Swavesey Primary School
Calculation Policy March 2017

‘The National Curriculum for mathematics aims to ensure that all pupils:

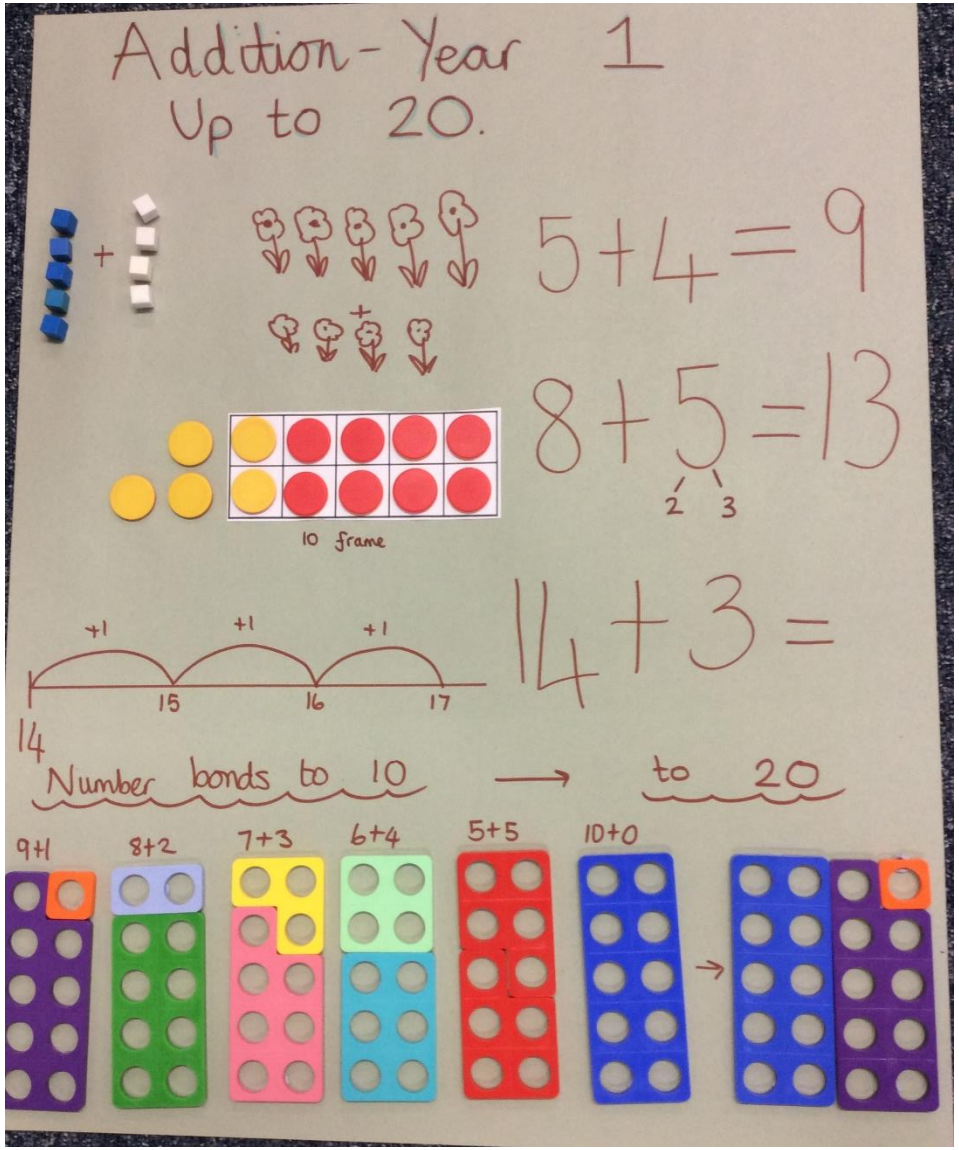
- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.’

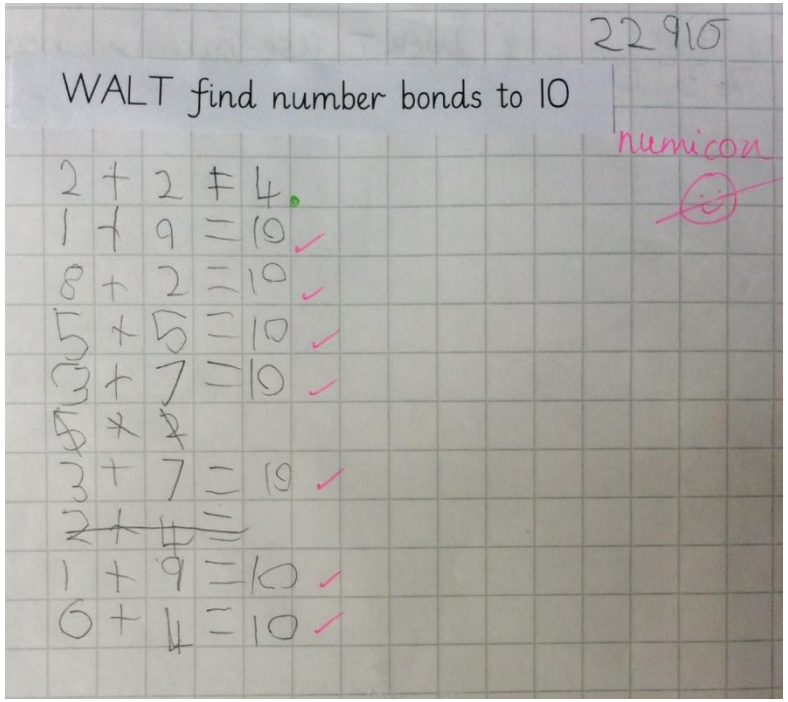
This policy outlines strategies used across the school for written calculation. The National Curriculum states that *‘by the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.’*

Addition- Year 1

Numbers up to 20 using resources to support.

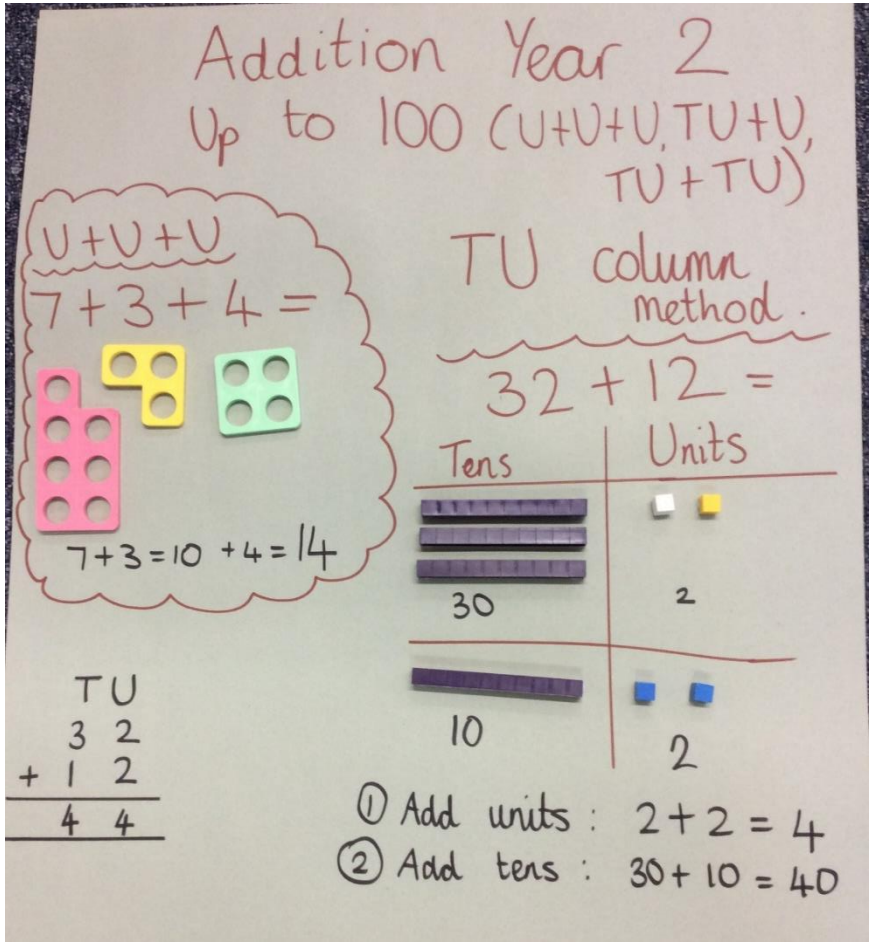
Year 1 is an opportunity for children to develop firm foundations of addition. Their conceptual understanding is heavily developed through the use of resources. They gain confidence in mental calculation in preparation for using more formal written methods efficiently in year 2.

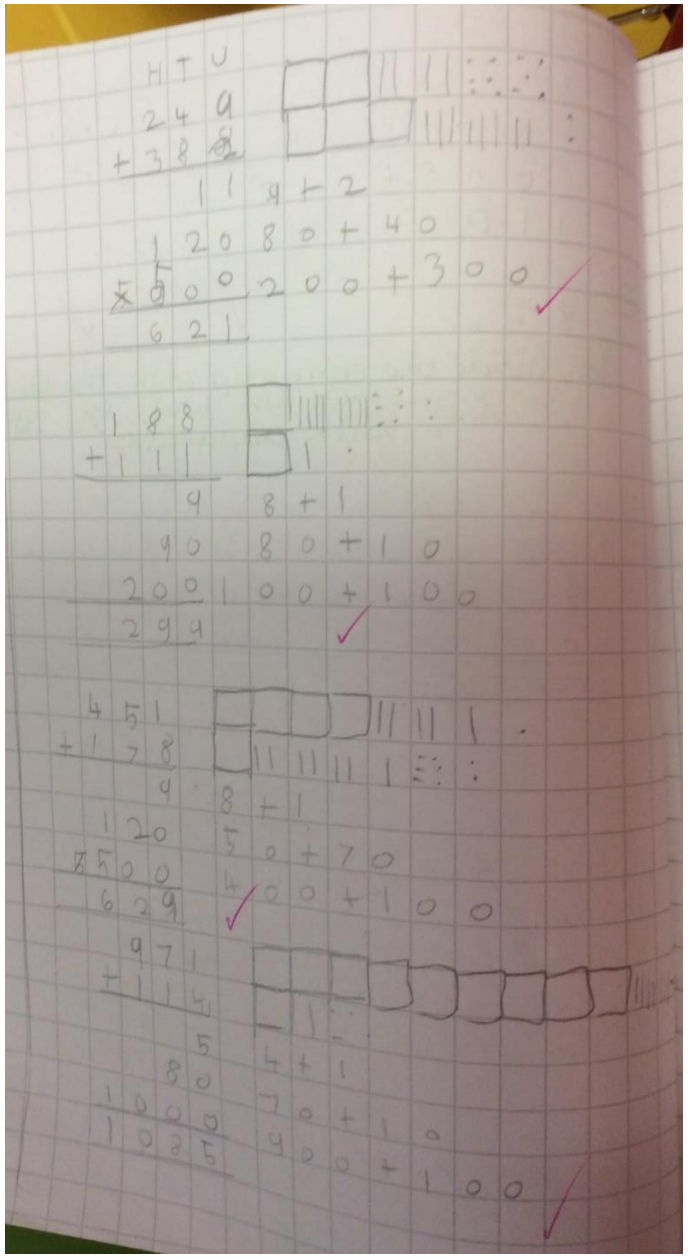




Addition- Year 2

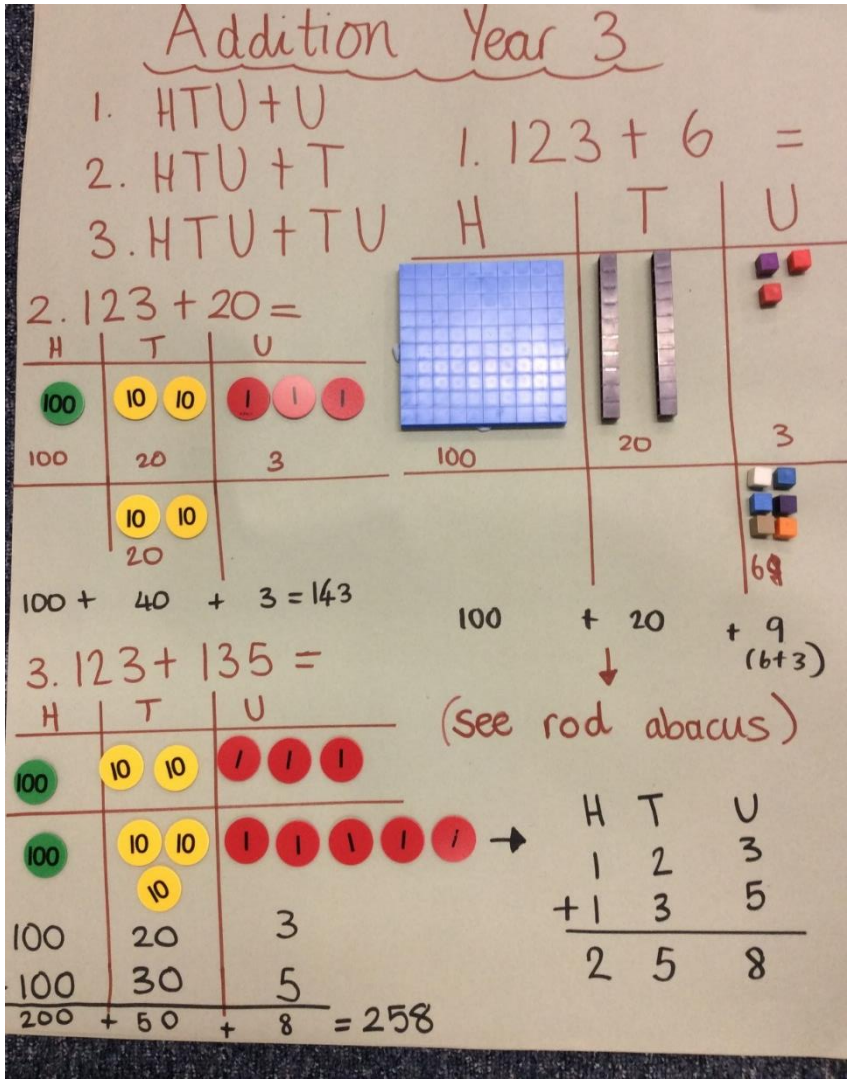
Addition of two digit numbers using resources moving towards column addition by the end of the year if secure. Children will use resources and jottings to gain an understanding of the process used for column addition followed by using the formal method if appropriate. Children will practically re-group (more than 10) using resources and may begin to express this as a written method.

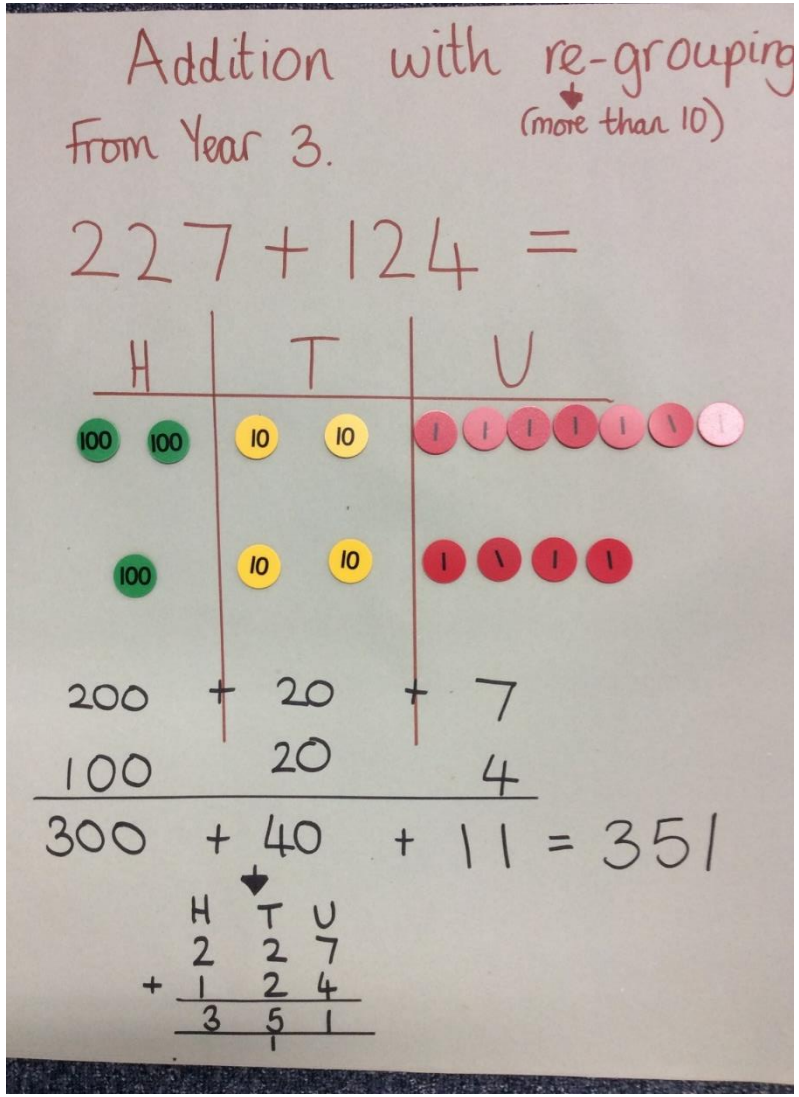




Addition- Year 3

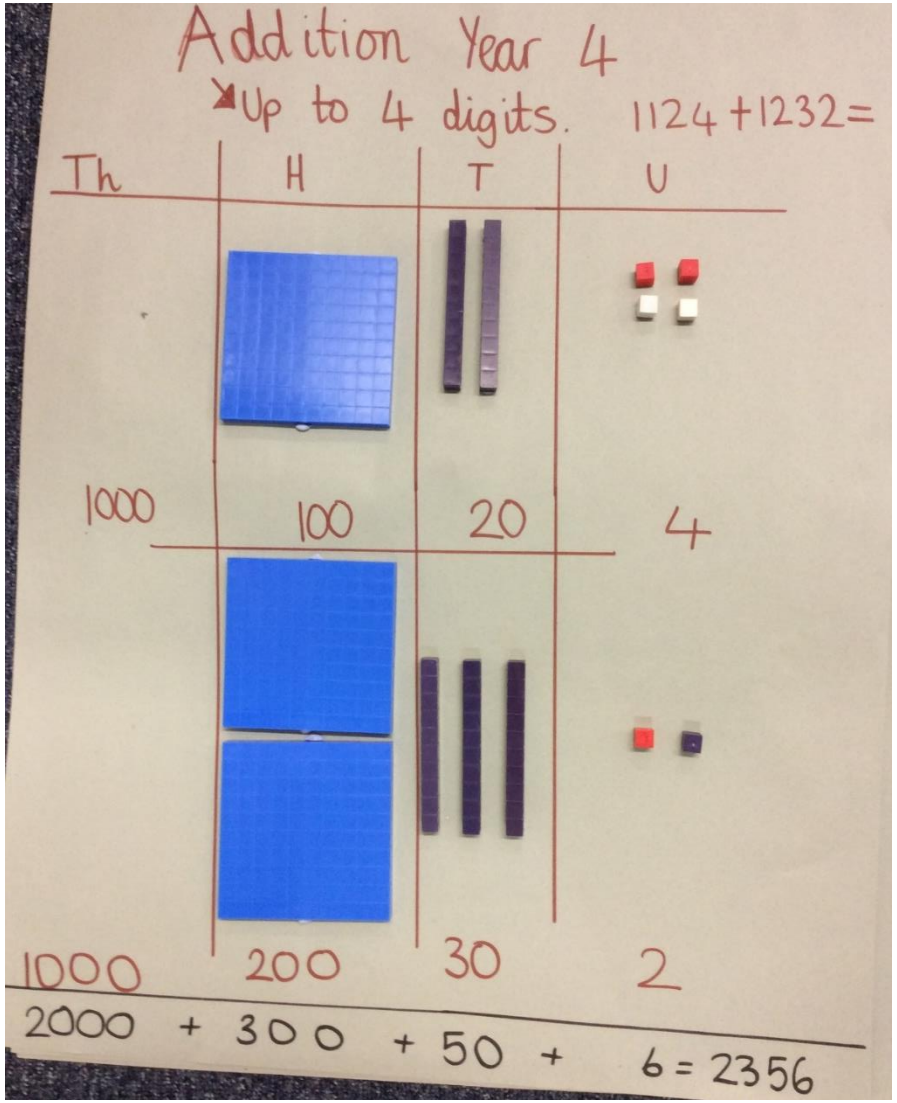
Addition of three digit numbers using resources to support column methods. Children will show re-grouping (more than 10) in their formal methods.

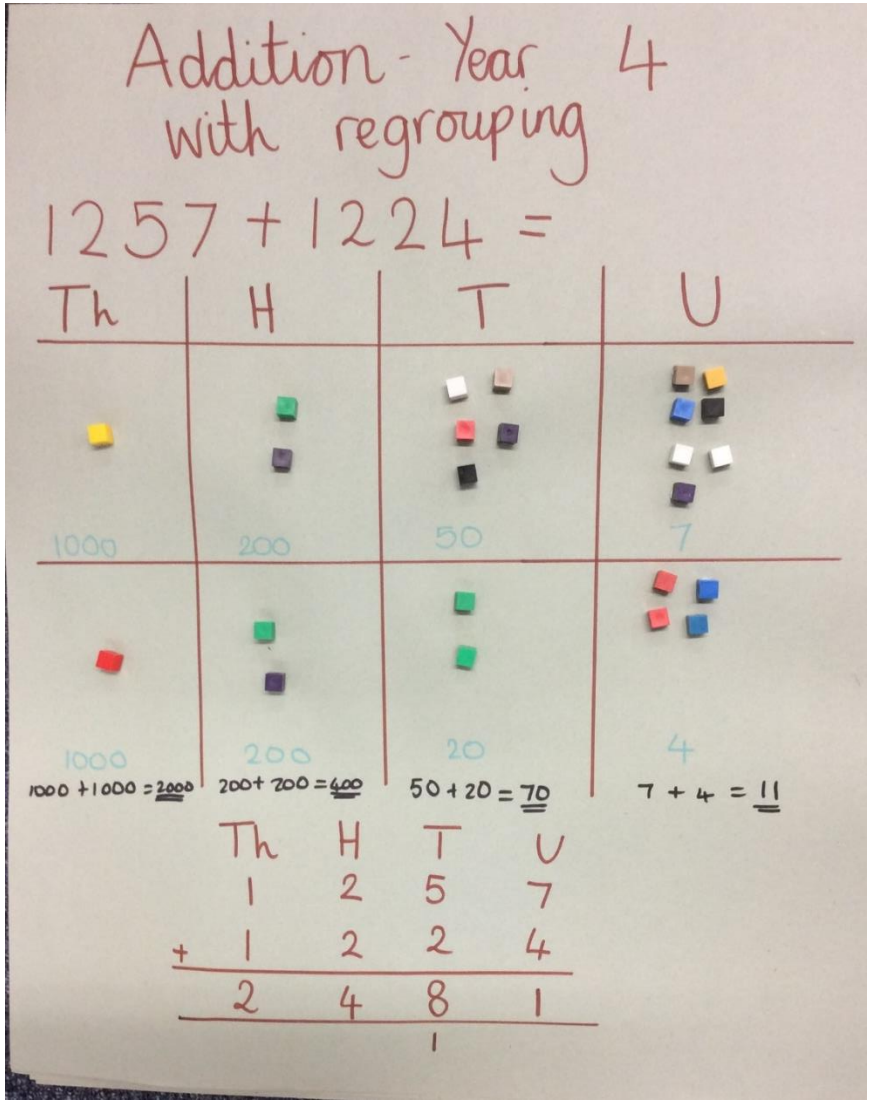




Addition- Year 4

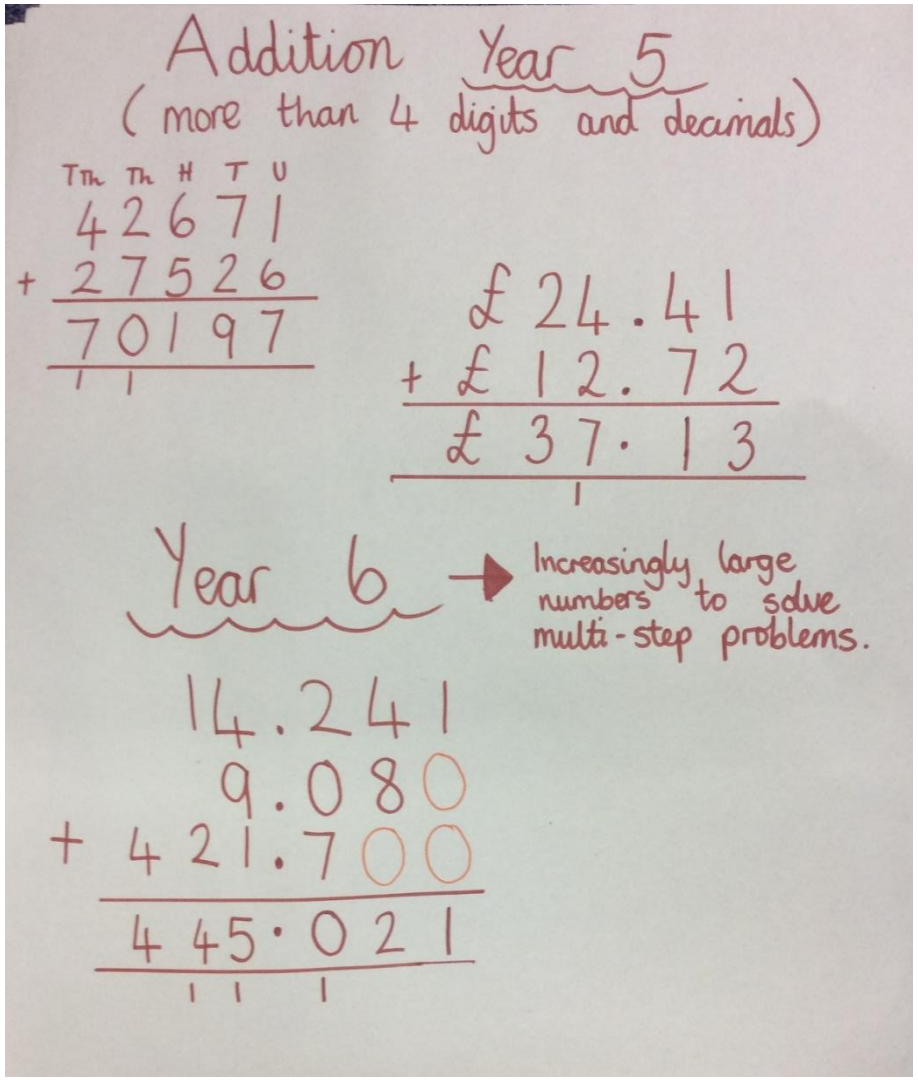
Addition of four digit numbers using column addition including re-grouping.





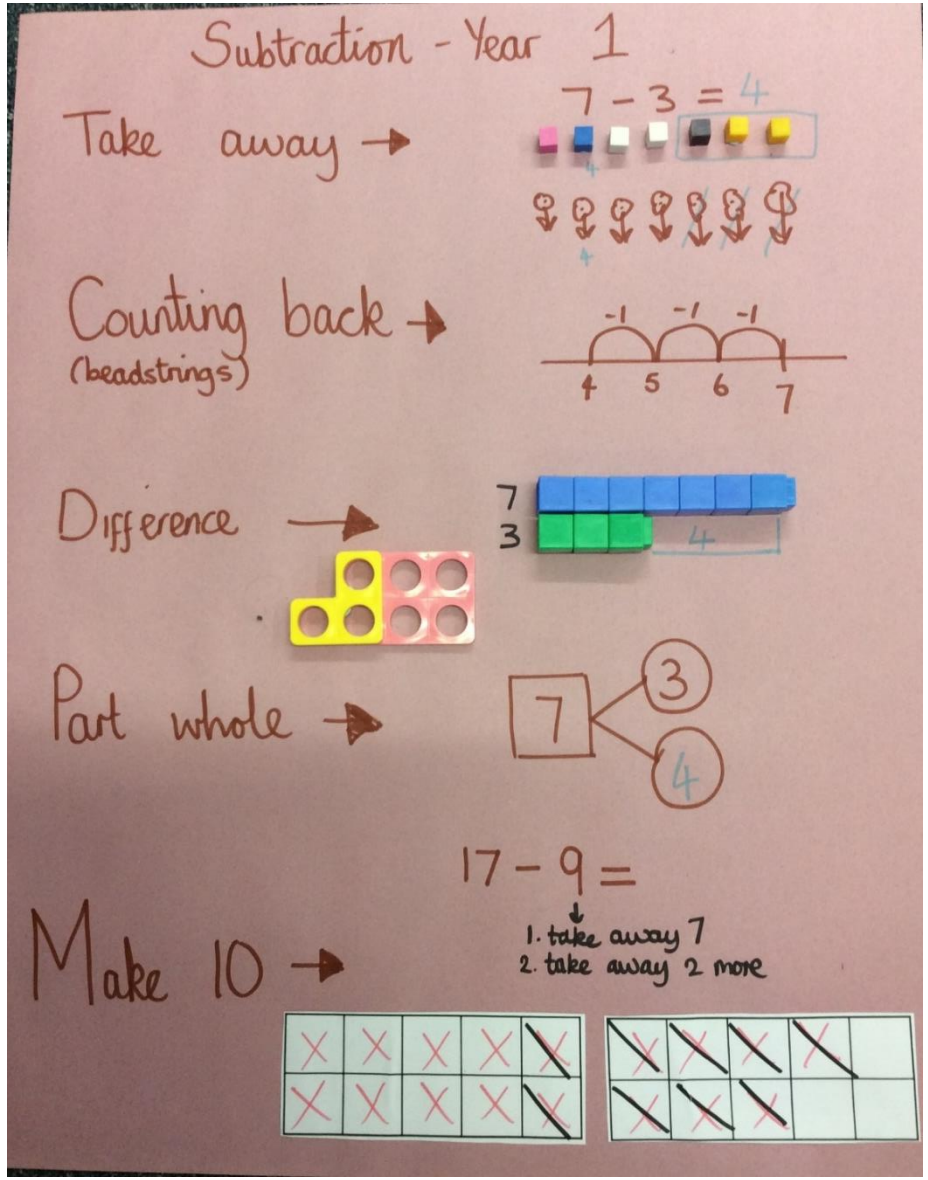
Addition- Year 5 and 6

Addition of number with more than 5 digits and decimals using formal column methods.
When adding decimal numbers, the decimal place must be moved down to the same position for the answer.



Year 6 children are expected to solve multi-step problems involved all four operations (+ - X ÷)

Subtraction-Year 1

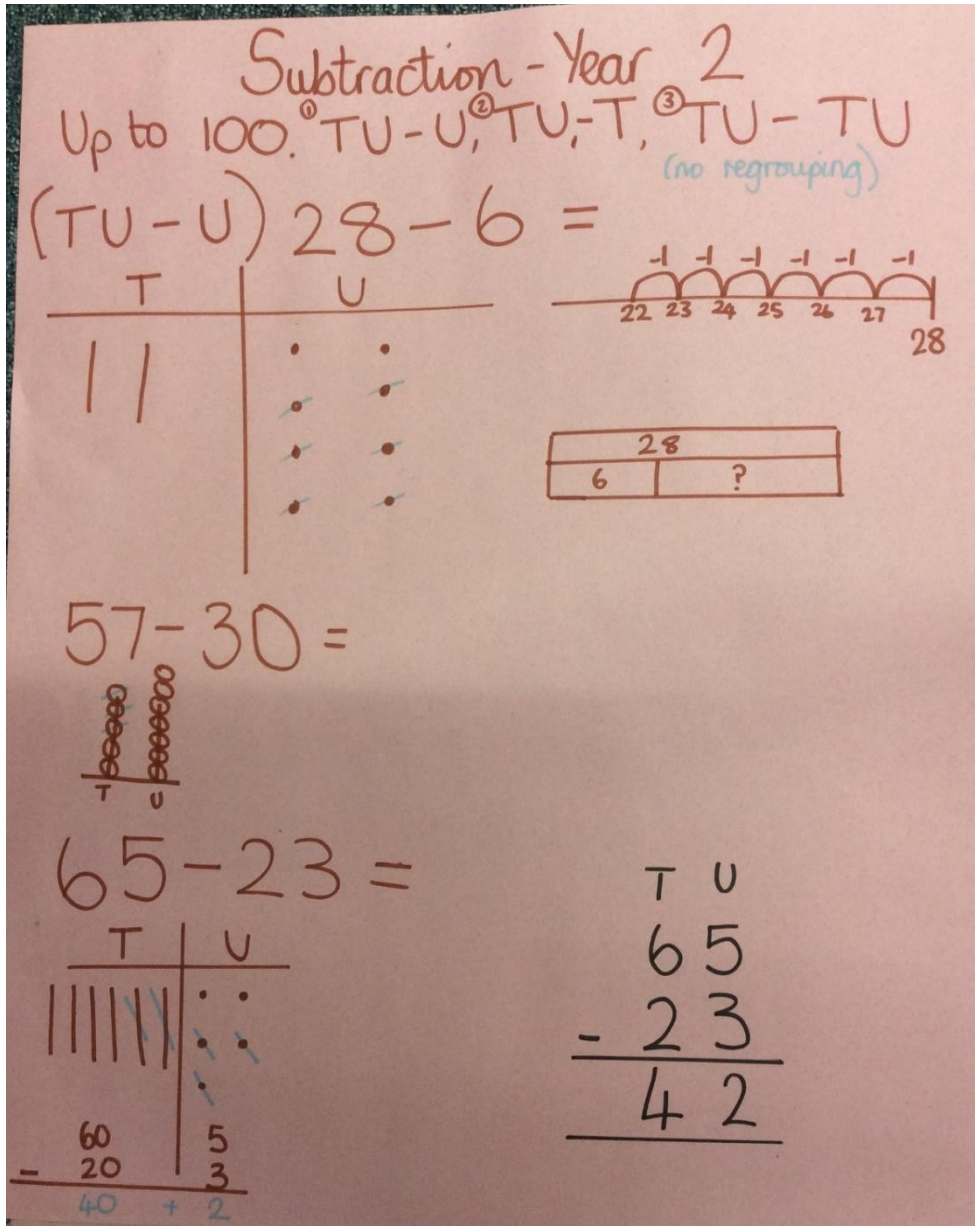


Numbers up to 20 using resources to support.

Similarly to addition, subtraction in year 1 is an opportunity for children to develop firm foundations. Their conceptual understanding is heavily developed through the use of resources. They gain confidence mentally calculating in preparation for using more formal written methods efficiently in year 2.

The image shows different ways to subtract in order to consolidate their understanding of the concept of subtraction.

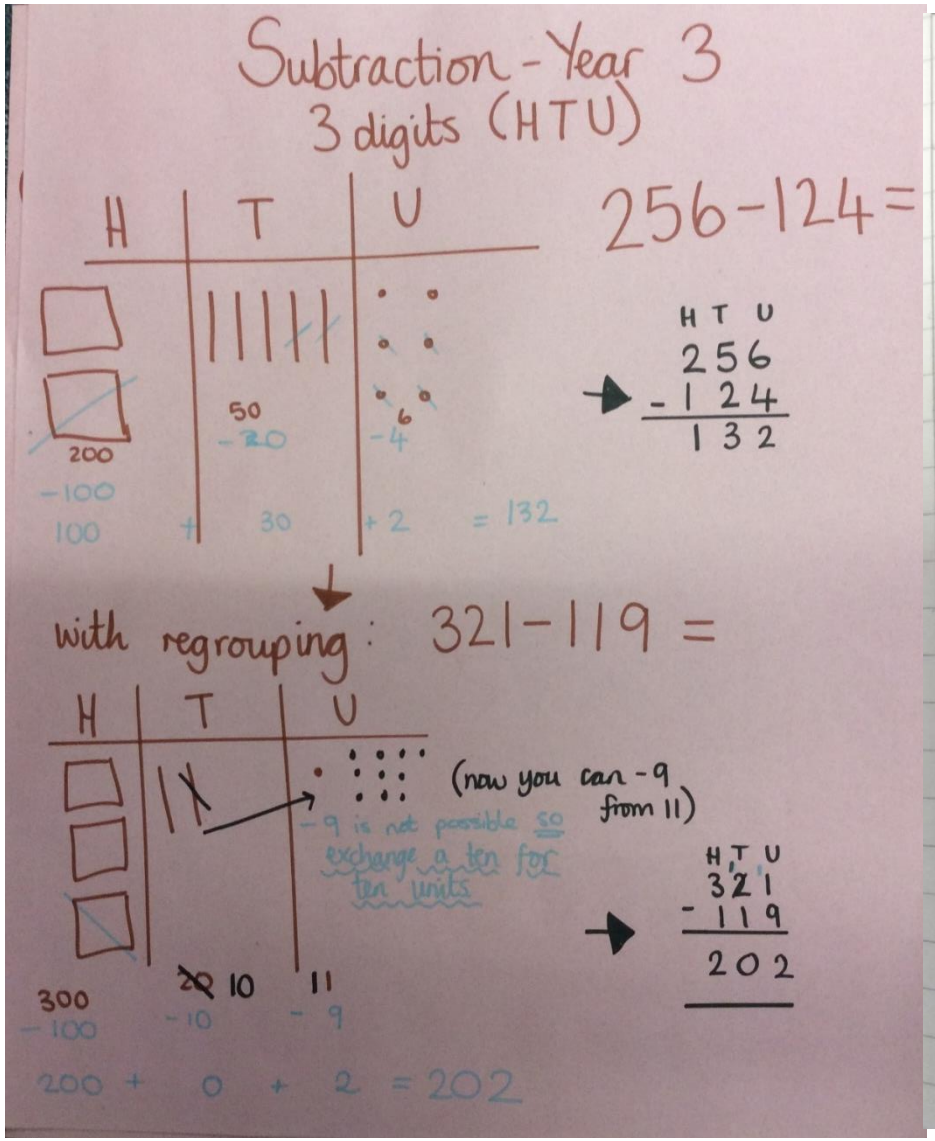
Subtraction-Year 2

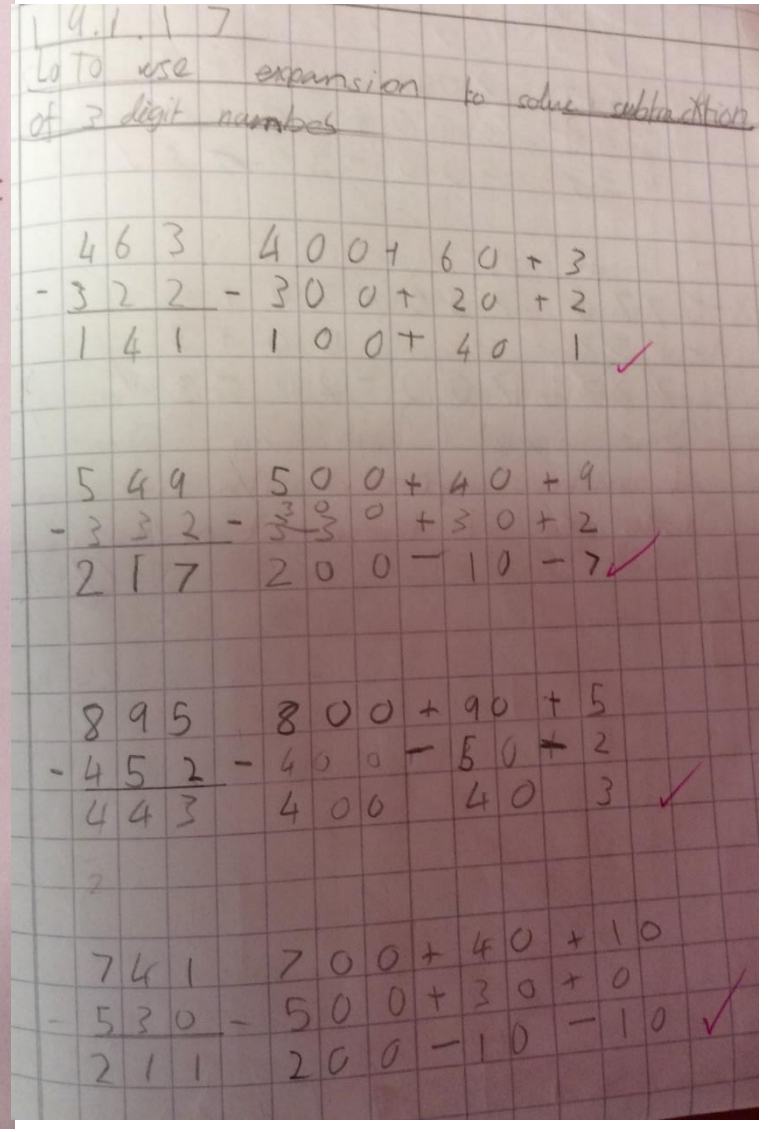


Subtraction of 2 digit numbers using resources and progressing to written methods where appropriate.

Children are not expected to regroup for subtraction until year 3.

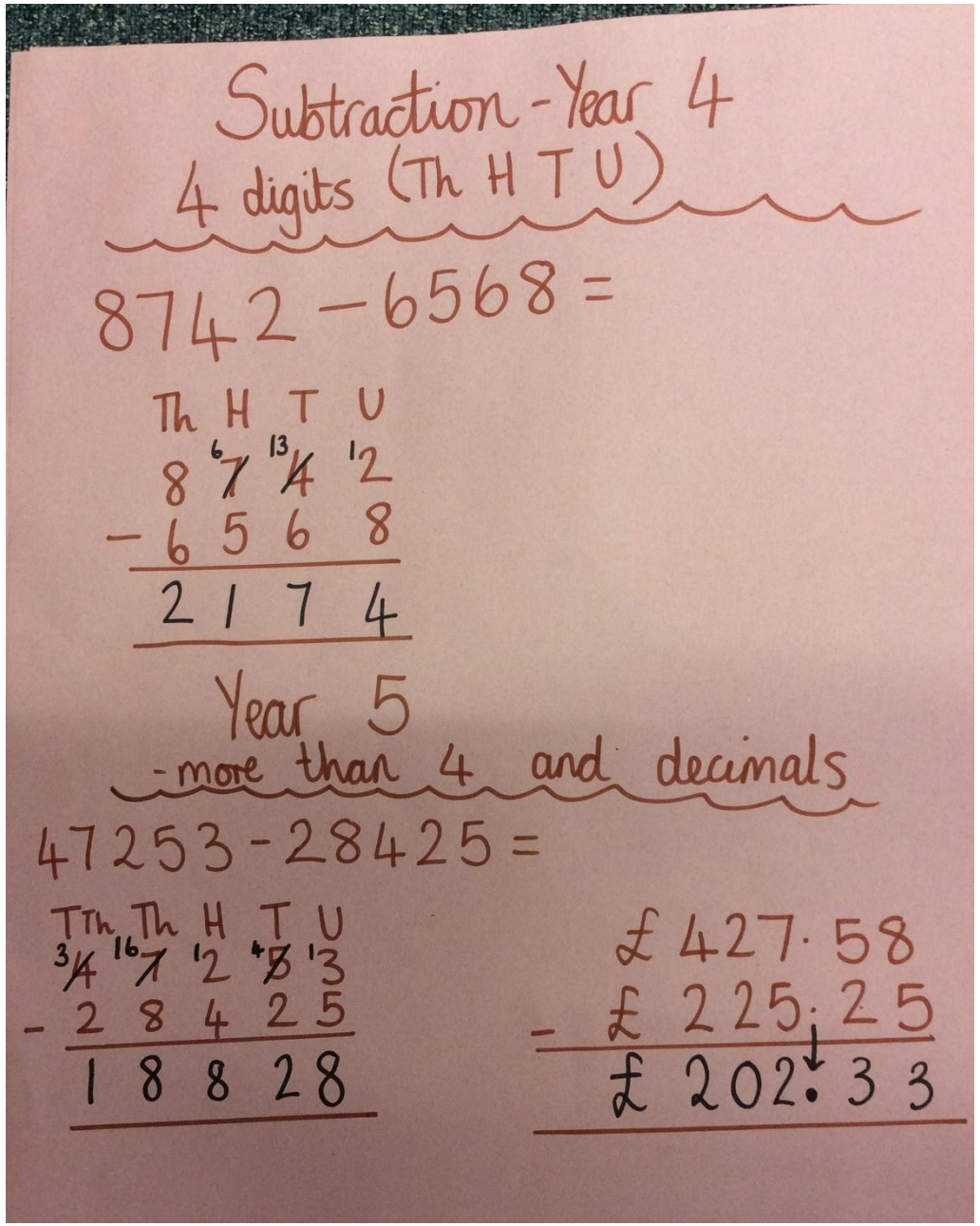
Subtraction-Year 3





Subtraction of 3 digit numbers, including regrouping, using resources and progressing to written methods where appropriate.

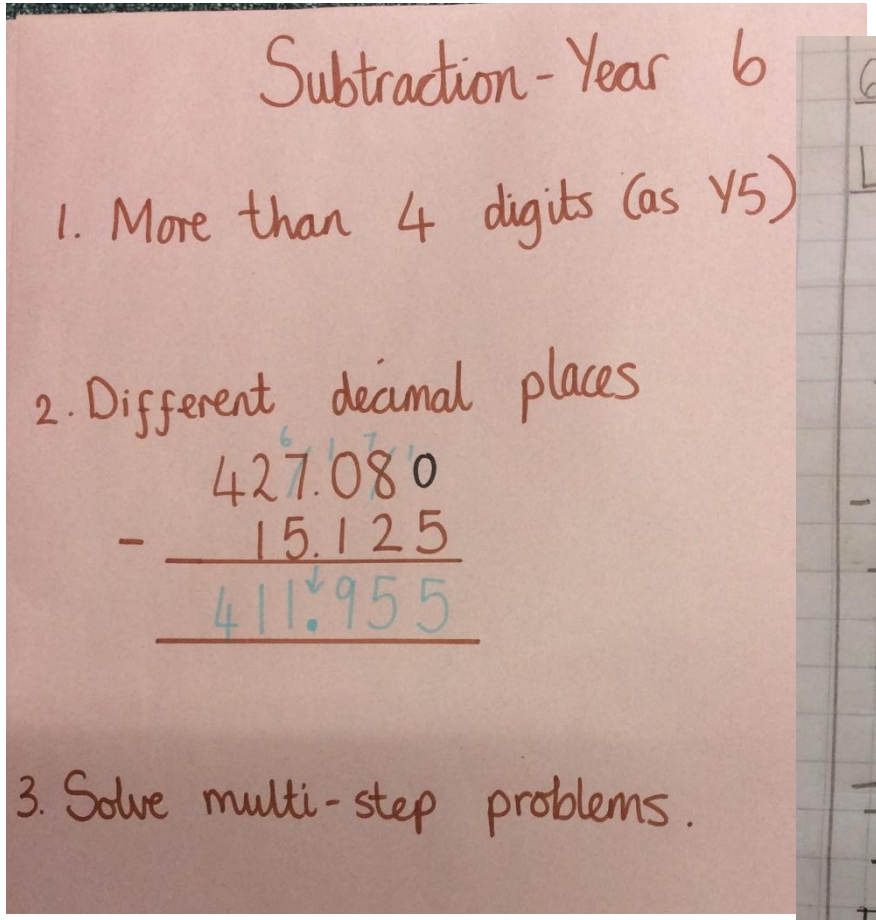
Subtraction-Year 4 and 5

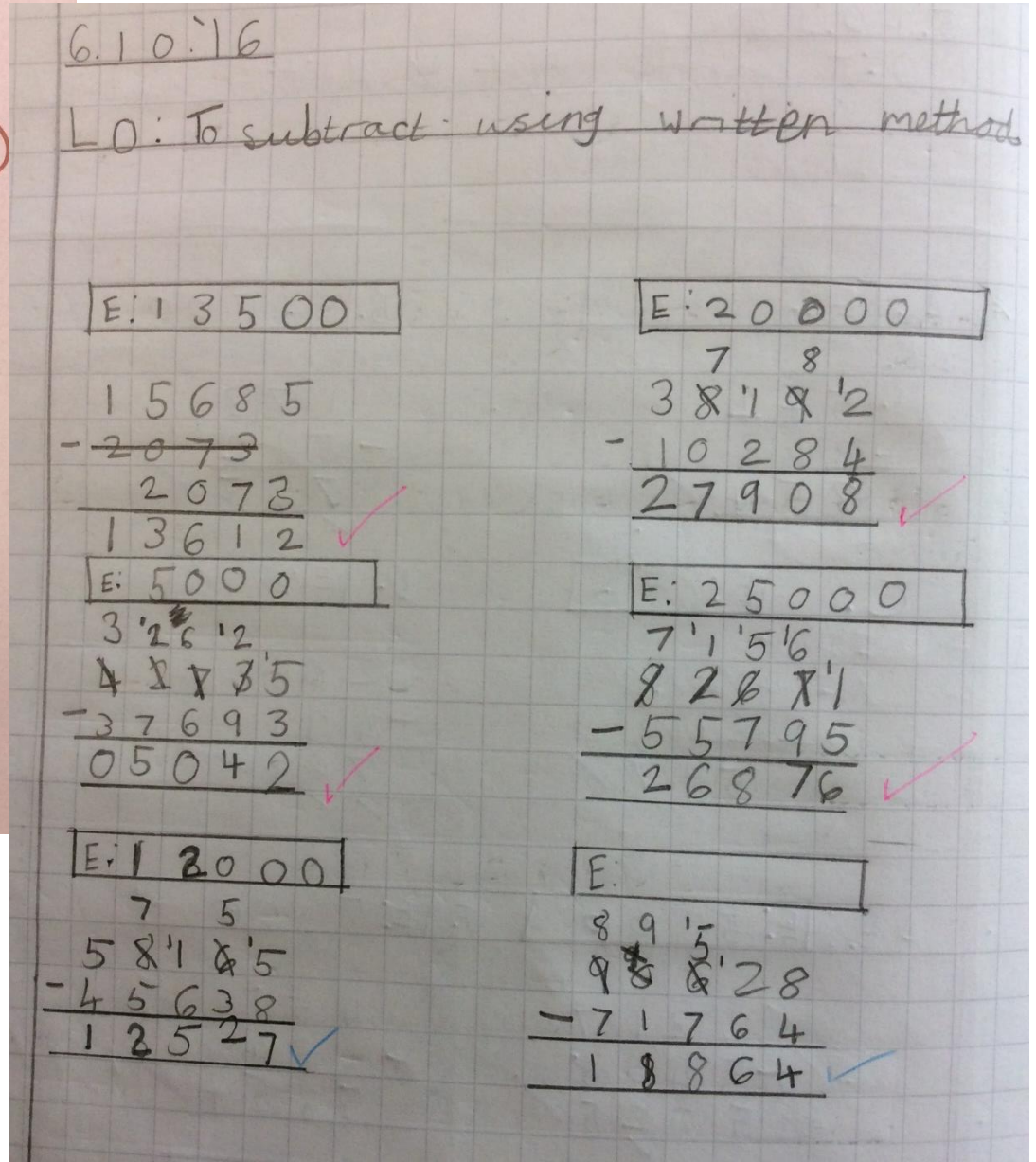


Year 4-
Subtraction of 4 digit numbers including regrouping using both practical methods and formal column subtraction.

Year 5-
Subtraction of numbers larger than 4 digits and decimals, including regrouping, using both practical methods and formal column subtraction.

Subtraction-Year 6

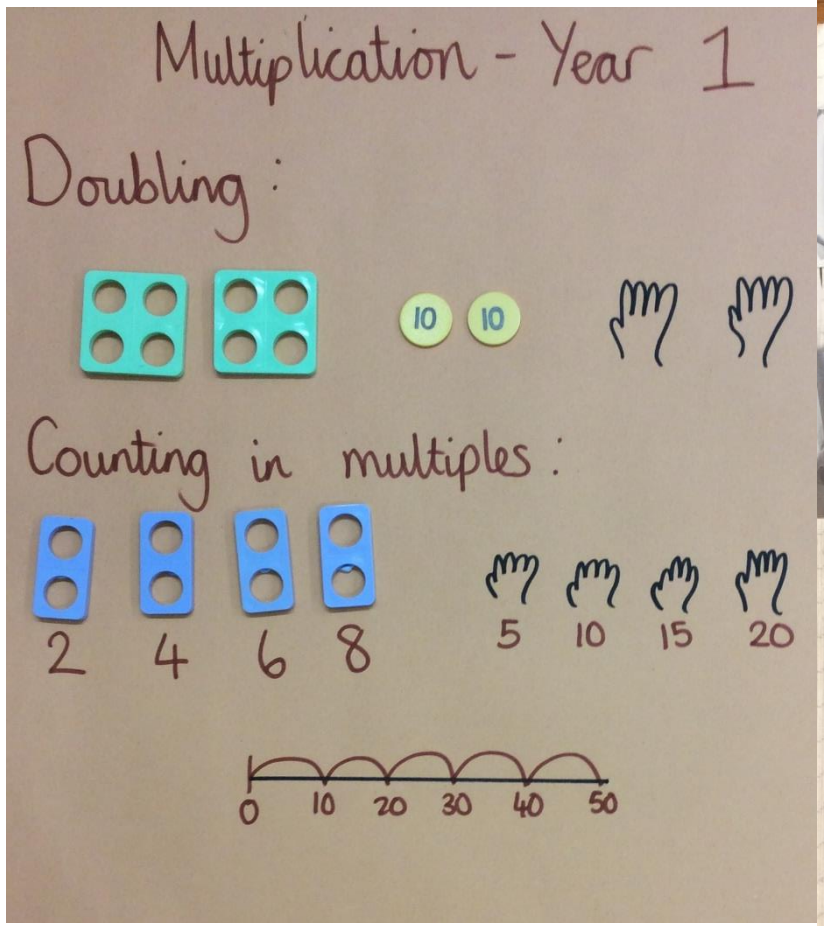


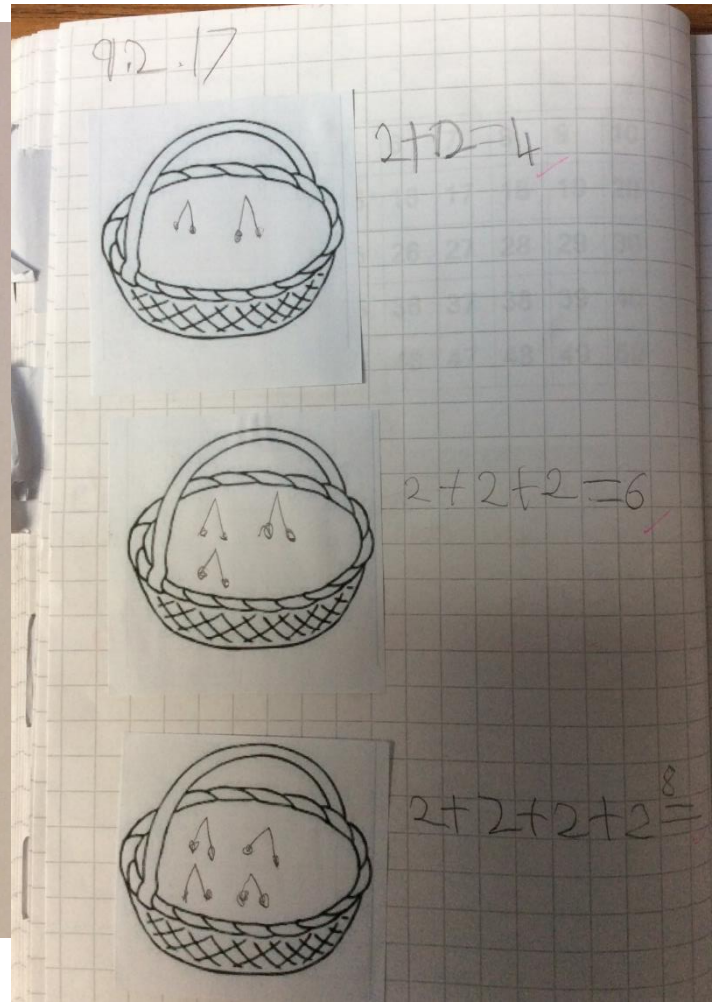


Year 6-
Subtraction of numbers larger than 4 digits and decimals with different decimal places, including regrouping, using both practical methods and formal column subtraction.

Year 6 children are expected to solve multi-step problems involved all four operations (+ - X ÷)

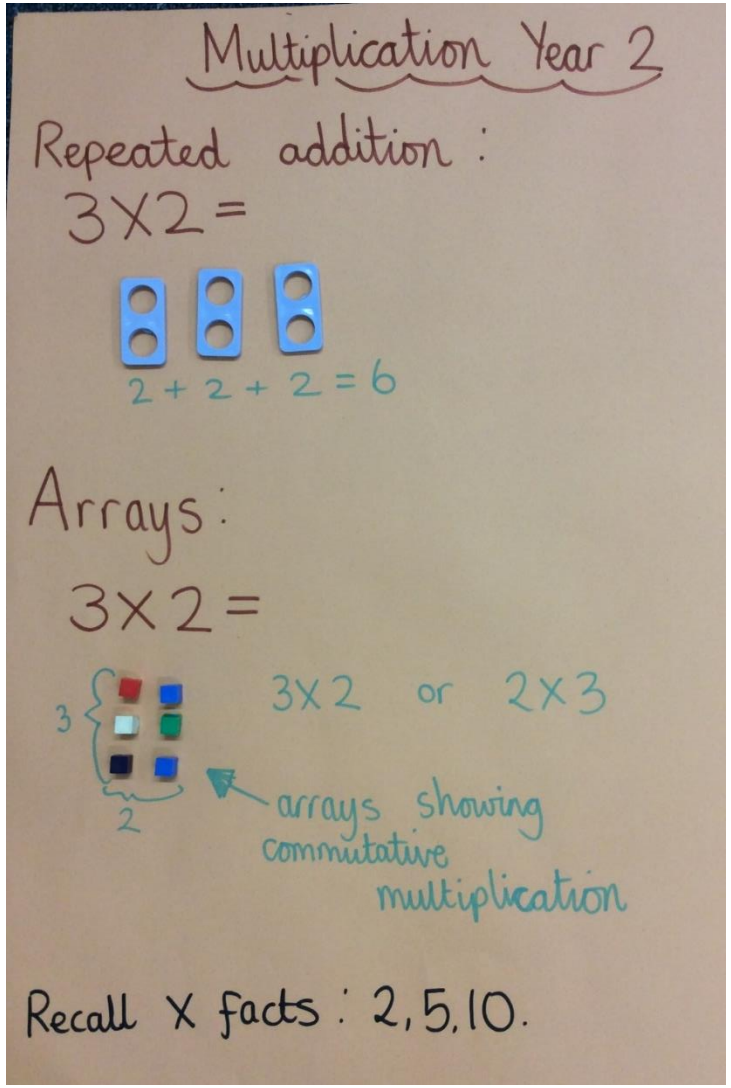
Multiplication- Year 1

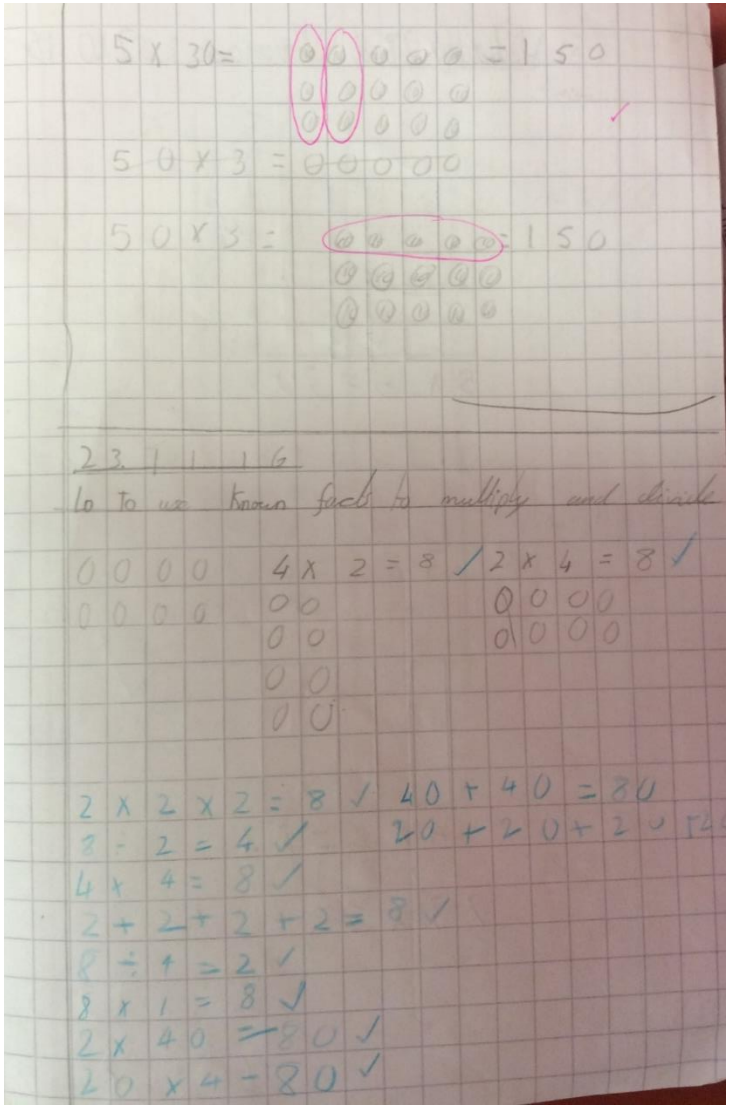




Doubling and counting in multiples of 2,5,10. Children will use practical resources to solve multiplication problems.

Multiplication- Year 2

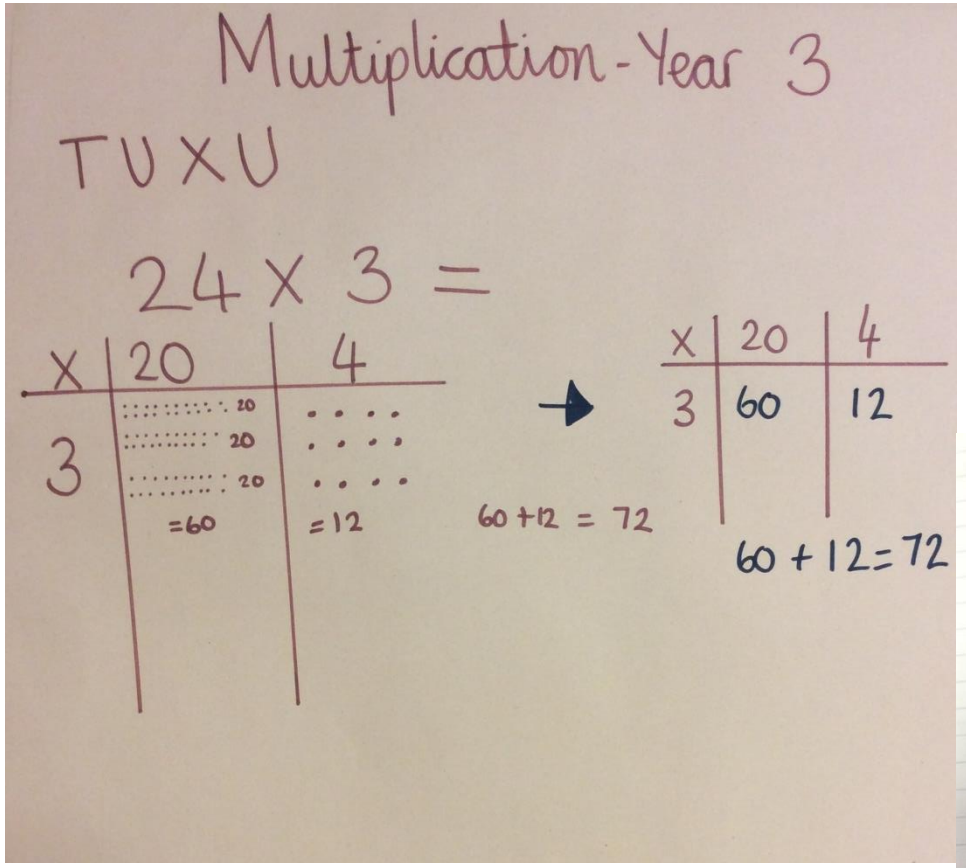


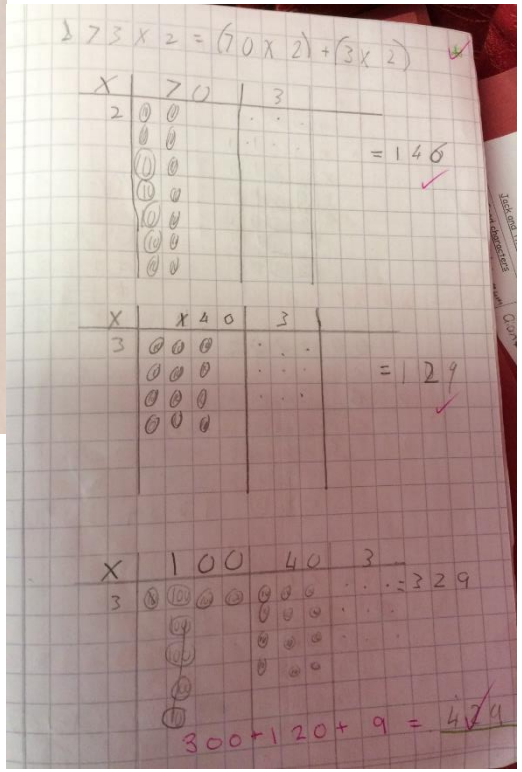


Children will use repeated addition, arrays and other practical resources to solve multiplication problems. Children are expected to learn their 2, 5 and 10 times tables and division facts for rapid recall which they are tested on weekly.

From 2018 year 6 children are likely to have a recall test as part of their SATS for multiplication and division facts up to 12X12.

Multiplication- Year 3

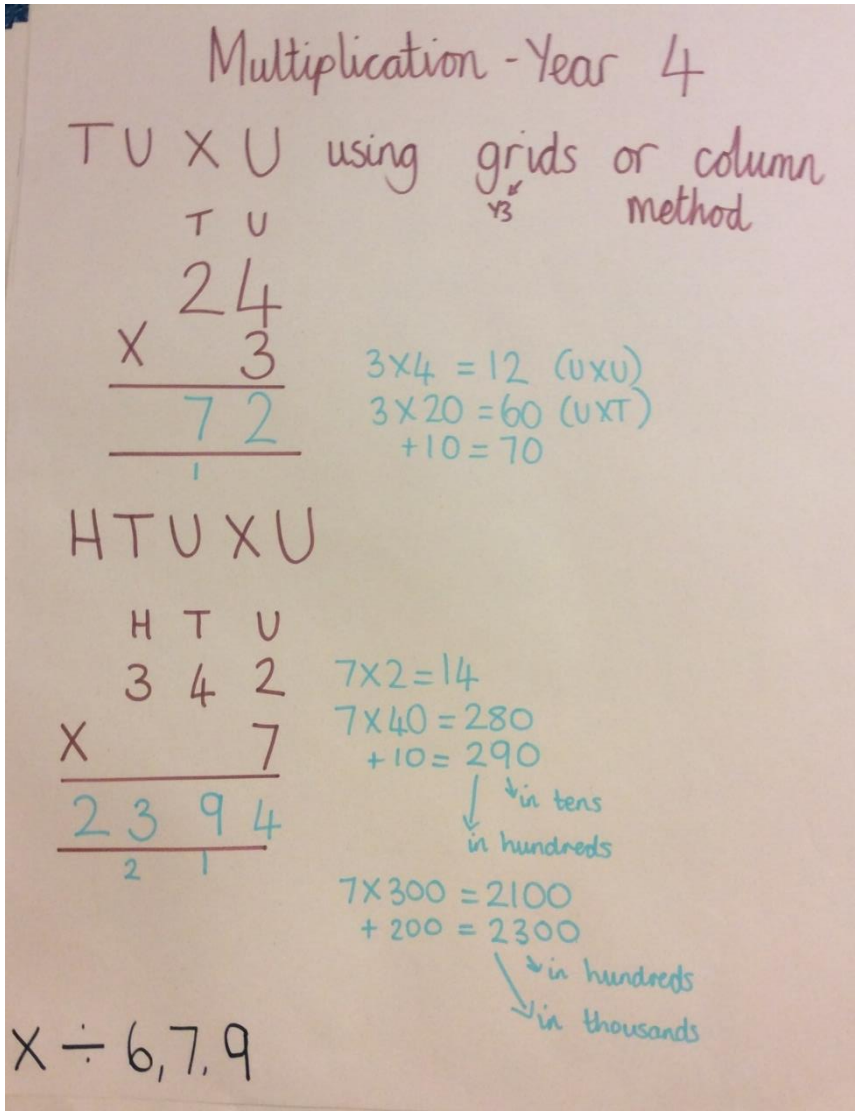




Multiplication of 2 digit numbers by 1 digit numbers using arrays and progressing to the use of grid method along with other practical resources. Children are expected to learn their 3, 4 and 8 times tables and division facts for rapid recall which they are tested on weekly.

From 2018 year 6 children are likely to have a recall test as part of their SATS for multiplication and division facts up to 12X12.

Multiplication- Year 4

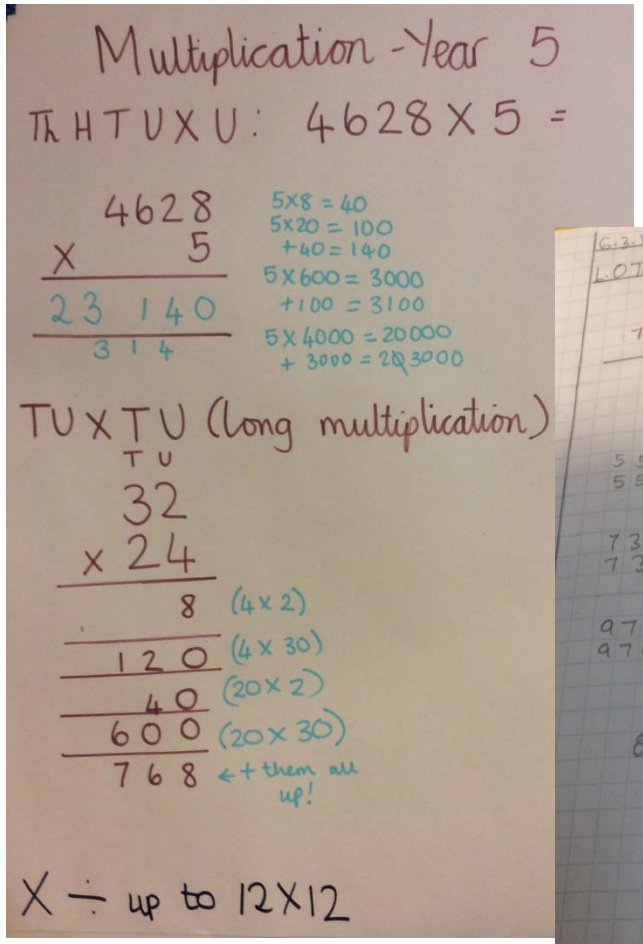


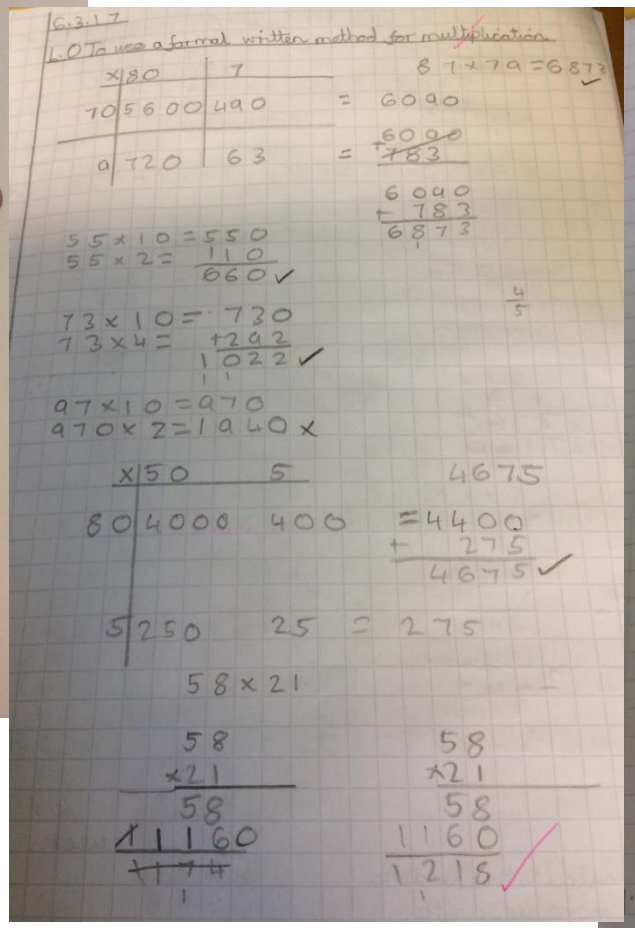
Multiplication of 2 and 3 digit numbers by 1 digit numbers using grid method, practical resources and introducing column multiplication.

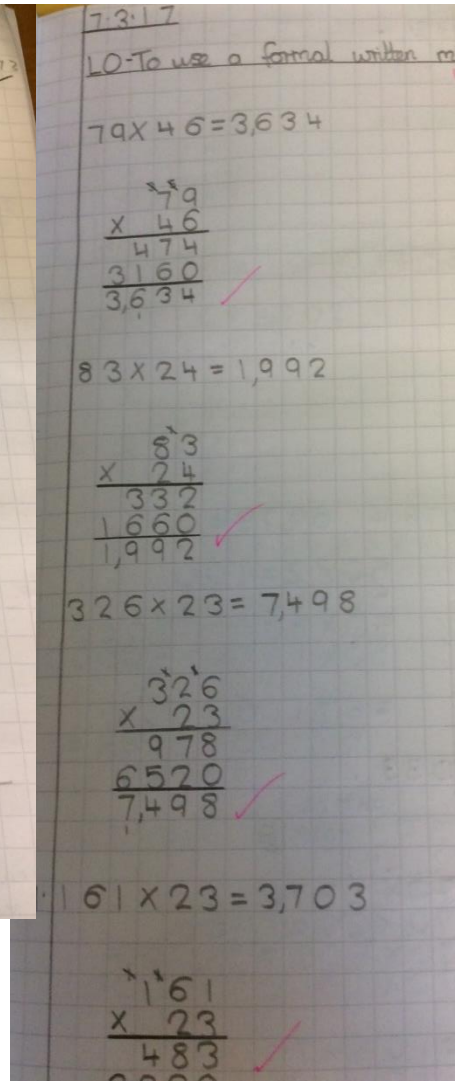
Children are expected to learn their 6, 7 and 9 times tables and division facts for rapid recall which they are tested on weekly.

From 2018 year 6 children are likely to have a recall test as part of their SATS for multiplication and division facts up to 12X12.

Multiplication- Year 5







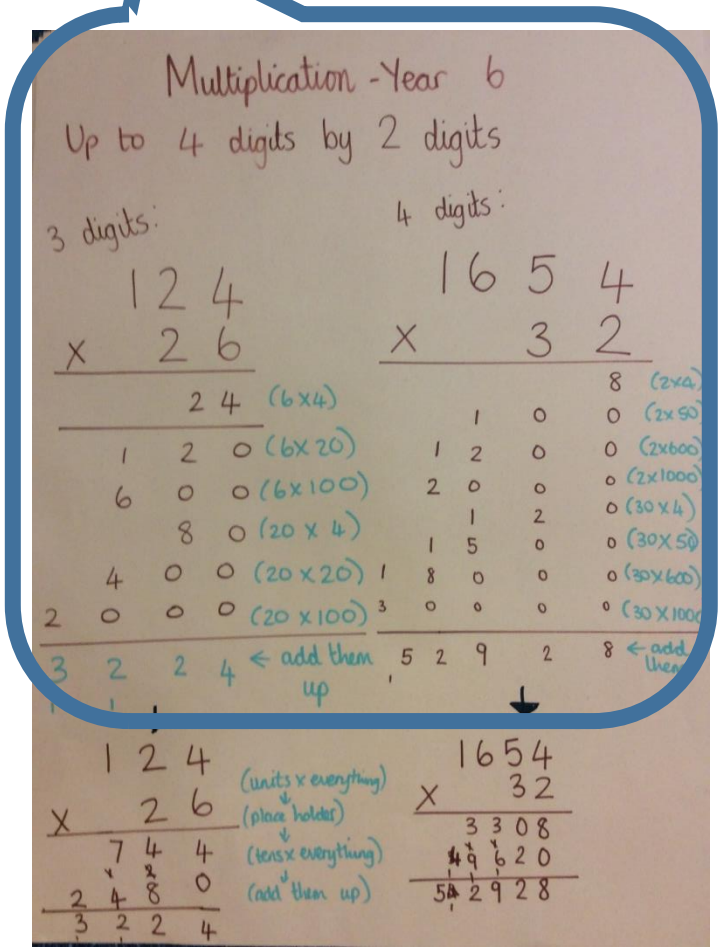
Multiplication of 4 digit numbers by 1 and 2 digit numbers using grid method, practical resources and column multiplication.

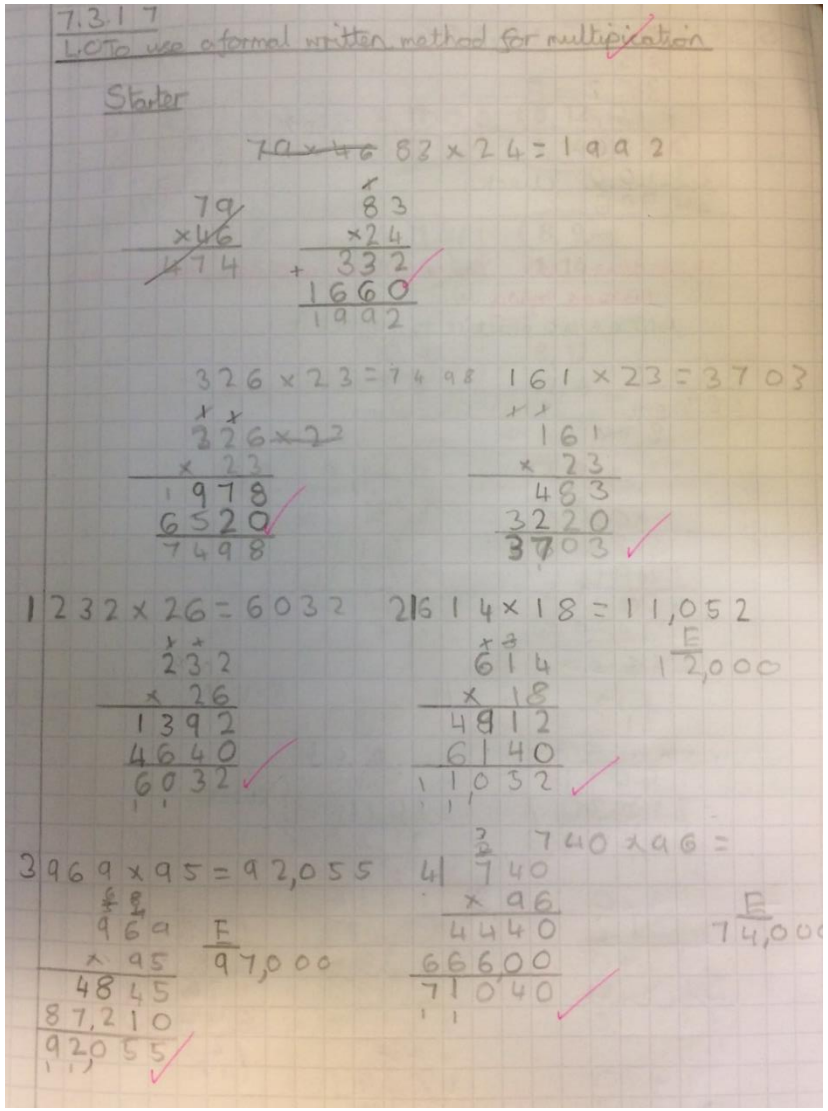
Children are expected to recall times tables and division facts for rapid recall up to 12X12 which they are tested on weekly.

From 2018 year 6 children are likely to have a recall test as part of their SATS for multiplication and division facts up to 12X12.

This provides a breakdown as a guide!

Multiplication- Year 6



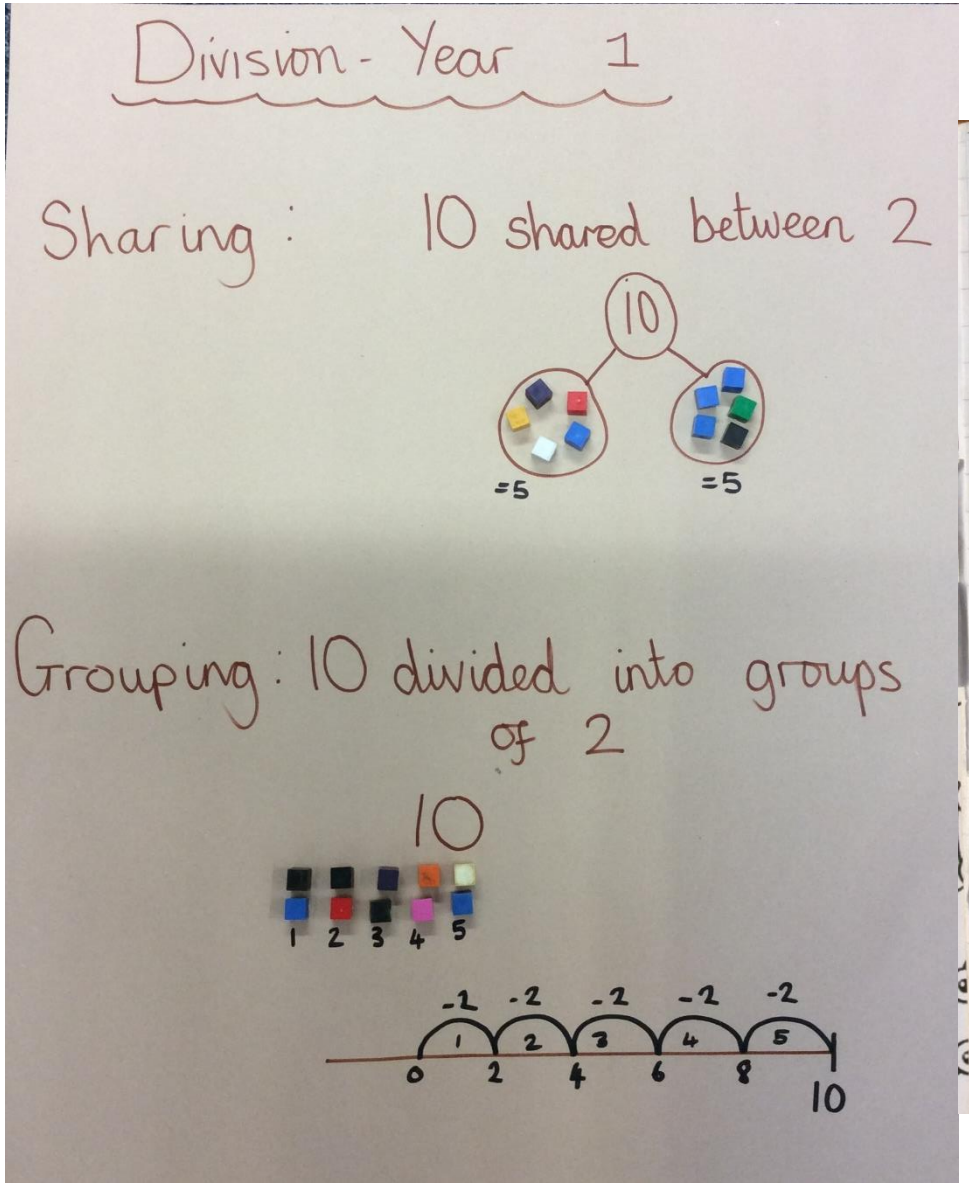


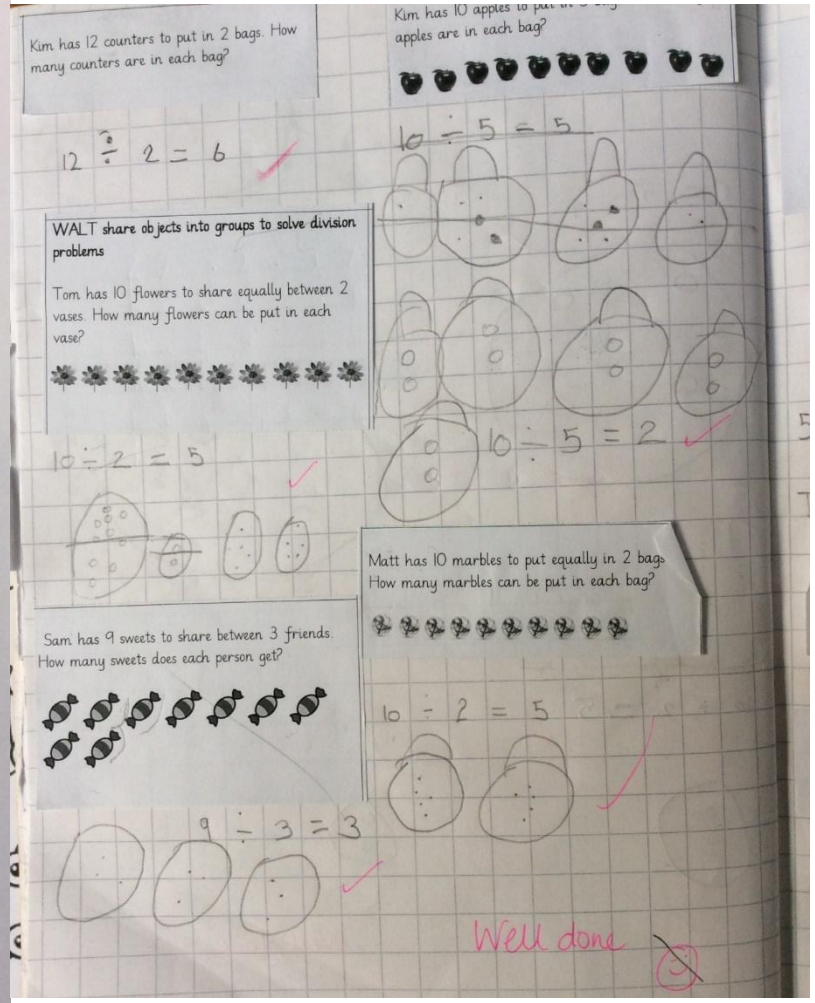
Multiplication of multi-digit numbers up to 4 digit by 2 digit numbers using column multiplication.

Children are expected to recall times tables and division facts for rapid recall up to 12X12 which they are tested on weekly.

From 2018 year 6 children are likely to have a recall test as part of their SATS for multiplication and division facts up to 12X12.

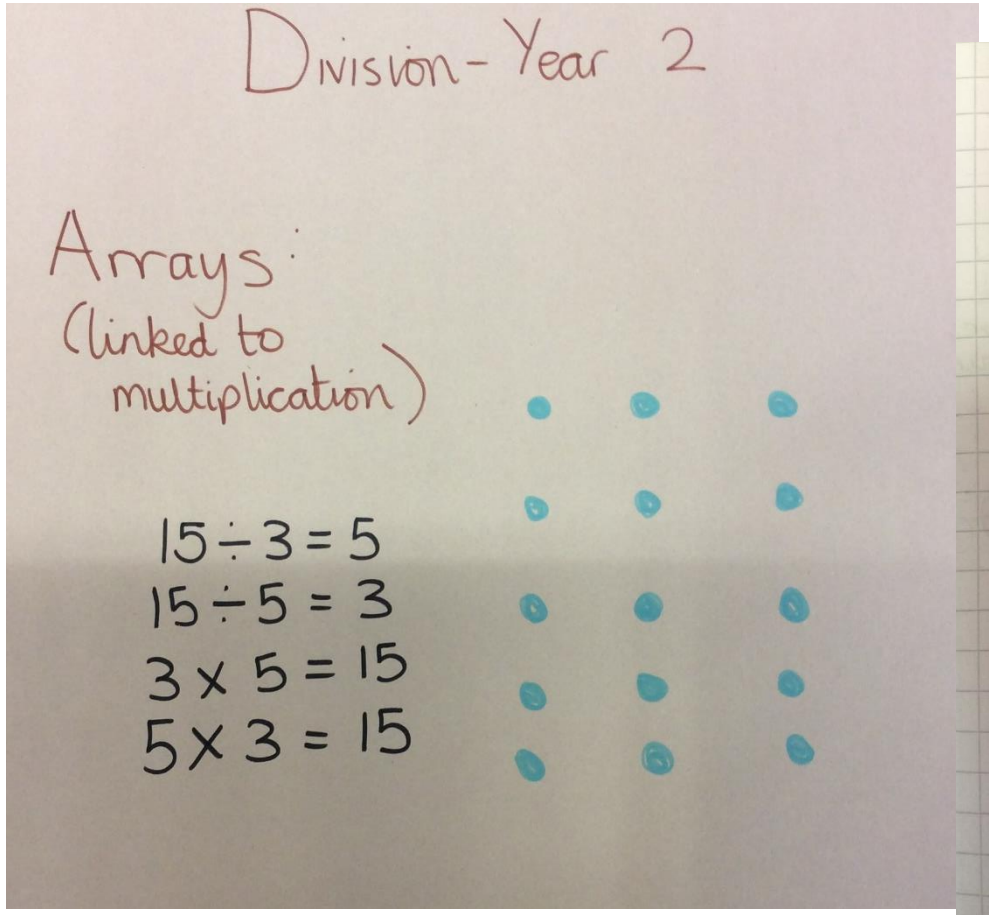
Division- Year 1

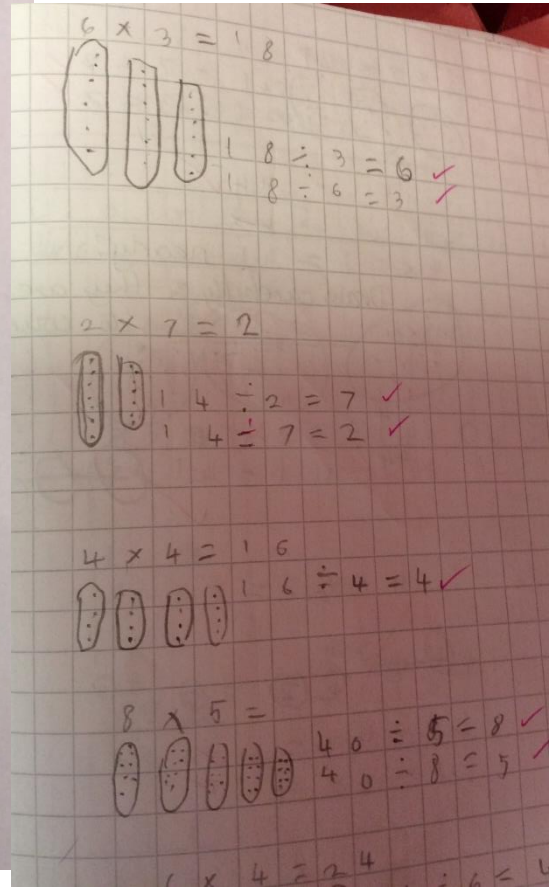




Solve division problems using practical resources to share (sharing objects into the correct number of groups) and group (divide objects into groups of…).

Division- Year 2

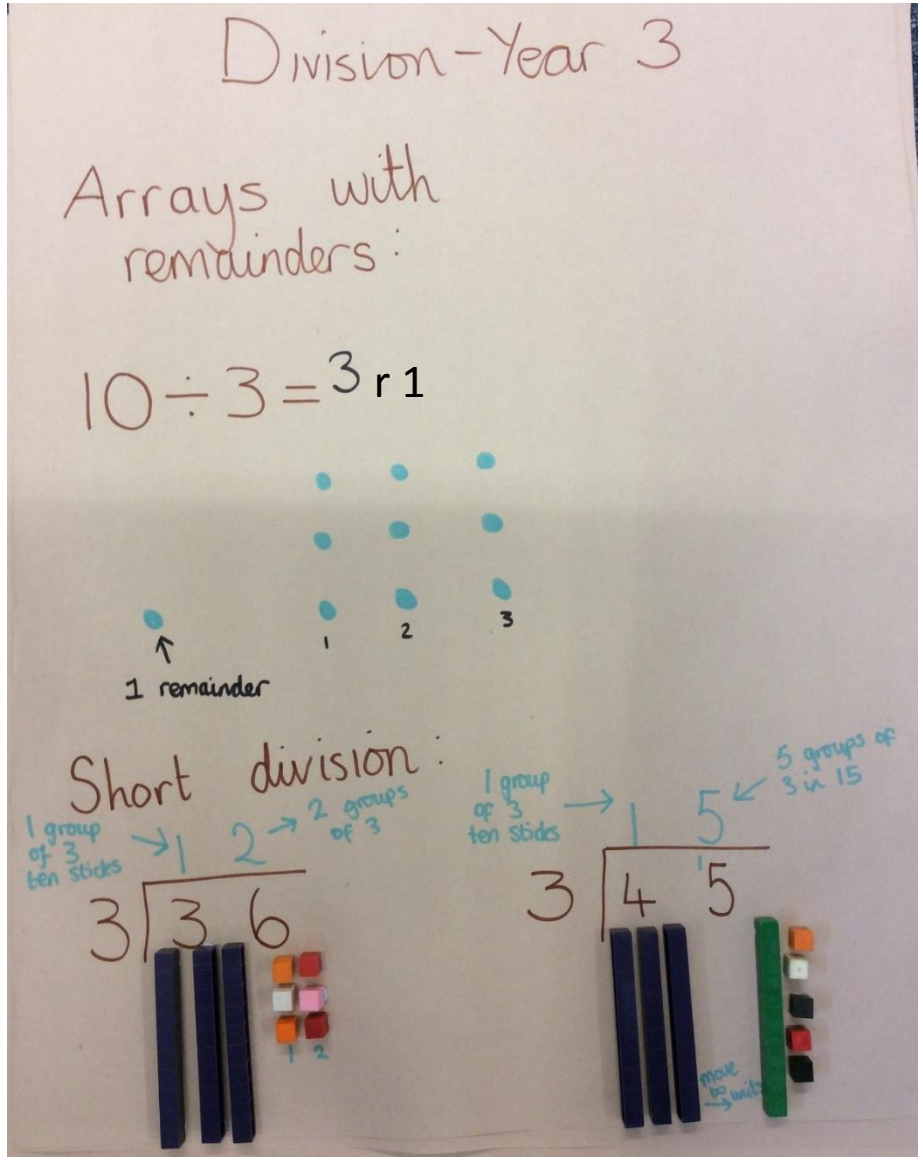


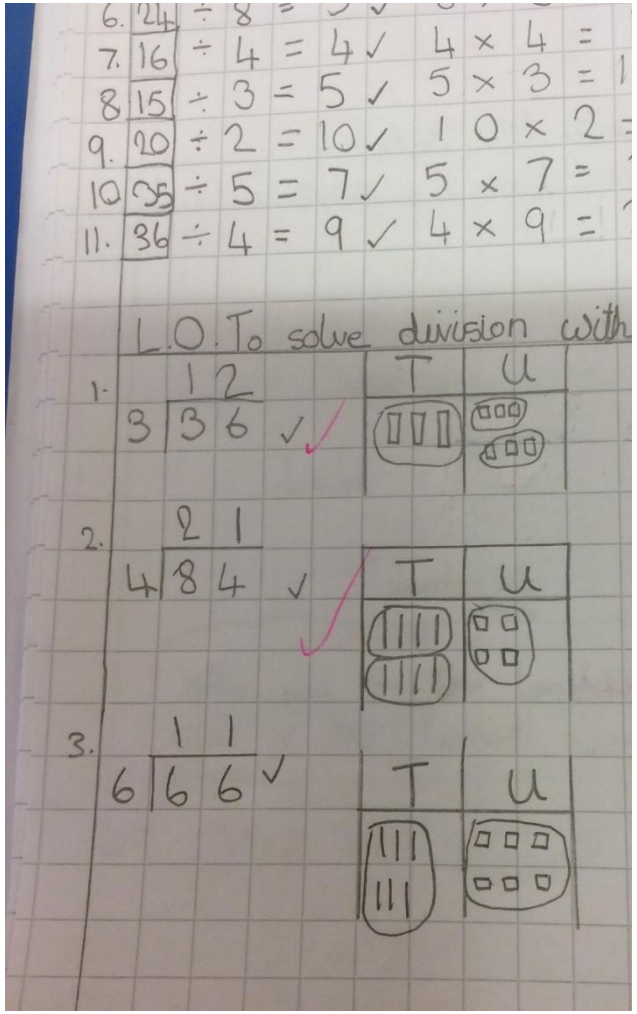


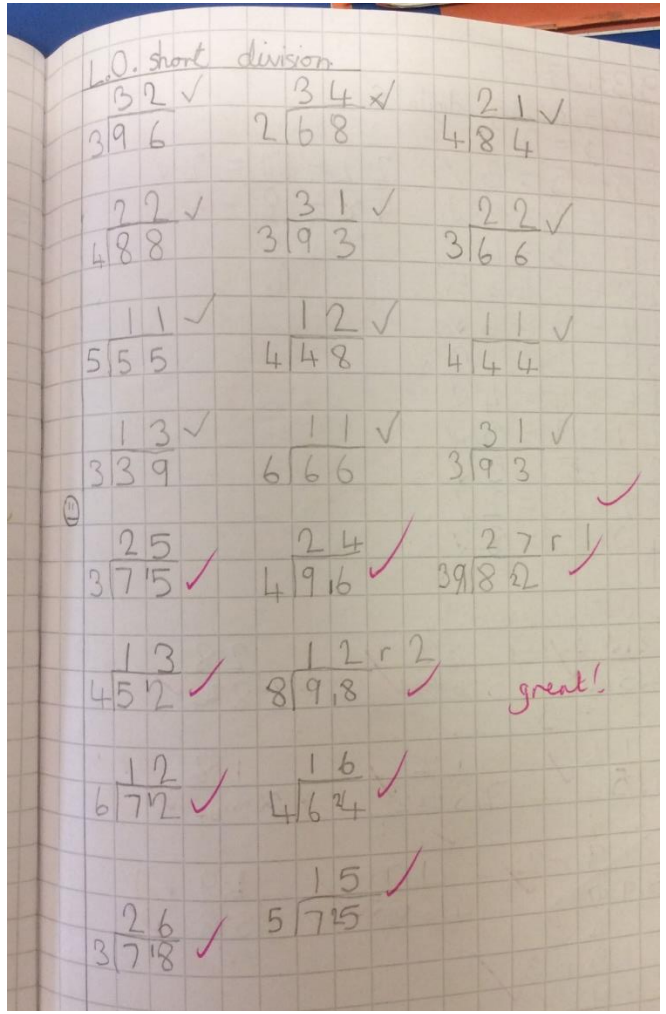
Children continue using strategies from year 1 to solve problems as well as using arrays. Arrays support the children to see the link between multiplication and division therefore children should be beginning to use their recall facts (2,5,10) to solve multiplication and division problems.

Division- Year 3

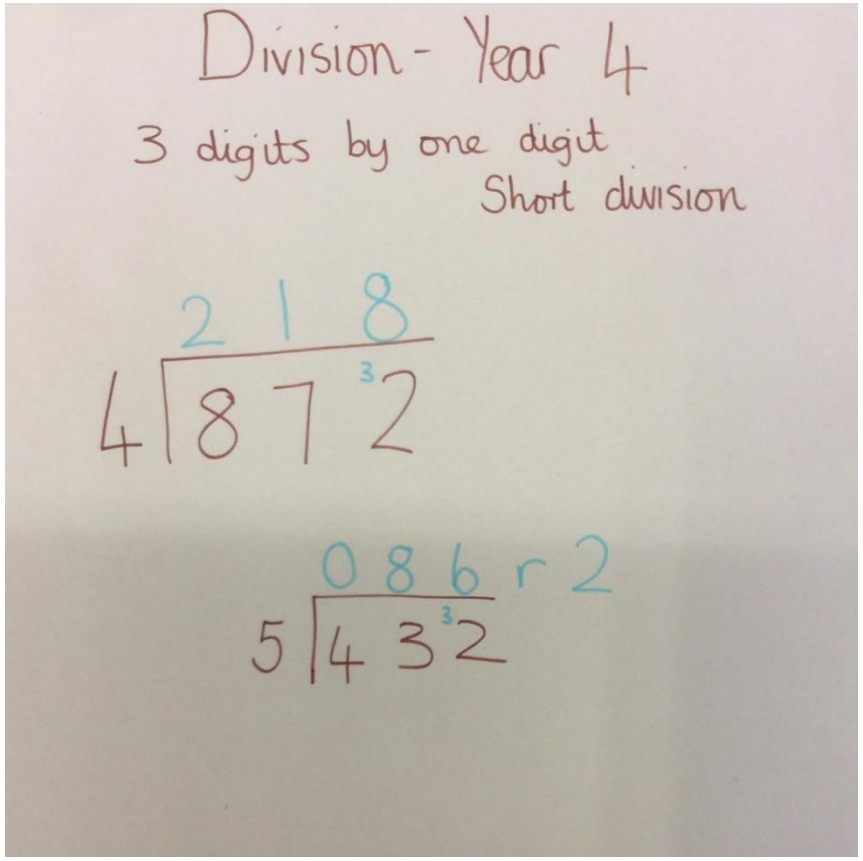
Divide two digit numbers by one digit numbers using practical resources to support the introduction of short division (bus stop method).

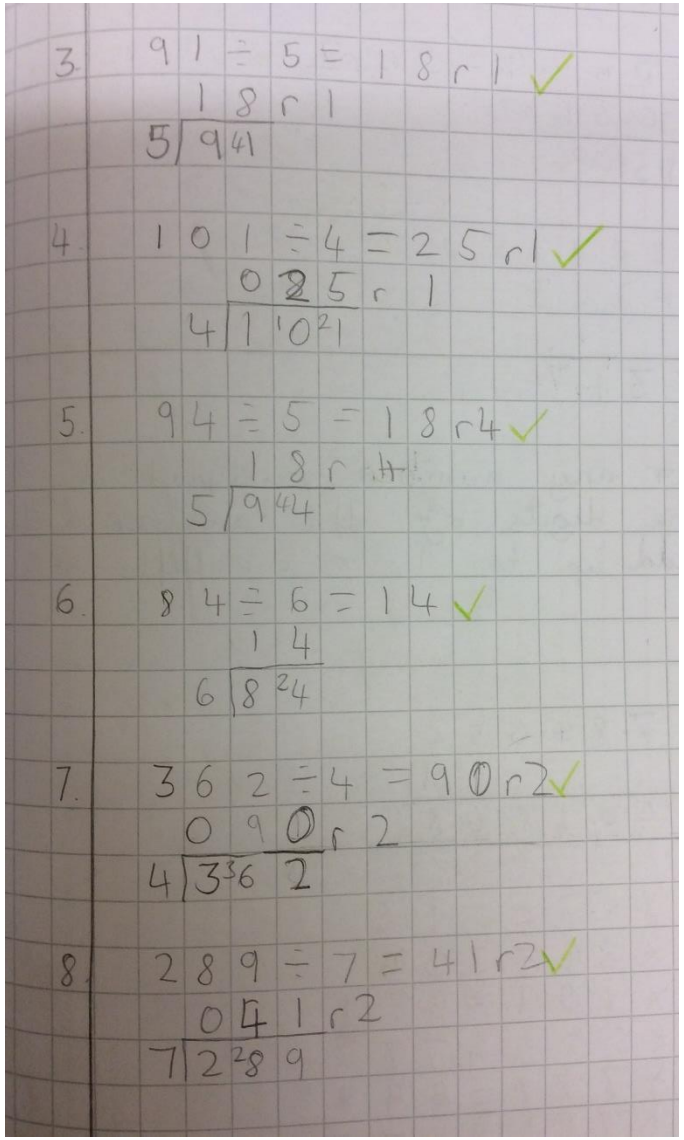






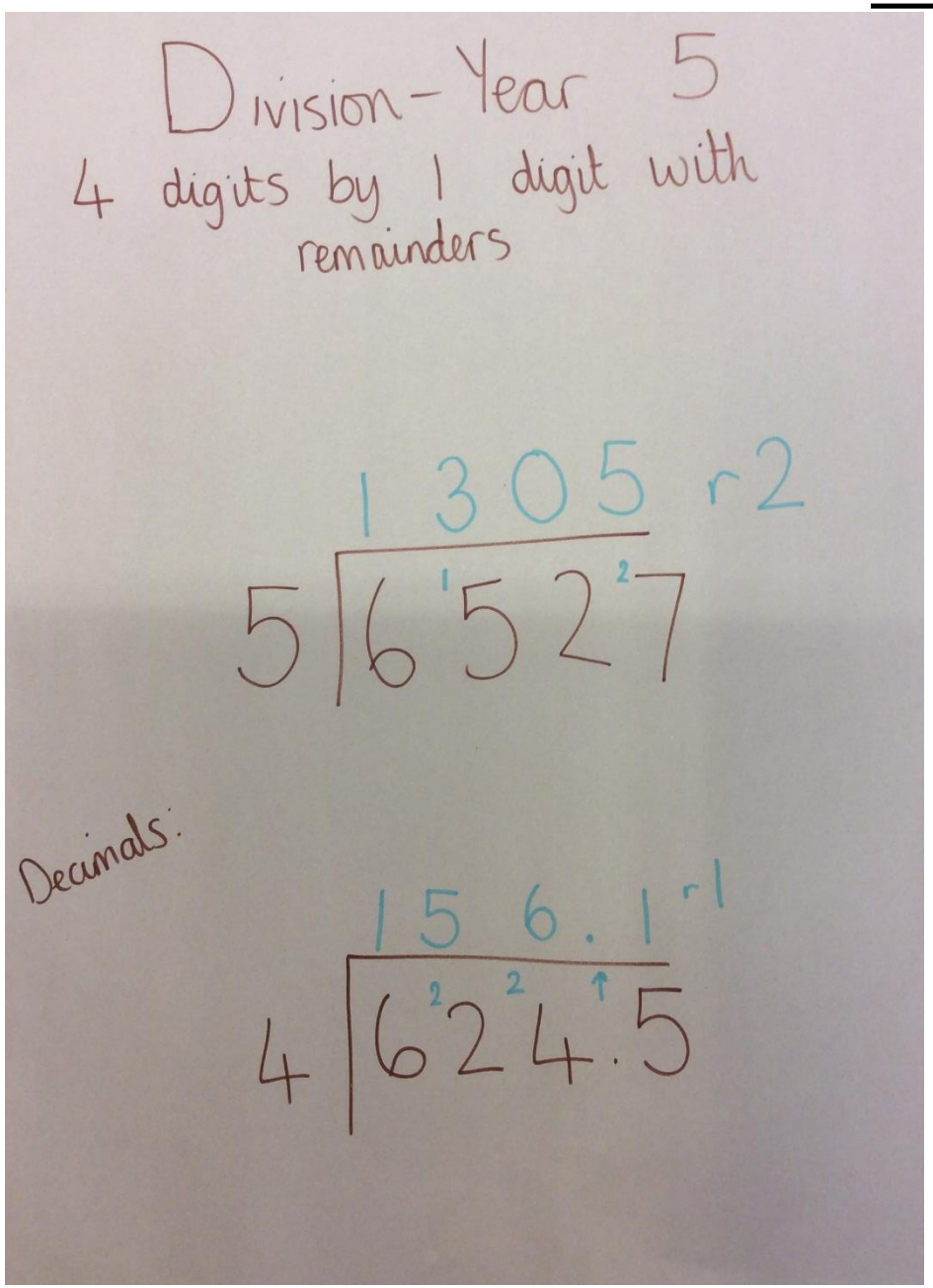
Division- Year 4

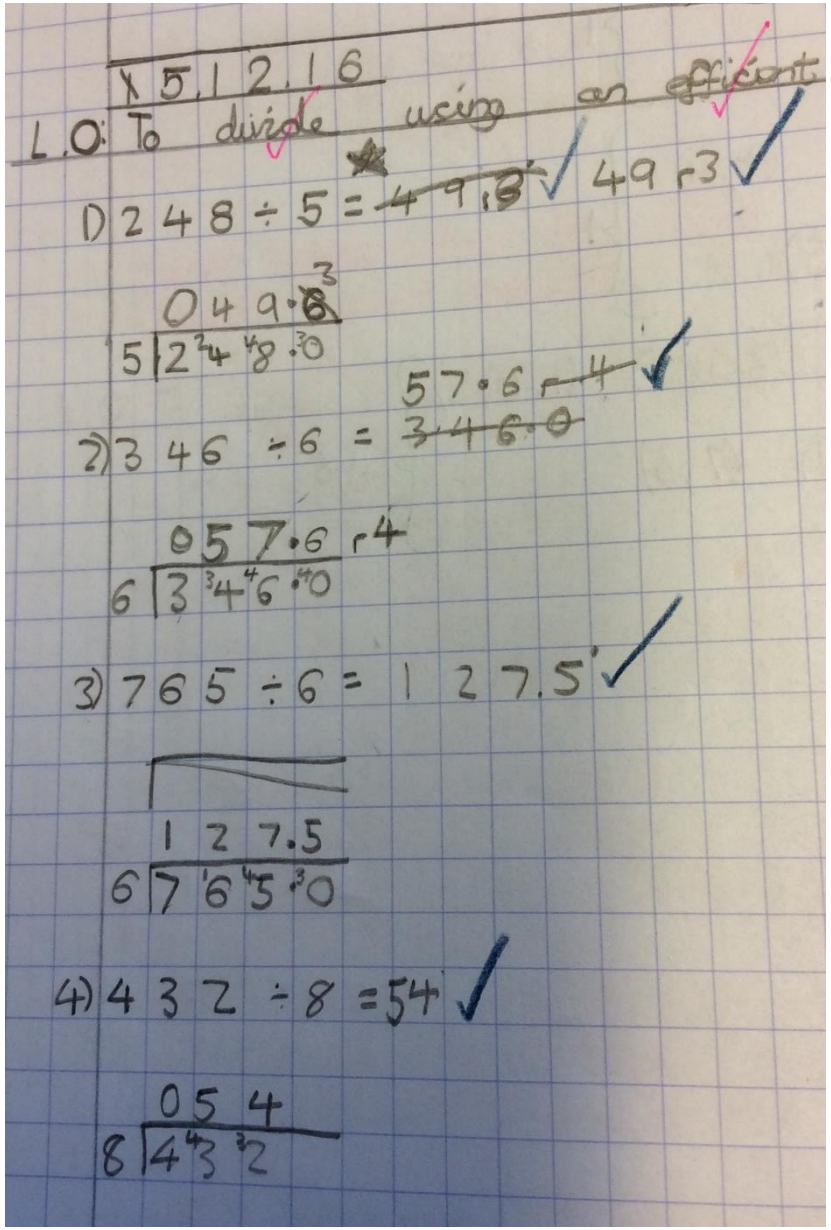




Divide three digit numbers by one digit numbers using practical resources to support short division (bus stop method).

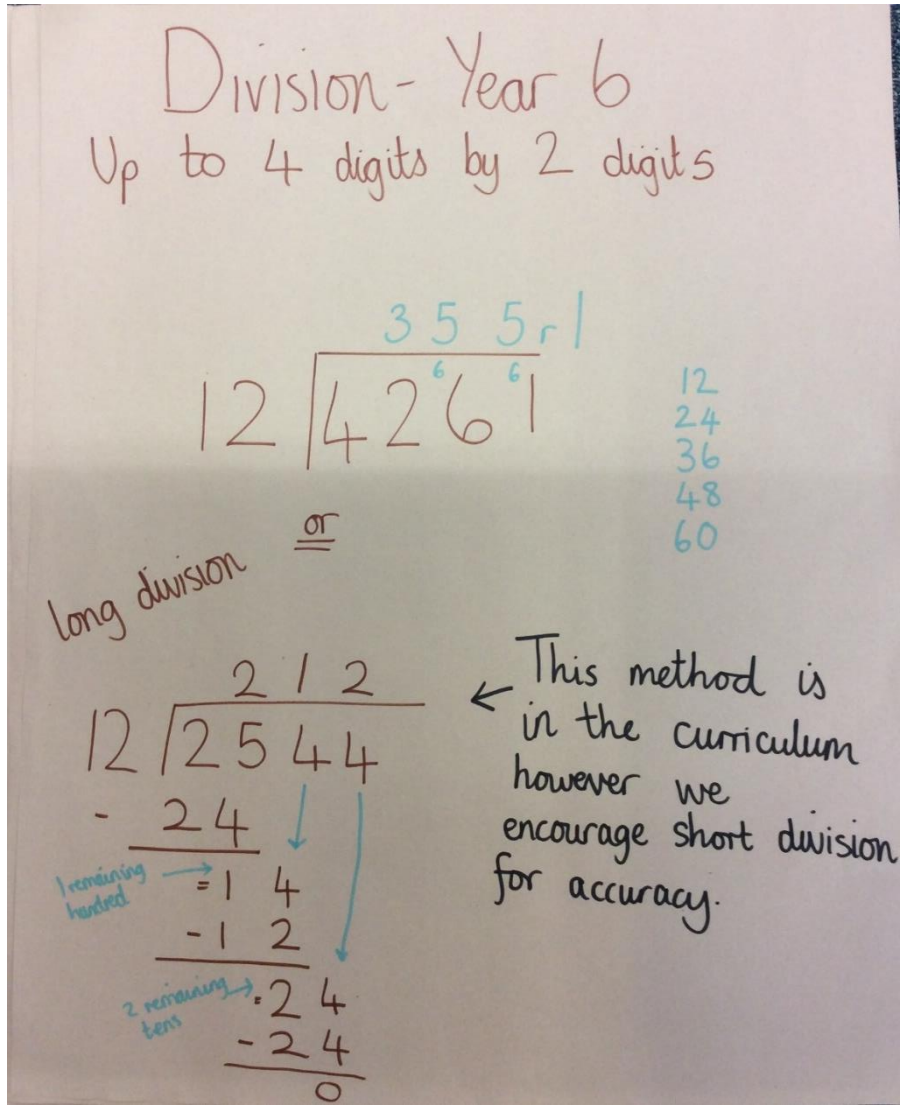
Division- Year 5

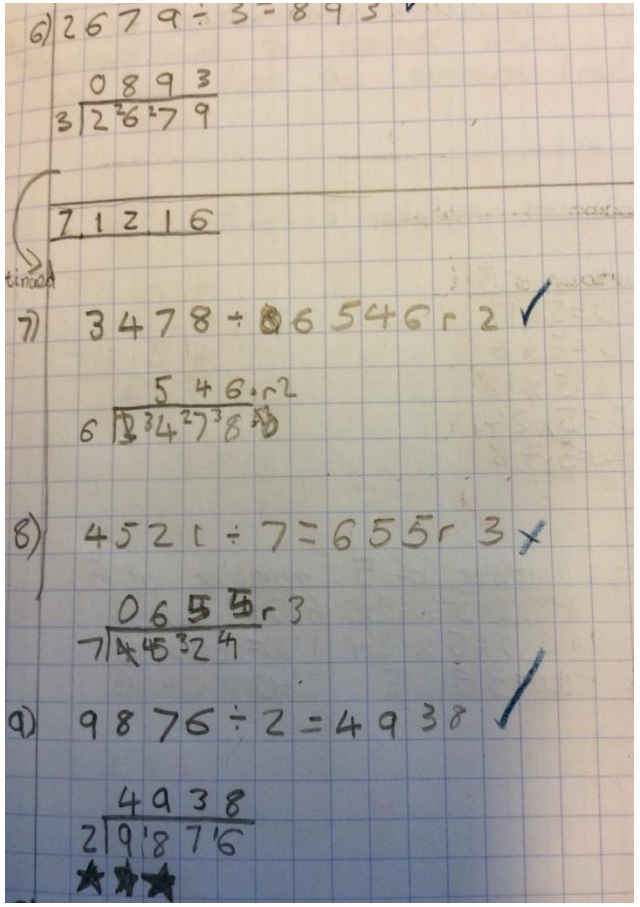




Divide four digit numbers by one or two digit numbers and some decimals, using practical resources to support short division (bus stop method).

Division- Year 6





Divide 4 digit numbers by 2 digit numbers interpreting remainders as whole numbers, fractions or round, where appropriate.

Long division is a method that is taught in school. Recent changes to our teaching of division enforces the use of short division which generally children can use more efficiently if taught using resources to support the concept. Where children struggle with long division, it is advisable to let your child's class teacher know so we can support your child/ren at school.