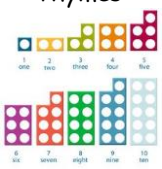
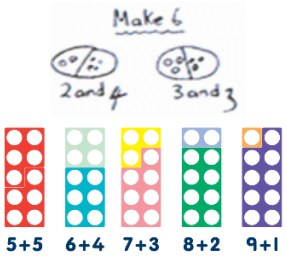
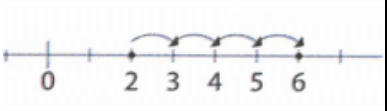
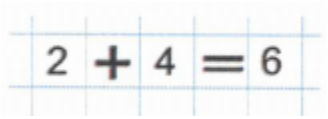
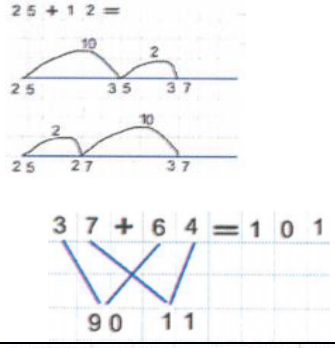
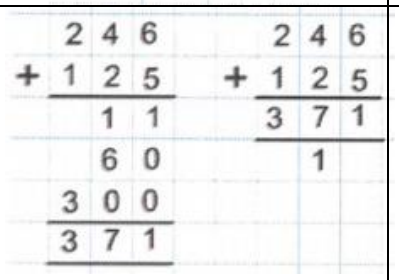
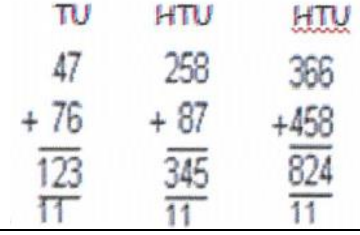
# Calculation Policy 2016

| | Addition | Illustration | Vocabulary |
|---|---|---|---|
| Pre-stage 1 | • Touch one thing and say the number name at the same time to count up to 3 or 4 things<br>• One to one correspondence<br>• Able to identify "one more" when given a number (up to 10)<br>• Order and recognise numbers to ten<br>• Count up to 10 objects | counting things or singing rhymes<br>  | Add, more |
| Stage 1 | • Practical activities and discussion to relate addition to combining two groups of objects together.<br>• Recognition that addition results in an answer that is bigger than the constituent numbers<br>• Order and recognise numbers 11 to 20<br>• Count up to 20 and beyond<br>• Able to identify "one more" when given a number (up to 20)<br>• Horizontal recordings of number sentences with pictorial jottings<br>• Know quick recall of number bonds within 10<br>• Use appropriate equipment to combine amounts |  | Add, more, and, make, sum, total, altogether, score, plus, equals, how many more make… |
| Stage 2 | • Understand addition can be done in any order (commutative)<br>• Adding a one digit number or a multiple of 10 to one-digit or a two-digit number<br>• Learn to add ten to any given number<br>• Understanding double as addition e.g. 7 + 7 = 14<br>• Use a given number line or a hundred square and count on<br>• Know quick recall of number bonds within 20<br>• Begin to partition (TU) using Dienes or other appropriate equipment<br>• Understand that subtraction is the reverse of addition e.g. 6 + 4 = 10 so 10 – 4 = 6<br>• To add three or more numbers together<br>• Begin to do addition calculations using units of measure |  <br>  | +, add, addition, sum, inverse, plus, how many, equals, total, partition, altogether, Dienes, how much more is… |
| Stage 3 | • Partition (HTU)<br>• Use hundred square to count on and begin to use shortcuts e.g. 25 + 12 (add 10 then 2, or add 2 then 10)<br>• Pupils begin to use own, empty number line<br>• Horizontal recording of partitioned calculation<br>• Know quick recall of number bonds within 50 and 100 |  | Add, plus, how many, altogether, total, place value, columns, partition, total, hundreds, tens, units, ones, counting up / on, rounding, carrying tens |
| Stage 4 | • Expanded method used<br>• Pupils develop on to condensed vertical (column) addition as an efficient written method to add two-digit and three-digit integers, carrying tens only<br>• Use Dienes equipment to model |  | Place value, columns, partition, total, hundreds, tens, units, ones, counting up / on, rounding, carrying tens, integers |
| Stage 5 | • Refine efficient methods to add two-digit and three digit numbers<br>• Use of HTU above numbers is essential 'carrying' under the line<br>• Addition involves different units of measure i.e. £, cm etc. |  | Carrying, hundreds |

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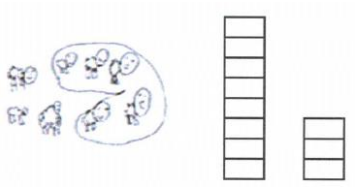
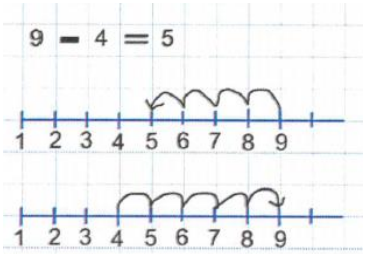
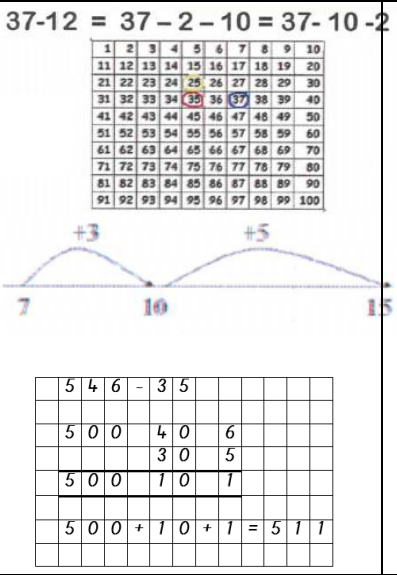
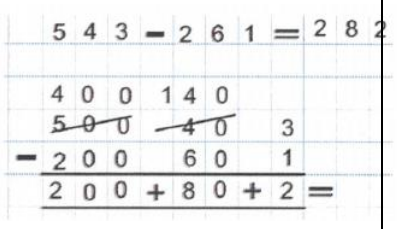
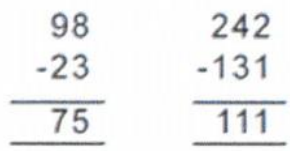
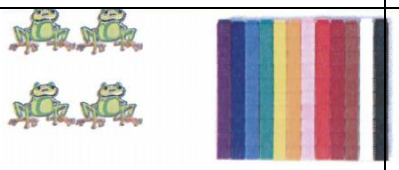
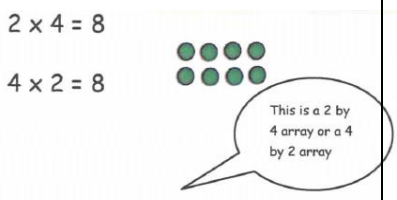
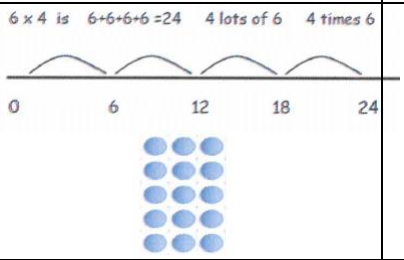
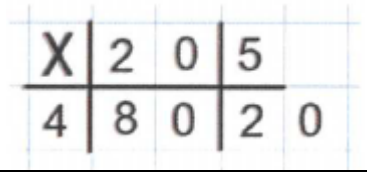
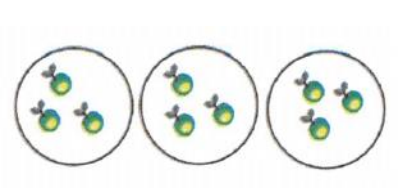
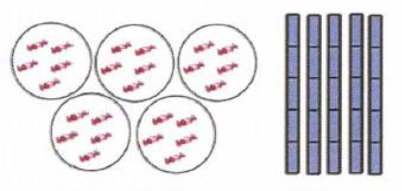
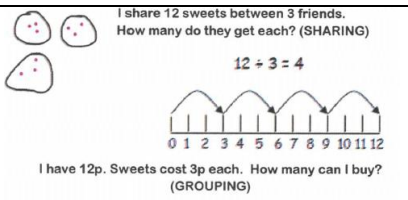
# Calculation Policy 2016

| | Subtraction | Illustration | Vocabulary |
|---|---|---|---|
| Pre-stage 1 | • Singing rhymes involving take-away<br>• Put numbers from ten in reverse order<br>• Take away from up to 10 objects<br>• Practical experience of removing objects from a given set |  | Take away, less |
| Stage 1 | • Subtraction taught through physical action.<br>• Taking away and 'how many are left' are solved through practical and physical activities<br>• Recognise that take away results in less than the original number<br>• Horizontal reading of number sentences with pictures e.g. 8 take away 5 leaves 3<br>• Number line used to count back<br>• Some informal recording<br>• Able to identify 'one less' than a given number |  | Take away, leave, How many are left over? How many have gone? One less, two less, ten less. How many fewer…is…than? |
| Stage 2 | • Start with single digits<br>• Subtraction understood firstly as taking-away<br>• 'Finding the difference' then taught<br>• Vocabulary and symbols used to describe actions and to record number sentences<br>• Practical methods and informal written methods used to subtract simple numbers<br>• Able to use number lines and hundred squares to find the difference (counting on/up or counting back)<br>• Understand subtraction cannot be done in any order (non-commutative) |  | Subtract, minus, How much less is …than…? =, equals, the difference between, forwards, backwards, count up, count back, count on |
| Stage 3 | • Use of hundred square to take away 10, 20, 30…<br>• Use of hundred square to take away – partition the number into tens and units<br>• Use of numbered or empty number lines to solve<br>• 'Find the difference' problems by counting on or counting back<br>15 – 8 = 7 15 – (5+3) = 7<br>• Expanded subtraction method used with partitioning (subtract the units then subtract the tens, then subtract the hundreds) |  | One hundred less, crossing the tens boundary |
| Stage 4 | • Using previous strategies to solve problems using larger (HTU) numbers, including multi-step problems<br>• Horizontal recording of number sentences<br>• Expanded subtraction method used with partitioning (subtract the units then subtract the tens, then subtract the hundreds)<br>• Exchanging (moving between columns) |  | Exchange, crossing the hundreds barrier, hundreds, tens, units, ones |
| Stage 5 | • Use of vertical subtraction (unpartitioned numbers and no exchanging)<br>• Understand and use inverse operation to check |  | Decrease, inverse |

# Calculation Policy 2016

| | Multiplication | Illustration | Vocabulary |
|---|---|---|---|
| Stage 1 | • Double a number (use objects)<br>• Counting in tens<br>• Dienes blocks and cubes or alternative apparatus<br>• Bundles of ten<br>• Begin to understand repeated addition as a means of multiplication |  | Equal, double, group of, lots of |
| Stage 2 | • Understand multiplication as repeated addition<br>• Introduction of 'x' sign<br>• Counting in 2s, 5s and 10s<br>• 'Groups of' jottings are recorded pictorially<br>• A more formal array is recorded<br>• Calculations involve 2s, 5s 10s times tables<br>• Understand multiplication can be done in any order (commutative) (i.e. 5 x 2 = 2 x 5 = 10) |  | Multiply, multiplication, multiplied by, array, groups of, lots or, product |
| Stage 3 | • Number sentences recorded 3x5 = 15<br>• Further use of pictorial arrays<br>• Number line using repeated addition<br>• Know 2x, 5x and 10x tables |  | Once, twice, three times<br>Repeated addition<br>Row, column, product, times tables |
| Stage 4 | • Know all tables up to 12x tables<br>• Begin to partition and record single multiplication as a number sentence eg 25 x 4 = (20x4) + (5x4)<br>• Begin to use grid method to calculate TU x U |  | Times tables, grid method |

| | Division | Illustration | Vocabulary |
|---|---|---|---|
| Stage 1 | • Halve a number (using objects)<br>• Objects are shared out equally and objects within groups are counted<br>• Objects are shared out through practical activities<br>• Informal recordings will include jottings of pictorial groups<br>• Simple numbers are used (no remainders)<br>• Understand the difference between grouping and sharing |  | Half, halve, share, equal |
| Stage 2 | • Quarter a number (using objects)<br>• The division sign is introduced<br>• Objects / numbers are divided into equal groups using multiplication facts<br>• Arrays are used to understand number<br>• Informal written methods are used to record<br>• Understand division cannot be done in any order (non-commutative) |  | Division, divide, group, share, equal |
| Stage 3 | • Sharing /grouping taught as two aspects of division. Grouping is taught on a number line but sharing is taught using jottings<br>• Division (repeated subtraction) seen as the inverse of multiplication<br>• Use of numbered number line<br>• Write fractions 1/3, 1/4 2/4 and 3/4 of quantity<br>• Write simple fractions for example, 1/2 of 6 = 3 |  | Inverse, share equally, one each, two each, pairs, divide, divided by, lots of, groups of, jumps |