Tudhoe Colliery Primary School

Year 6 Calculation Policy

Addition Year 6

End of Year Statements:

Perform mental calculations, including with mixed operations and large numbers.

Use their knowledge of the order of operations to carry out calculations involving the four operations.

Using their knowledge of the order of operations to carry out calculations involving the four operations.

Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Key Vocabulary:

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary, hundreds boundary , increase, vertical, 'carry', expanded, compact, thousands, hundreds, digits, inverse, *decimal places, decimal point, tenths, hundredths, thousandths*

Written Methods:

Children should continue to use the **Formal Column** method to add numbers of increasing complexity. This should include adding more than 3 numbers with different numbers of decimal places.

Key layout points:

- One number per square
- Numbers lined up accurately in columns
- Ruler used to draw lines

			8	4	3 .	0	0	0
+				9	8 .	8	7	0
		9	9	3	0 .	7	0	0
					9 .	2	9	5
1	0	8	8	1 .	8	6	5	
	1	1	2	1	1			

Decimal points should be aligned accurately and added in for whole numbers without decimal fractions.

0 should be used as a place value to make the calculation easier to understand.

Carried digits recorded underneath the line.

Children should continue to use the language of, *"7 hundredths add 9 hundredths makes 16 hundredths."* NOT, *"7 and 9 make 16."*

Children should continue to use their knowledge of rounding to help estimate their answers first and to check using the inverse calculation. This should also help deepen their understanding of the relationship between addition and subtraction.

Subtraction Year 6

End of Year Statements:

Perform mental calculations, including with mixed operations and large numbers.

Use their knowledge of the order of operations to carry out calculations involving the four operations.

Using their knowledge of the order of operations to carry out calculations involving the four operations.

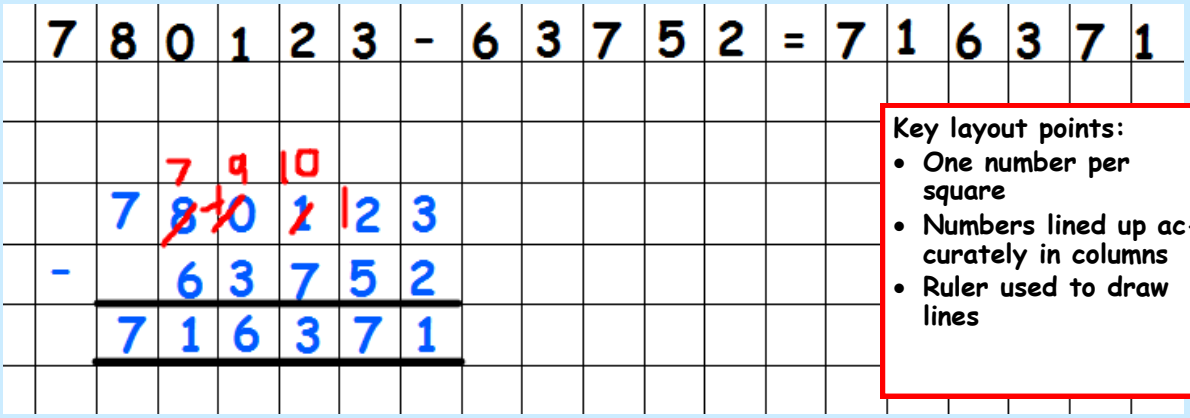
Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

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*

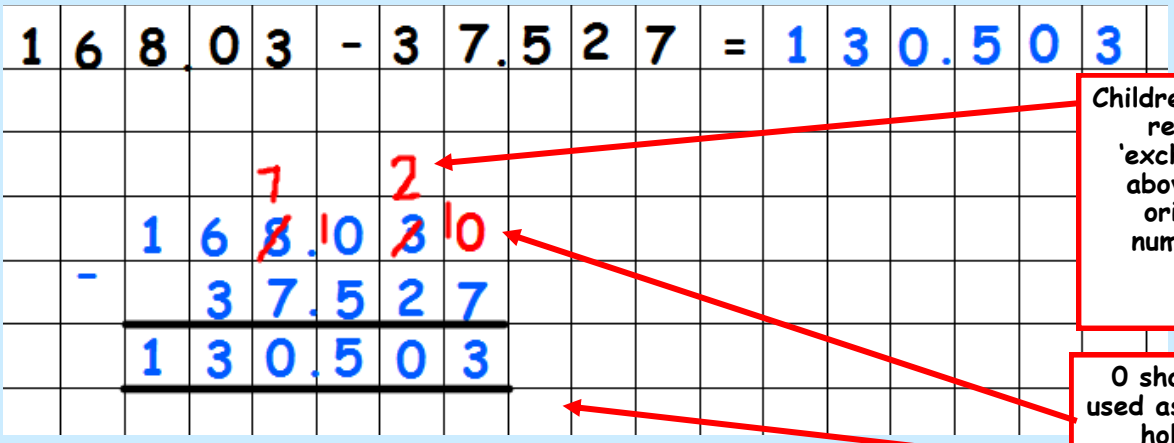
Written Methods:

Children should continue to use the **Compact Decomposition** method to add numbers of increasing complexity. This should include subtracting numbers with varying numbers of digits, with different numbers of decimal places.



Key layout points:

- One number per square
- Numbers lined up accurately in columns
- Ruler used to draw lines



Children should record 'exchanges' above the original numbers.

0 should be used as a place holder.

Children should continue to estimate their answers first and to check using the inverse calculation.

Decimal points should be lined up accurately.

Multiplication Year 6

End of Year Statements:

Perform mental calculations, including with mixed operations and large numbers.

Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the efficient written method of long multiplication.

Use their knowledge of the order of operations to carry out calculations involving the four operations.

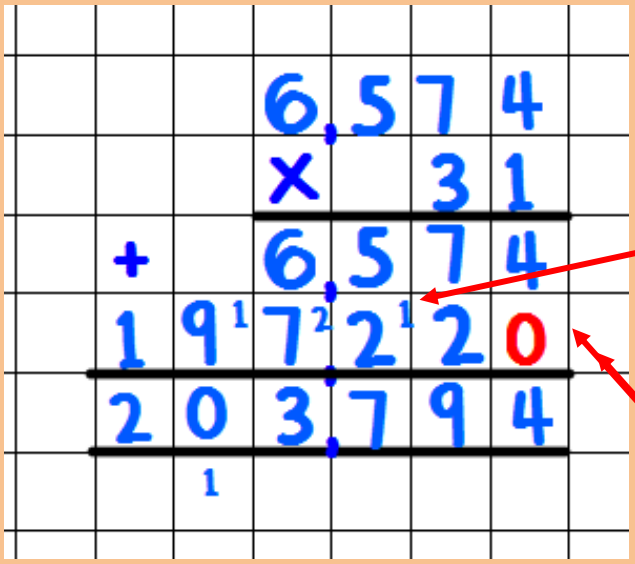
Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Key Vocabulary:

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times, _times as big as, once, twice, three times..., partition, grid method, multiple, product, tens, units, value, *inverse, square, factor, integer, decimal, short/long multiplication, 'carry'*

Written Methods:

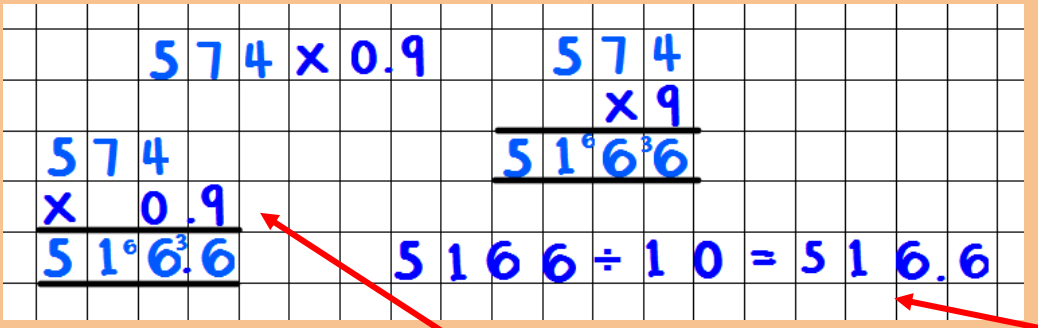
Children should continue to use **Long Multiplication** with larger numbers and decimal numbers.



The 'carried' tens should be recorded <u>above the line</u>. This is so that children do not confuse them when completing the addition part of the calculation.

Children should be encouraged to cover the digit they are not multiplying by to help avoid confusion.

Children will need reminding to use 0 straight away when multiplying by the tens digit.



Children will move on to multiplying by decimals. Children can do this in two ways:

Children should continue to <u>estimate</u> their answers first and to check using the <u>inverse calculation</u>.

Normal **Compact Short Multiplication**, ensuring place value columns are lined up accurately.

Multiplying out the decimal and adjusting after the calculation has been completed. <u>**Children must not be told they are 'getting rid of the decimal' or 'pretending it's not a decimal'.**</u>

Division Year 6

End of Year Statements:

Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.

Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to context.

Use their knowledge of the order of operations to carry out calculations involving the four operations.

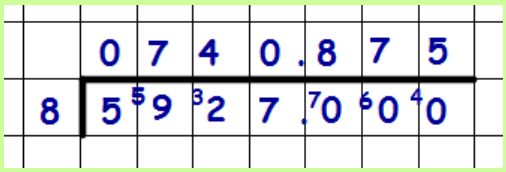
Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy

Key Vocabulary:

share, share equally, one each, two each…, group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, 'carry', remainder, multiple, divisible by, factor, *quotient, prime number, prime factors, composite number (non - prime)*

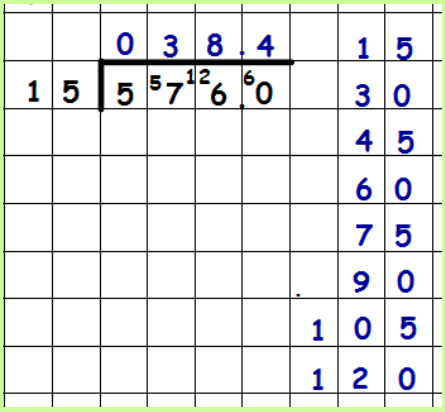
Written Methods:

Children should continue to use **Formal Short Division** with numbers with at least 4-digits.



Calculating a decimal remainder. Rather than just giving remainder 7 as the answer, a decimal point and 0 has been added after the original number and the remainder 'carried' over to the 0s. The calculation then continues until a suitable level of accuracy is reached.

Children should also start to use **Short Division** for dividing by two digit numbers.

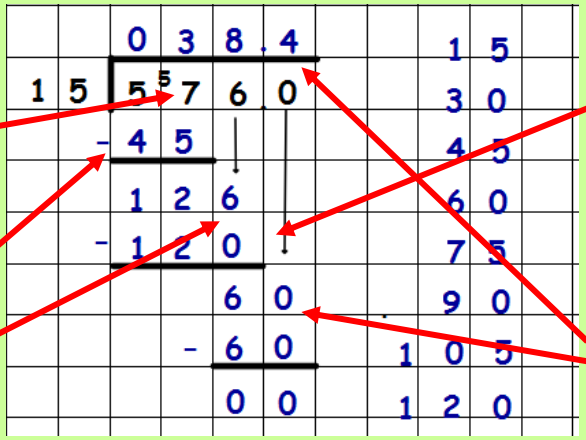


Children should continue to estimate their answers first and to check using the inverse calculation.

Children should be encouraged to start the calculation by jotting down a few multiples of the number to help support their calculations.

Once secure, children should move onto **Formal Long division**.

Children should be encouraged to start the calculation by jotting down a few multiples of the number to help support their calculations.



The numbers are 'carried along' like in short division until a number is made that the divisor 'goes into'.

The multiple is then subtracted.

The 6 is then 'brought down'. An arrow is used to record it.

The process then continues in the same way.

When a remainder is reached, 0 is used as a place holder. The decimal point remains in the 'answer' row and doesn't move down.