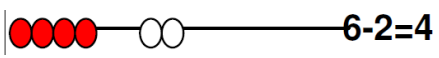
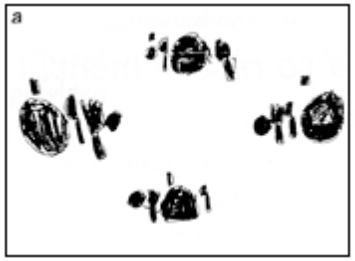
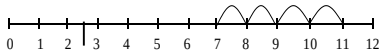
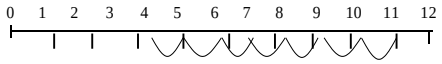
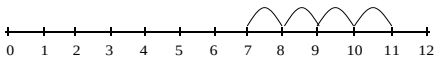
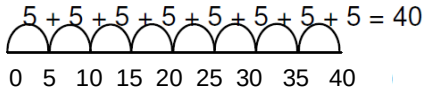
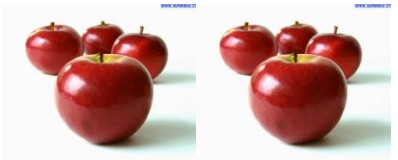
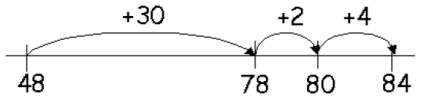
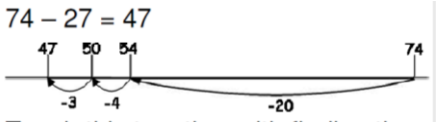
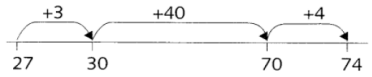
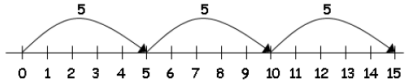
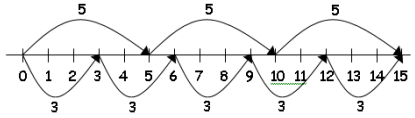
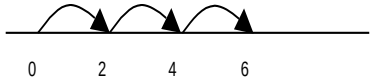
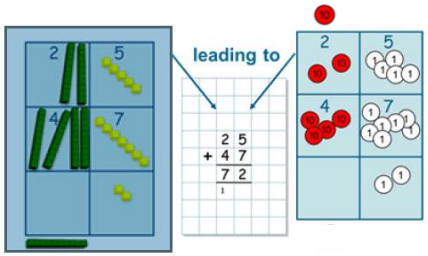
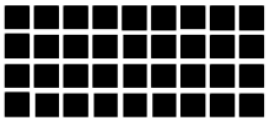
N	ADDITION	SUBTRACTION	MULTIPLICATION	DIVISION
NWLJDS CALCULATIONS POLICY (FEB 2017)	Children will engage in a variety of number rhymes, games and activities. They use vocabulary such as 'more' and count and recognise numerals 1-10. Children will compare two groups of objects saying when they have the same amount. We give children a reason to count, eg: by asking them to select enough wrist bands for three friends to play with the puppets. Story props are provided that children can use in their play. eg: varieties of fruit and several baskets like in 'Handa's Surprise'.  Stories such as 'The very Hungry Caterpillar' are read and discussion held about 'one more.' 	Children will engage in a variety of number rhymes, games and activities. They use vocabulary such as 'less' and when sharing objects out, note that 'There are none left.' Provision includes counting money and change in role-play games. 	Children will engage in a variety of number rhymes, games and activities. They begin to solve problems. eg: (using real apples) I have three apples and you have three apples, how many apples altogether? 	Children will engage in a variety of number rhymes, games and activities. Opportunities are created for children to separate objects into unequal groups as well as equal groups. eg: 5 apples for 3 friends.  Children will note the 'missing set', e.g. 'There are none left' when sharing things out. Children play games where they compare two groups of objects, saying when they have the same number. Children separate a group of three or four objects in different ways, beginning to recognise that the total is still the same

NWLJDS CALCULATIONS POLICY (FEB 2017)

R	ADDITION	SUBTRACTION	MULTIPLICATION	DIVISION
	Children will engage in a wide variety of songs and rhymes, games and activities. They will relate addition by combining two groups of objects, by counting all of them. They will find one more than a given number. In practical activities and through discussion they will begin to use the vocabulary used in addition. eg: 'You have 3 apples and I have two apples. How many apples altogether?'  By the end of Reception, the children can recognise the numbers 0-20. They use number lines and practical resources to support calculation and teachers *demonstrate* the use of the number line. Use Numicon as a concrete material to support learning of methods. By the end of Reception, all children should be able to add two single digit numbers together (with objects). By the end of Reception, all children should be able to count reliably with numbers from 0-20 and order them.	Children will engage in a variety of counting songs and rhymes and practical activities related to subtraction. In practical activities and through discussion they will begin to use the vocabulary associated with subtraction. They will find one less than a given number. Using quantities and objects, they will be able to subtract two single digit numbers. They use number lines and practical resources to support calculation. Teachers *demonstrate* the use of the number line. Use Numicon and other concrete materials to support learning of methods. 	Children will engage in a wide variety of songs and rhymes, games and activities related to multiplication. In practical activities and through discussion they will begin to solve problems involving doubling. eg: 'Three apples for you and thee apples for me. How many apples altogether?'  They will work on practical problem solving activities involving equal sets or groups.  Counting in multiples of 2's, 5's and 10's is one of the Early Learning Goals.	Children will engage in a wide variety of songs and rhymes, games and activities. In practical activities and through discussion they will begin to solve problems involving halving and sharing. Children will understand equal groups and share items out in play and problem solving. eg: Share the apples between two people. 'Half of the apples for you and half of the apples for me' 'How many will each person have?' 

Y1	ADDITION	SUBTRACTION	MULTIPLICATION	DIVISION
NWLJDS CALCULATIONS POLICY (FEB 2017)	The children are taught a range of methods. Children are given skills to be able to use higher / bigger numbers. They use number lines to count on in ones. The children also use fingers, cubes and other concrete objects such as Numicon. eg: 7 + 4  Children are taught mental strategies for addition, such as counting on in their heads. The children are taught the number bonds up to, and within 20. Children write number sentences in a linear way eg: 4 + 15 = 19 The column method is not used. The children need to be able to spell the numbers eg twelve.	All children learn how to subtract one-digit and two-digit numbers within 20, including zero. The children can use the number bonds to solve missing number problems eg: 18 - __ = 15 eg: 'Put your finger on the 11 and count back 7' 11 – 7 (Counting back)  The difference between 7 and 11 (Counting up)  The children also use fingers, cubes and other concrete objects such as Numicon. Sometimes they will use cubes or pictures to see the difference. 	All children learn how to solve one-step problems involving multiplication by calculating the answer using concrete objects, pictorial representations and arrays, sometimes with the support of the teacher. Children use repeated addition to work out the sum. eg: 8x5  Children learn how to count in multiples of 2's, 5's and 10's to the 10th multiple.   eg: 'Five pairs of socks. How many socks altogether? 2, 4, 6, 8, 10'	The children start with practical sharing using a variety of resources. They will share objects into equal groups in a variety of situations. They begin to use the vocabulary associated with division in practical contexts. 'Share these eight apples between two children. How many apples will each child have?'  Children learn how to divide in multiples of 2's, 5's and 10's to the 10th multiple.

Y2	ADDITION	SUBTRACTION	MULTIPLICATION	DIVISION
NWLJDS CALCULATIONS POLICY (FEB 2017)	Children are taught to add numbers using concrete objects, pictorial representations and mentally. Number lines, hundred grids, counters and partitioning are used. Children should be able to add numbers to give a total up to 100. They are taught to add a 2 digit number and ones; a 2-digit number and tens or three one-digit numbers. eg: 23 + 5 = 28; 28 + 30 = 58; 1 + 6 + 5 = 12 Calculations are set out horizontally. Children will begin to use 'empty number lines' themselves starting with the larger number and counting on. 48 + 36 = 84  When adding larger numbers, it is less efficient to count on. Partitioning into hundreds, tens and ones, then adding to form partial sums and recombining leads to standard algorithm. Concrete objects are used eg: Numicon and/or pictorial representations.	Number lines, hundred square grids, counters and other materials are used. The children partition the number. To do 84 – 26 the children would find 84 on a number line. They would then make 2 jumps (first to 74, second to 64) then depending on the child; some will make one jump of 4, then a jump of 2; other children would be able to manage one jump of 6. Consolidation of finding the difference together with counting back.  Teach this together with finding the difference by counting on. 74 – 27 = 47  Numicon is used as a concrete material to support learning of methods.	The children are taught how to use arrays, repeated addition and then multiplication. They use counters and a number line. Children should be able to model a multiplication calculation using an array.  eg: 'Five groups of two faces. How many faces altogether? 2,4,6,8,10 Two groups of five faces. How many faces altogether? 5, 10' Children will develop their understanding of multiplication and use jottings to support calculation: Repeated addition can be shown easily on a number line:  3 times 5 is 5 + 5 + 5 = 15 or 3 lots of 5 or 5 x3 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 are shown how to use jottings to share in equal groups. They use counters and a number line. eg: 12 ÷ 3 = 4  They understand sharing and grouping. eg: 6 ÷ 2 can be modelled as: Sharing – 6 sweets are shared between 2 people. How many do they have each?  Grouping – There are 6 sweets. How many people can have 2 each? (How many 2's make 6?)  Using symbols to stand for unknown numbers to complete equations using inverse operations. ☐ ÷ 2 = 4 20 ÷ △ = 4 ☐ ÷ △ = 4

Y3	ADDITION	SUBTRACTION	MULTIPLICATION	DIVISION
NWLJDS CALCULATIONS POLICY (FEB 2017)	Children being taught addition using mental maths and pencil and paper procedures. All children should be able to add numbers up to 4 digits with carrying. They are putting the number they are carrying at the top. Children will use concrete materials, including Dienes, to model this process.  Using similar methods, children will be able to add several numbers with different numbers of digits. eg: 1 1 3 5 6 + 2 7 9 6 3 5	Children are being taught mental subtraction and columnar methods. All children should be able to subtract numbers up to 4 digits. Concrete materials are used to support: Partitioning – demonstrated using Numicon and Dienes. Decomposition – demonstrated using Dienes. eg: When solving the calculation 49 - 23, children should know that 23 is what is being subtracted from 49. 49 = 40 + 9 - 23 20 + 3 20 + 6 = 26 This transition between not borrowing and beginning to borrow needs careful teaching and use of concrete materials so that it is known and can be used by the child. This will help them lead into column subtraction with borrowing. eg: 8 1 948 -263 685	By the end of the year, children will know the 2, 3, 4, 5, 8 and 10 times tables. Children should be able to model a multiplication calculation using an array.  9 x 4 = 36 9 x 4 = 36 The use of arrays is important and can they be used alongside partitioning as a way of recording calculations. This may need to be something which is used through Y3 and into Y4 so that children really understand why they are partitioning numbers. eg: 46 x 8 = (40 x 8) + (6 x 8) = 320 + 48 = 368 This leads to the short written method. eg: 46 x 8 48 + 320 368 Children should be able to describe what they are doing by referring to the value of the digits. Say “40 x 7” not “4 x 7”	Children begin division by sharing, using concrete resource such as cubes to show this relationship eg: 12 ÷ 3 = 4  This leads on to the children using the short division method (bus stop method) to solve division problems without remainders. eg: 98 ÷ 7 = 14 1 4 7) 9 2 8

Y4	ADDITION	SUBTRACTION	MULTIPLICATION	DIVISION
NWLJDS CALCULATIONS POLICY (FEB 2017)	All children should be able to add numbers up to 5 digits with carrying using the formal written method (columnar addition). This is extended to decimals in the context of money (vertically) towards the end of the year. eg: 1 1 2358.3 +7249.4 9607.7 They can also add up several three digit numbers. eg: 2 2 1 375 982 647 + 891 2895 Using similar methods, children will begin to add two or more three-digit sums of money, with or without adjustment from the pence to the pounds, knowing that the decimal points should line up under each other, particularly when adding or subtracting mixed amounts. eg: £3.59 + 78p.	All children should be able to subtract numbers up to 5 digits with borrowing using the formal written method (columnar subtraction). When children are doing subtraction mentally, they find the difference by counting up. They use the decomposition method. It is explained through place value that when you are borrowing, you are borrowing 10 not 1. eg: $^{2}\not{3}\ ^{11}\not{2}\ ^{1}7$ - 49 278 Using this method, children should be able to find the difference between two three-digit sums of money, with or without 'adjustment' from the pence to the pounds, knowing that decimal points should line up under each other. eg: £ $^{6}\not{7}$. $^{14}\not{5}\ ^{1}0$ - £ 2 . 9 9 £ 4 . 5 1	By the end of the year, children will know all the times tables up to 12 x 12. All children should be using the formal short multiplication method. eg: 796 x 7 42 630 + 4900 5572 Children should be able to describe what they are doing by referring to the value of the digits. "6 x 7", "90 x 7" and "700 x 7" Some children may be introduced to the expanded method of multiplication. eg: 96 x 17 42 630 60 + 900 1632 1 1 This may lead them into the long method of multiplication. eg: 96 x 17 6 ^{4}7 2 + 9 6 **0** 1 6 3 2 1 1 Great emphasis is placed on remembering to put in the '0' when multiplying the 10's column.	Children should be able to divide a two-digit or three-digit number by a one-digit number using the short division method. eg: 1 4 4 r1 4)$5^{1}7^{1}7$ Any remainders should be shown as integers ie: 14 remainder 2 or 14 r2 Children may move onto dividing a two-digit or three-digit number by a two-digit number. eg: 0 4 1 r3 14)$5^{5}7^{1}7$

Y5	ADDITION	SUBTRACTION	MULTIPLICATION	DIVISION
NWLJDS CALCULATIONS POLICY (FEB 2017)	All children should be able to add numbers up to 6 digits (numbers up to one million) with carrying using the formal written method (columnar addition). This is extended to decimals. eg: $\begin{array}{r} {\scriptstyle 1\ 1\ \ 1\ \ 1} \\ 55976.28 \\ +\ \ 3480.73 \\ \hline 59457.01 \end{array}$ Using similar methods, children will add several numbers with different numbers of digits. They will also begin to add two or more decimal fractions with up to three digits and the same number of decimal places. They will also know that decimal points should line up under each other, particularly when adding mixed amounts, eg: 3.2 m + 280cm	All children should be able to subtract numbers up to 6 digits (numbers up to one million) with borrowing using the formal written method (columnar subtraction). This is extended to decimals. eg: $\begin{array}{r} {\scriptstyle 7\ \ 9\ \ 8\ \ 14\ \ 8\ \ 13} \\ 3\ \not{8}\ \not{10}\ \not{4}\ \not{9}\ .\ \not{4}\ 10 \\ +\ \ 6753.66 \\ \hline 31295.74 \end{array}$ Using similar methods, children will be able to subtract numbers with different numbers of digits. They will also begin to find the difference between two decimal fractions with up to three digits and the same number of decimal places. They will also know that decimal points should line up under each other, particularly when subtracting mixed amounts, eg: 1800cm – 12.7m	Some children may use the expanded method of multiplication. eg: 296 x 17 42 630 1400 60 900 + 2000 5032 2 1 This will lead them into the long method of multiplication. eg: 2 9 6 x 1 7 $2^{6}0^{4}7\ 2$ + 2 9 6 **0** 5 0 3 2 1 1 Using similar methods, children will be able to multiply decimals, using numbers with differing decimals places.	By the end of the year children will know how to solve short and long division calculations. At the beginning of the year, remainders are expressed as a remainder. During the course of the year they will convert this to a fraction and then to a decimal. eg: 16r12 24)396 or 16r12 24)396 - 24 156 - 144 12 This becomes 16 r $^{12}/_{24}$, which becomes 16.5

Y6	ADDITION	SUBTRACTION	MULTIPLICATION	DIVISION
NWLJDS CALCULATIONS POLICY (FEB 2017)	All children should be able to add numbers with any number of digits, with carrying using the formal written method (columnar addition). This includes decimals. eg: 1 1 1 1 5 5 9 7 6 . 2 8 + 3 4 8 0 . 7 3 5 9 4 5 7 . 0 1 The formal method is extended to include problem solving. Using similar methods, children will add several numbers with different numbers of digits. They will also begin to add two or more decimal fractions with up to four digits and any number of decimal places. They will also know that decimal points should line up under each other, particularly when adding mixed amounts, eg: 3.2 + 7.113 + 2.79	All children should be able to subtract numbers with any number of digits, with borrowing using the formal written method (columnar subtraction). This is extended to decimals. eg: 3 $^{7}\not{8}$ $^{9}\not{1}\not{0}$ ^{1}4 $^{8}\not{9}$. $^{13}\not{4}$ ^{1}0 + 6 7 5 3 . 6 6 3 1 2 9 5 . 7 4 Using similar methods, children will be able to subtract numbers with different numbers of digits. They will also begin to find the difference between two decimal fractions with up to four digits and any number of decimal places. They will also know that decimal points should line up under each other., particularly when subtracting mixed amounts, eg: 13.72 – 4.1 – 2.964	All children will continue to practise short multiplication and long multiplication with numbers of increasing size. eg: 1 2 9 6 x 1 7 5 ^{1}6 ^{4}4 ^{3}8 0 ^{2}9 ^{6}0 ^{4}7 2 **0** 1 2 9 6 **0 0** 2 2 6 8 0 0 1 1 1 1 Using similar methods, children will be able to multiply decimals, using numbers with differing decimals places. **Children who find this method difficult may use the standard expanded method of multiplication.**	All children will be able to divide numbers up to 4 digits by a 2 digit number using the formal written method of short division, interpreting remainders according to the context. eg: 16r12 24)396 All children will be able to divide numbers up to 4 digits by a 2 digit number using the formal written method of long division, and interpret remainders as fractions or decimals, or by rounding as appropriate to the context. eg: 16r12 24)396 - 24 156 - 144 12 These become 16 r $^{12}/_{24}$, which becomes 16.5, or rounded becomes 17

By the end of Year 6 we aim for the children to use mental methods (with jottings) when appropriate; but for calculations they cannot do in their heads, use an efficient formal written method accurately and with confidence.
All children should be fluent in the written methods for all four operations, including long multiplication and long division.