (7 + 5) 140 (60 + 80) 200 352 Leading to; ✓ Carry below the line. 625 + 48 = 673 783 + 42 = 825 367 + 85 = 452 At this point, there will be a shift in language used from 20 + 40 to 2 tens + 4 tens + another ten, to make the place value aspect of this method explicit. *Using similar methods, children will:* ✓ *add several numbers with different numbers of digits;* ✓ *begin to add two or more three-digit sums of money, with or without adjustment from the pence to the pounds;* ✓ *Know that the decimal points should line up under each other, particularly when adding or subtracting mixed amounts, e.g. £3.59 + 78p.* Children will continue to use informal pencil	Children will move on to recording subtraction in expanded columns with friendly numbers. 89-57 80 + 9 -50 + 7 --- 30 + 2 = 32 Once children are confident in using expanded columns with friendly numbers, they will begin to use numbers that require exchanging through expanded decomposition. ~~52~~ – 15 30 40 + 12 -10 + 5 --- 30 + 7 = 37 Once children are confident using this method, they should be taught how to use compact decomposition. 4 ~~5~~ 12 -1 5 --- Nb. Children must have lots of experience exchanging tens and hundreds before moving onto the written form in order to secure conceptual understanding. It is essential that children continue to assess whether a formal method is necessary or whether a mental strategy is more efficient.	Children will continue to use an array to model multiplication.  9 x 4 = 36 9 x 4 = 36 They then move onto beginning to use formal written methods for short multiplication 24 X 6 = 144 | x	20	4
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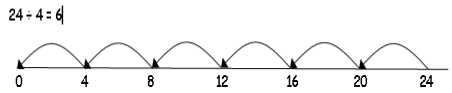
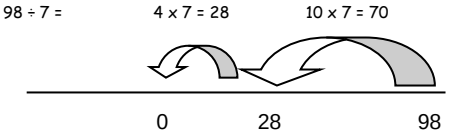
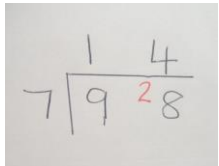
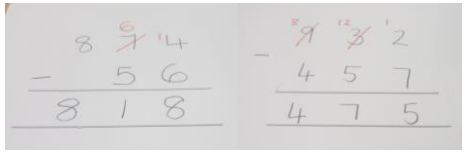
6	120	24 | 120 + 24 = 144 ↓ 24 x 6 becomes: 2 4 X 6 2 4 (4 x 6) 1 2 0 (20 x 6) 1 4 4 (120 + 24) ↓ 2 4 X 6 1 4 4 2 124 X 6 = | x	100	20	4
---	---	---	---
6	600	120	24 | 600 + 120 + 24 = 744 ↓	Children will continue to use repeated subtraction on a number line and then begin to develop their formal written methods for division beginning with short division (2 digit numbers divided by a single digit). Children will use an empty number line to support their calculation.  This example should be used to check knowledge of known timetables and to support the development of method.  Moving on to short division with chunking: e.g 98 ÷ 7 becomes 14 7 | 98 - 70 (10 x 7) 28 - 28 (4 x 7) 0 The divisor should always be second in the brackets. Moving on to shorter more compact method, only when children are completely secure with concept: e.g 98 ÷ 7 becomes:  When using the formal written method for short division continue to use language that makes the place value aspect of this method

	Addition	Subtraction	Multiplication	Division
	and paper methods (jottings) to support record and explain partial mental methods building on existing mental strategies. They will extend the carrying method to numbers with at least four digits. 587 + 475 = 1062 (1 1) 3587 + 675 = 4262 (1 1 1) When using the standard written method, continue to use language that makes the place value aspect of this method explicit. 80 + 70 to 8 tens + 7 tens + another ten. *Using similar methods, children will:* ✓ *add several numbers with different numbers of digits;* ✓ *begin to add two or more decimal fractions with up to three digits and the same number of decimal places;* *know that decimal points should line up under each other, particularly when adding or subtracting mixed amounts, e.g. 3.2 m – 280*	*Children should:* ✓ *be able to subtract numbers with different numbers of digits; i.e. HTU – TU* ✓ *using this method, children should also begin to find the difference between two three-digit sums of money, with or without 'adjustment' from the pence to the pounds;* ✓ *know that decimal points should line up under each other.* Children continue to use a formal written method without showing the partitioning and are able to subtract 2 digit numbers from 3 digit numbers e.g 874 − 23 = 851  *Children should:* ✓ *be able to subtract numbers with different numbers of digits; i.e. HTU – TU* ✓ *using this method, children should also begin to find the difference between two three-digit sums of money, with or without 'adjustment' from the pence to the pounds;* ✓ *know that decimal points should line up under each other.*	124 x 6 becomes: 124 × 6 24 (4 x 6) 120 (20 x 6) 600 (100 x 6) 744 ↓ 124 × 6 = 144 (1 2)	explicit. Children will then move onto larger numbers where ore multiples of 10 are used: 221 ÷ 7 = 31 r 4 221 − 70 (10 x 7) = 151 151 − 70 (10 x 7) = 81 81 − 70 (10 x 7) = 11 11 − 7 (1 x 7) = 4 Leading to: 221 ÷ 7 = 31 r 4 221 − 210 (30 x 7) = 11 11 − 7 (1 x 7) = 4

	Addition	Subtraction	Multiplication	Division
Yr 5	It is essential that children have completely secured the concept of addition before compacted formal methods are taught. If more conceptual knowledge and understanding is needed, expanded methods shown in the Year 3/ 4 should be revised and consolidated. Children should extend the exchange method to numbers with any digits. 7648 + 1486 = 9134 (1 1 1) 6584 + 5848 = 12432 (1 1 1) 42 + 6432 + 786 + 3 = 4681 (1 2 1) 11944 When children are ready to work with 5 digit numbers, it is essential that this should include the use of decimals eg 12.568. When using the standard formal method, continue to use language that makes the place value aspect of this method explicit. 40 + 80 to 4 tens + 8 tens + another ten. Using similar methods, children will * add several numbers with different numbers of digits.	It is essential that children have completely secured the concept of subtraction before compacted formal methods are taught. If more conceptual knowledge and understanding is needed, expanded methods shown in the Year 3/ 4 should be revised and consolidated. Children should extend the exchange method for formal subtraction. 932 - 457 = 475 When using this standard written method, use language that makes the place value aspect of this method explicit. 5 tens – 8 tens cannot be done. Exchange 100, so we have 14 tens and 6 hundreds. Children should: i)Be able to subtract numbers with different numbers of digits. ii)Begin to find the difference between two decimal fractions with up to three digits and the same number of decimal places. iii)Know that decimal points must line up under each other. iv)Include decimals with additional 0 place holders. For example	It is essential that children have completely secured the concept of multiplication before compacted formal methods are taught. If more conceptual knowledge and understanding is needed, expanded methods shown in the Year 3/ 4 should be revised and consolidated. Children will begin to multiply 2 digit numbers by 2 digit numbers, beginning with the ones, using a formal written method for long multiplication. They will have experience and confidence in the grid and standard formal methods: 26 X 24 = 624 | x | 20 | 6 | | 20 | 400 | 120 | | 4 | 80 | 24 | 400 + 120 + 80 + 24 = 624 ↓ 26 x 24 becomes: 26 X 24 24 (4x6) 80 (4x20) 120 (20x6) 400 (20x20) 624	It is essential that children have completely secured the concept of division before compacted formal methods are taught. If more conceptual knowledge and understanding is needed, expanded methods shown in the Year 3/ 4 should be revised and consolidated. Children continue to practise and consolidate their use of formal written methods for short division and begin to interpret remainders appropriately for the context. 31 r 4 7 | 221 - 70 (10 x 7) 151 70 (10 x 7) 81 70 (10 x 7) 11 - 7 (1 x 7) 4 Leading to: 31 r 4 7 | 221 - 210 (30 x 7) 11 - 7 (1 x 7) 4 Leading to: 031 r 4 7 | 22'1 Or 031 r 4/7 7 | 22'1

	Addition	Subtraction	Multiplication	Division
	* begin to add two or more decimal fractions with up to four digits and wither one or two decimal places. *know that decimal points should line up under each other, particularly when adding or subtracting mixed amounts, e.g. 401.12 + 26.85 + 0.71 It is essential for children to continue to use a range of strategies to add numbers mentally and using jottings. They will have strategies to choose the most efficient method and know when formal methods are appropriate to use.	12.6 - 5.81 becomes 12.60 - 5.81	When digits are exchanged into the next column, ensure that they are crossed through after adding. And multiplying 3 digit numbers by 2 digits: e.g 124 x 26 124 X 26 744 12 2480 + 3224 1 1	Children should be confident at evaluating numbers to ascertain if a formal method is necessary or if their knowledge of division facts relating to times tables will enable them to use mental methods.

	Addition	Subtraction	Multiplication	Division
Y6	In year 6 children will consolidate their use of formal written methods for addition learned in previous years and will apply these in problem solving situations. Children will be confident in adding numbers mentally, using jottings and formal methods and have secure strategies on which method to use. They will be able to explain and talk about the relationship between numbers and how to use this to add and solve problems.	In year 6 children will consolidate their use of formal written methods for subtraction learned in previous years and will apply these in problem solving situations. Children will be confident in subtracting numbers mentally, using jottings and formal methods and have secure strategies on which method to use. They will be able to explain and talk about the relationship between numbers and how to use this to subtract and solve problems.	In year 6 children will practise and consolidate their use of formal written methods for long and short multiplication learned in previous years and will apply these in problem solving situations. Children will be confident in multiplying numbers mentally, using jottings and formal methods and have secure strategies on which method to use. They will be able to explain and talk about the relationship between numbers and how to use this to multiply and solve problems.	Children continue to consolidate their use and understanding of short division and move onto a formal written method for long division. They are able to show remainders as r…, fractions and decimals. 432 ÷ 15 becomes: Children will be confident in dividing numbers mentally, using jottings and formal methods and have secure strategies on which method to use. They will be able to explain and talk about the relationship between numbers and how to use this to divide and solve problems.

	Addition	Subtraction	Multiplication	Division