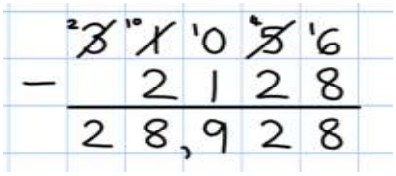
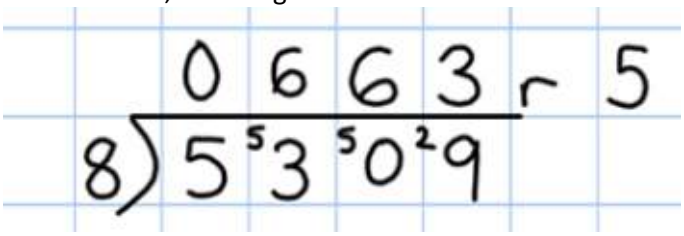
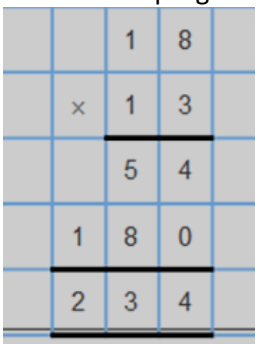
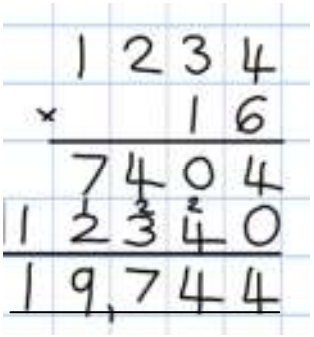
Lowfield Primary School

Calculation Policy

Addition	Subtraction
Year 5 (Step 28 –30)	
Numbers should exceed 4 digits. £321.23 + £254.45 £575.68	Compact column subtraction: Subtract with at least 4-digit numbers including money, measures, decimals. 66.144 -24.012 42.132 
Pupils should be able to add more than two values, carefully aligning place value columns. Empty decimal places can be filled with zero to show the place value in each column. Say “6 tenths add 7 tenths” to reinforce place value.	Add a “zero” in any empty decimal places to aid understanding of what to subtract in that column.
Continue to balance equations, work flexibly with numbers, use knowledge of inverse operations	
Resources: Dienes, arrow cards, numicon, place value counters	
Key vocabulary: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, plus, addition, column, tens boundary, hundreds boundary, increase, carry, expanded, compact, vertical, thousands, hundreds, digits, inverse & decimal places, decimal point, tenths, hundredths, thousandths	Key vocabulary: equal to, take, take away, less, minus, subtract, leaves, distance between, how many more, how many fewer / less than, most, least, count back , how many left, how much less is_? difference, count on, strategy, partition, tens, units exchange, decrease, hundreds, value, digit, inverse, tenths, hundredths, decimal point, decimal
Key skills for addition at Y5: • Add numbers mentally with increasingly large numbers, using and practising a range of mental strategies ie. add the nearest multiple of 10, 100, 100 and adjust; use near doubles, inverse, partitioning and re-combining; using number bonds. • Use rounding to check answers and accuracy. • Solve multi-step problems in contexts, deciding which operations and methods to use and why. • Read, write, order and compare numbers to at least 1 million and determine the value of each digit. • Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. • Add numbers with more than 4 digits using formal written method of columnar addition. • Understand the place value of tenths and hundredths and use this to align numbers with different numbers of decimal places.	**Key skills for subtraction at Y5:** • Subtract numbers mentally with increasingly large numbers . • Use rounding and estimation to check answers to calculations and determine, in a range of contexts, levels of accuracy . • Solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why. • Read, write, order and compare numbers to at least 1 million and determine the value of each digit. • Count forwards or backwards in steps of powers of 10 for any given number up to 1 million. • Interpret negative numbers in context, counting forwards and backwards with positive and negative integers through 0. • Round any number up to 1 million to the nearest 10, 100, 1000, 10 000 and 100 000.

Multiplication	Division
Year 5 (Step 28 –30)	
TU x TU (Long multiplication – multiplication by more than a single digit) **Consolidate grid method first** 72 x 38 Children will approximate first 72 x 38 is approximately 70 x 40 = 2800 x 70 2 30 | 2100 | 60 8 | 560 | 16 2100 + 560 + 60 + 16 2736 1	Divide up to 4 digits by a single digit, including those with remainders. Short division, including remainder answers:  The answer to 5309 ÷ 8 could be expressed as 663 and five eighths, 663 r 5, as a decimal, or rounded as appropriate to the problem involved. See Y6 for how to continue the short division to give a decimal answer for children who are confident.
Multiply up to 4-digits by 1 or 2 digits. As in Y4 and progress to:  18 x 3 on the 1st row. Put a zero in the ones column on the 2nd row. (Explain the place value purpose of this.) 18 x 10 on the 2nd row.	Short division with remainders: Now that pupils are introduced to examples that give rise to remainder answers, division needs to have a real life problem solving context, where pupils consider the meaning of the remainder and how to express it, ie. as a fraction, a decimal, or as a rounded number or value , depending upon the context of the problem.
 Ensure carried digits are small and placed below each line.	

Key vocabulary: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, _times as big as, once, twice, three times..., partition, grid method, total, multiple, product, inverse, square, factor, integer, decimal, short/long multiplication, 'carry'	**Key vocabulary:** groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, array, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times... partition, grid method, total, multiple, product, inverse, square, factor, integer, decimal, short / long multiplication, „carry", tenths, hundredths, decimal
Key skills for multiplication at Y5: • Identify multiples and factors, using knowledge of multiplication tables to 12x12. • Solve problems where larger numbers are decomposed into their factors • Multiply and divide integers and decimals by 10, 100 and 1000 • Recognise and use square and cube numbers and their notation • Solve problems involving combinations of operations, choosing and using calculations and methods appropriately.	**Key skills for division at Y5:** • Recall multiplication and division facts for all numbers up to 12 x 12 (as in Y4). • Multiply and divide numbers mentally, drawing upon known facts. • Identify multiples and factors, including finding all factor pairs of a number, and common factors of two number. • Solve problems involving multiplication and division where larger numbers are decomposed into their factors. • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. • Use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. • Work out whether a number up to 100 is prime, and recall prime numbers to 19. • Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and inter-pret remainders appropriately for the context • Use multiplication and division as inverses. • Interpret non-integer answers to division by expressing results in different ways according to the context, including with remainders, as fractions, as decimals or by rounding (e.g. 98 ÷ 4 = 24 r 2 = 241/2 = 24.5 ≈ 25). • Solve problems involving combinations of all four operations, including understanding of the equals sign, and including division for scaling by different fractions and problems involving simple rates.