Calculation Policy

Haresfield C of E Primary School

HARESFIELD SCHOOL

NON : SEMPER : ALACRI

How we teach it.

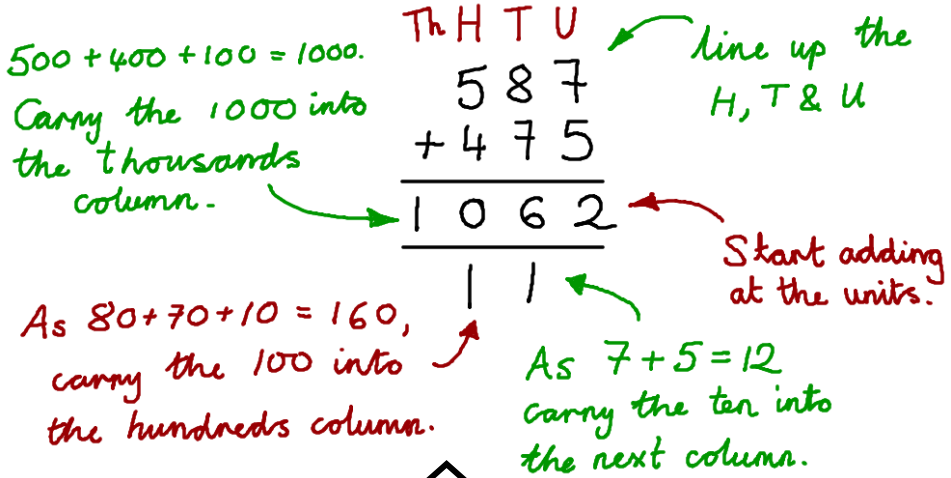
Written and mental calculation at Stage 5

Written Addition at Stage 5

Method:

Column Addition

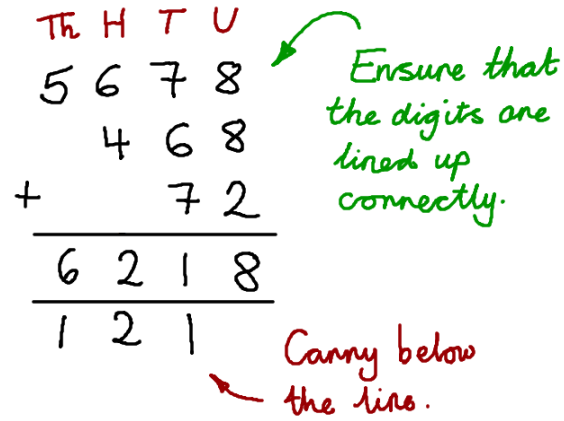
Children will be expected to become familiar with using formal methods of addition with and without carrying.



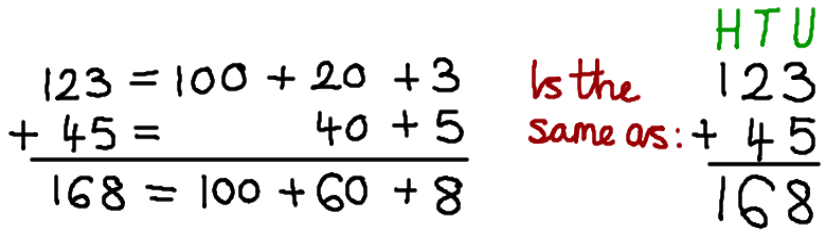
Leading to:

Column Addition.

By the end of Year 5 children should be comfortable with using column addition to add 4 digit numbers and several numbers with different numbers of digits at the same time.

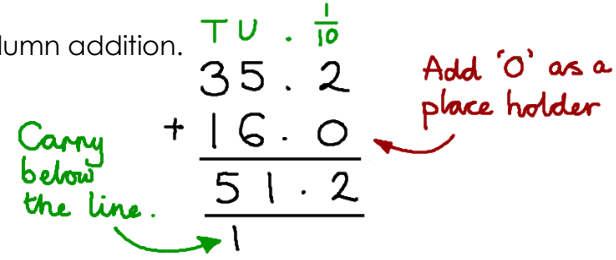


Strategies to support:



Next Steps:

Adding **decimals** using column addition.



Mental Addition at Stage 5

Children should be able to recall:

- Sums of decimals.
  E.g. 6.5 + 2.7
- Doubles of decimals.
  E.g. Double 3.4

- What must be added to any four digit number to make the next multiple of 1000.
  E.g. 4087 + ? = 5000

- What must be added to a decimal with units and tenths to make the next whole number.
  E.g. 7.2 + ? = 8

Working mentally, children should be able to:

- Add a pair of two digit numbers or three-digit multiples of 10.
  E.g. 38 + 86, 620 + 380

- Add a near multiple of 10 or 100 to any two-digit or three digit number.
  E.g. 235 + 198

- Add any pair of decimal fractions each with units and tenths.
  E.g. 5.7 + 2.5

Children should know when to:

- Count on in hundreds tens, ones and tenths.
- Partition: Add hundreds, tens or ones separately, then recombine.

- Add a multiple of 10 or 100 and adjust.
  E.g.235 + 198 = 235 + 200 - 2
- Partition: Double and adjust.

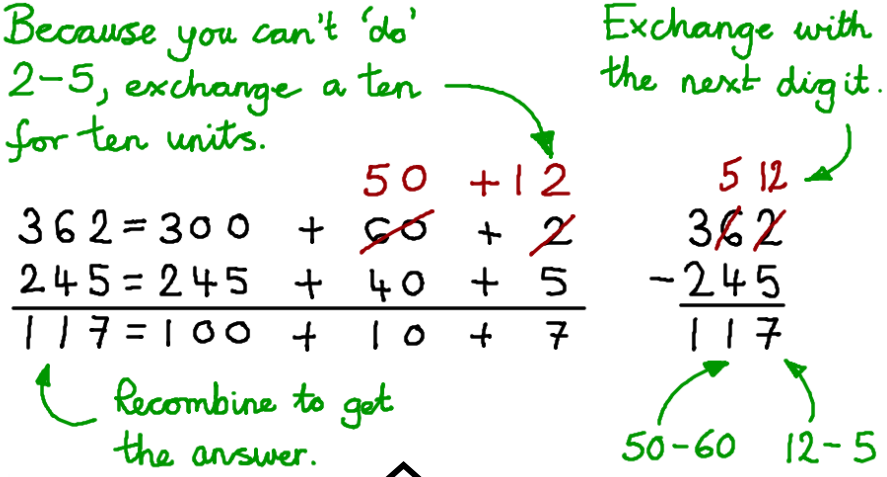
- Use knowledge of place value and related calculations.
  E.g. 6.3 + 4.8 using 63 + 48
- Partition: Count on in minutes and hours, bridging through 60.

Written Subtraction at Stage 5

Method:

The Expanded Method of Subtraction and Column Subtraction.

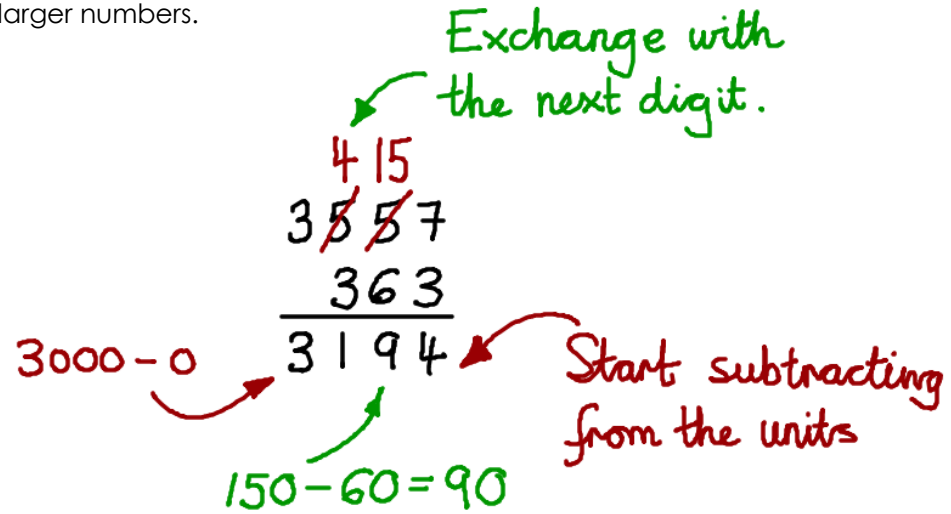
The expanded method of addition will be taught alongside Column Subtraction to allow children to see how each relates to the other.



Leading to:

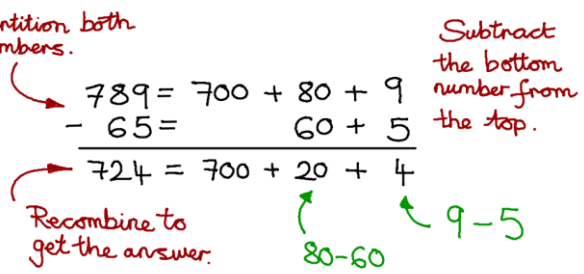
Column Subtraction.

Children will move on to using Column Subtraction on its own and with larger numbers.



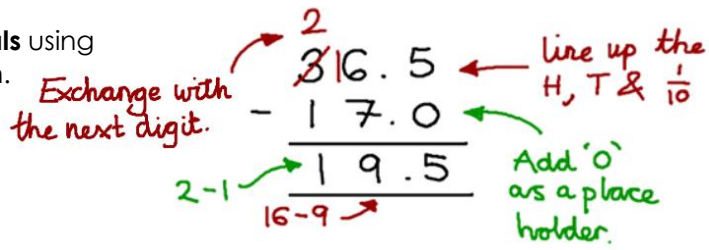
Strategies to support:

Practise using the expanded method of subtraction on its own and without borrowing.



Next Steps:

Subtracting **decimals** using Column Subtraction.



Mental Subtraction at Stage 5

Children should be able to recall:

- Differences of decimals.
  E.g. 7.8 - 1.3
- Halves of decimals.
  E.g. Half of 5.6

- What must be added to any four digit number to make the next multiple of 1000.
  E.g. 5000 - 4087 = ?

- What must be added to a decimal with units and tenths to make the next whole number.
  E.g. 8 - 7.2 = ?

Working mentally, children should be able to:

- Subtract pair of two digit numbers or three-digit multiples of 10.
  E.g. 620 - 380, 62 - 38

- Subtract a near multiple of 10 or 100 to any two-digit or three digit number.
  E.g. 235 - 198
- Find the difference between near multiples of 100 or 1000.
  E.g. 607 - 588, 6070 - 4087

- Subtract any pair of decimal fractions each with units and tenths.
  E.g. 5.7 - 2.5

Children should know when to:

- Count back in hundreds tens, ones and tenths.
- Subtract by counting up from the smaller to the larger number.

- Subtract a multiple of 10 or 100 and adjust.
  E.g. 280 - 98 = 280 - 100 + 2

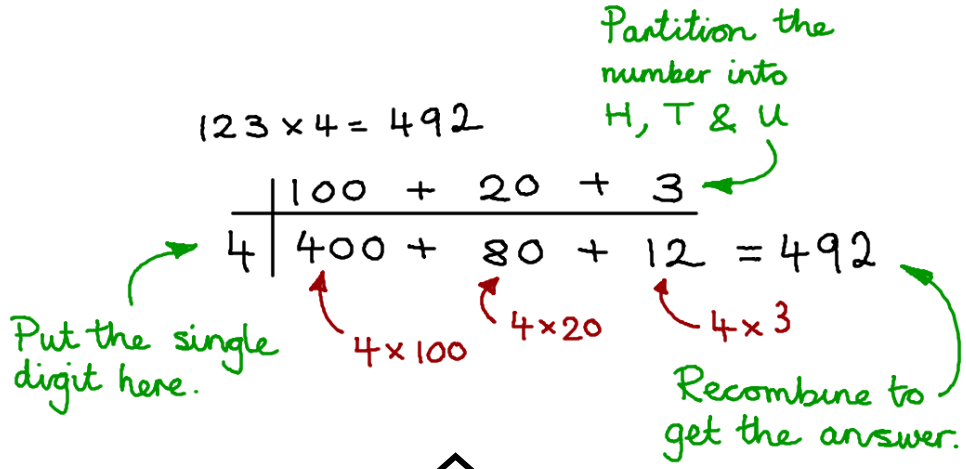
- Use knowledge of place value and related calculations.
  E.g. 6.3 - 4.8 using 63 -48
- Partition: Count back in minutes and hours, bridging through 60.

Written Multiplication at Stage 5

Method:

The Grid Method of Multiplication.

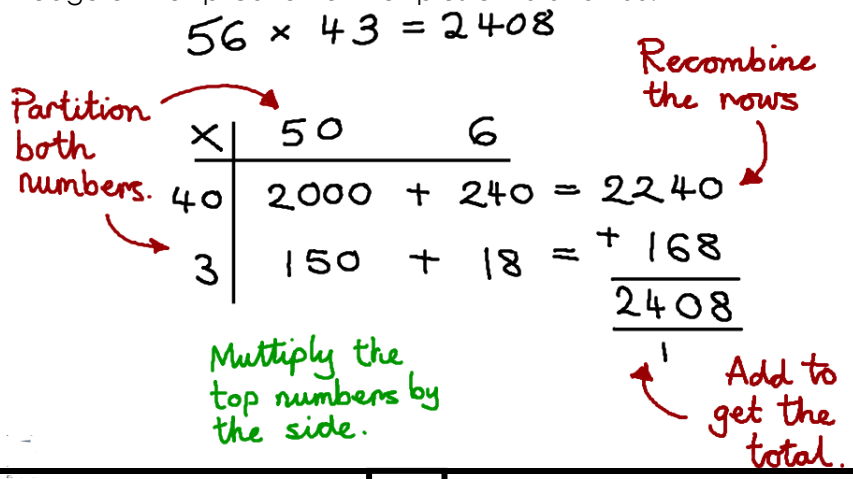
Children will continue to use the Grid Method of Multiplication when multiplying a single digit by a larger number.



Leading to:

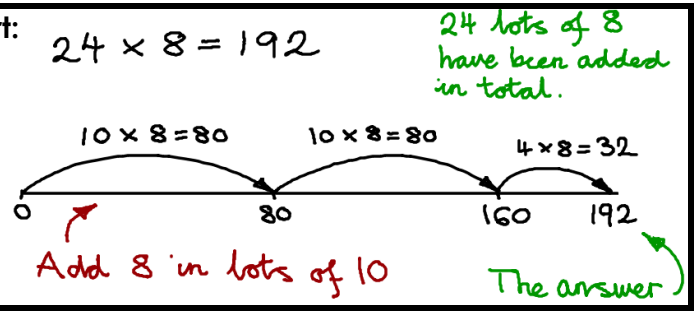
Multiplying larger numbers using the Grid Method.

Children will go on to multiply 2-digit by 2-digit numbers using the Grid Method. Children need to be secure in their place value and knowledge of multiplication of multiples of 10 and 100.



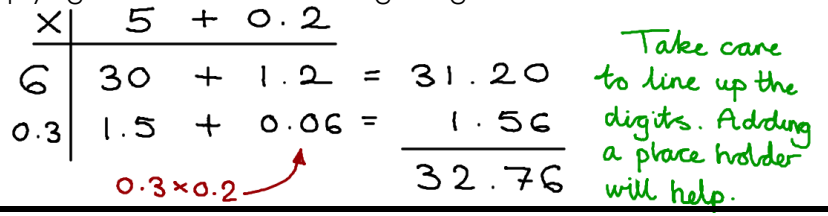
Strategies to support:

Using repeated addition on a number line.



Next Steps:

Multiplying **decimal numbers** using the grid method.



Mental Multiplication at Stage 5

Children should be able to recall:

- Squares to 10 x 10.

- Factor Pairs to 100.
  E.g. 30 has the factor pairs 1 x 30, 2 x 15, 3 x 10 and 5 x 6

Working mentally, children should be able to:

- Multiply two-digit numbers by 4 or 8.
  E.g. 26 x 4
- Multiply two-digit numbers by 5 or 20.
- Multiply by 25 or 50.

- Double three-digit multiples of 10 to 500.
- Multiply whole numbers and decimals by 10, 100 or 1000.
  E.g. 4.3 x 10, 0.75 x 100

- Multiply pairs of multiples of 10 and a multiple of 100 by a single-digit number.
  E.g. 60 x 30, 900 x 8

Children should know when to:

- Multiply by 4 or 8 by repeated doubling.
- Form an equivalent calculation.
  E.g. To multiply by 5, multiply by 10 then halve. To multiply by 20, double and then multiply by 10.

- Use knowledge of doubles and halves and understanding of place value.
  E.g. When multiplying by 50, multiply by 100 then divide by 2.
- Use knowledge of multiplication and place value when calculating with multiples of 10.
  E.g. 60 x 7 using 6 x 7

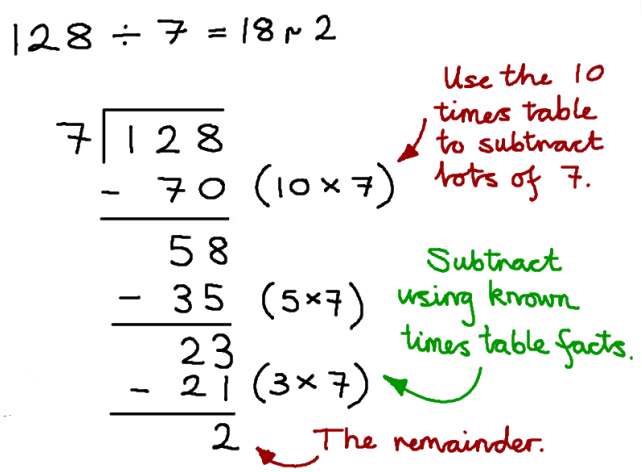
- Use understanding that when a number is multiplied by 10 or 100 its digits move one or two places relative to the decimal point and zero is used as a place holder.

Written Division at Stage 5

Method:

Chunking using times table facts.

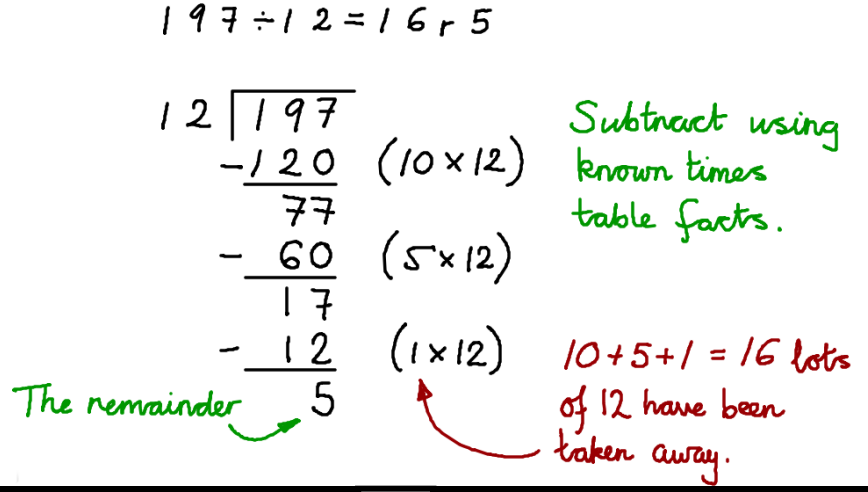
Children will continue to explore division as repeated subtraction. They will use their increasing knowledge of times tables to subtract in larger chunks.



Leading to:

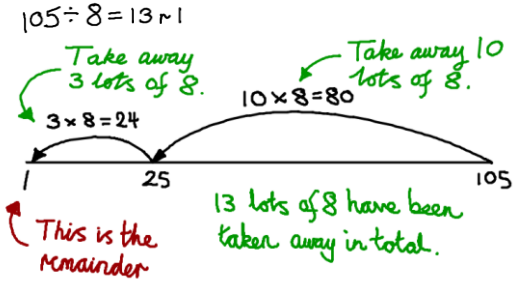
Chunking using times table facts and multiples of 10.

Using their knowledge of the 10 times table will allow children to divide larger numbers by two-digit numbers while reducing the number of steps.



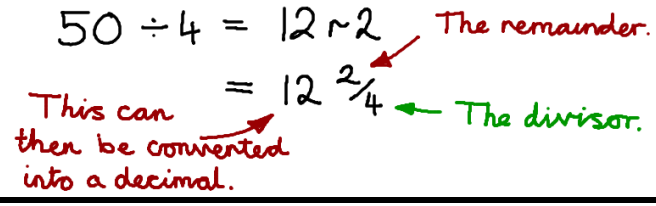
Strategies to support:

Using **repeated subtraction** on a number line.



Next Steps:

Expressing the remainder as a fraction.



Mental Division at Stage 5

Children should be able to recall:

- Division facts corresponding to tables up to 10 x 10 and the related unit fractions.
  E.g. 7 x 9 = 63 so one-ninth of 63 is 7 and one-seventh of 63 is 9.

- Percentage equivalents of one-half, one-quarter, three quarters, tenths and hundredths.

- Factor Pairs to 100 and corresponding division facts.
  E.g. 30 ÷ 5 = 6, 30 ÷ 6 = 5 using 5 x 6 = 30

Working mentally, children should be able to:

- Divide two-digit numbers by 4 or 8.
- Halve three-digit multiples of 10 to 1000.
  E.g. 760 ÷ 2

- Find the remainder after dividing a two-digit number by a single-digit number.
  E.g. 27 ÷ 4 = 6 r 3
- Divide whole numbers and decimals by 10, 100 or 1000.
- Divide a multiple of 10 by a single-digit number (whole number answers)
  E.g. 270 ÷ 3

- Find fractions of whole numbers or quantities.
  E.g. $^2/_3$ of 27, $^4/_5$ of 70 kg
- Find 50%, 25% or 10% of whole numbers of quantities.
  E.g. 25% of 20 kg, 10% of £10

Children should know when to:

- Divide by 4 or 8 by repeated halving.
- Use knowledge of division facts.
  E.g. when carrying out a division to find a remainder.

- Use understanding that when a number is divided by 10 or 100, its digits move one or two places to the right relative to the decimal point and zero is used as a place holder.

- Use knowledge of equivalence between fractions and percentages.
  E.g. To find 50%, 25% and 10%
- Use knowledge of division facts and understanding of place value.
  E.g. When calculating with multiples of 10.