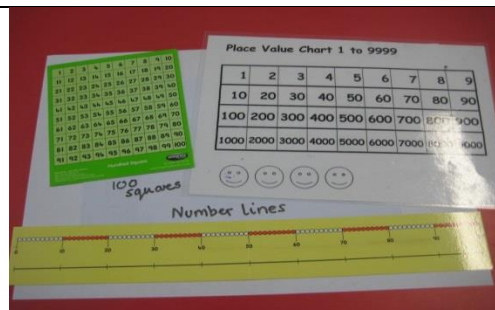


## Parent's Guide to Supporting Maths in the New National Curriculum – Year 3/4

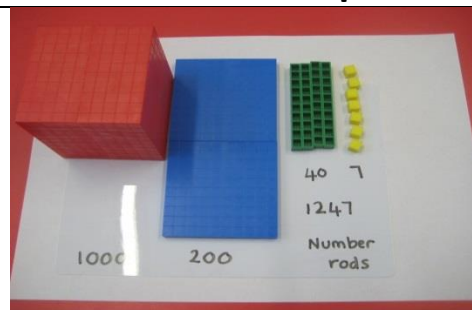
Below you will find an overview of the types of calculating your child will be expected to do in year 3 and 4. We have included the types of representations we use with them. In line with the National Curriculum Aims we use these to develop **an understanding of the concept** to build a really firm foundation in calculations and therefore **do not** teach the children a procedure to follow to “do a sum” as this has been shown to have no long term benefit. Some children will prefer some representations more than others and may not use all of them. They all will progress at different rates, some will miss stages out as they pick up the concept more quickly and will be securely using more compact methods well before the end of year 4. Practical handling of resources remains essential to aid secure understanding and at home you could use money, counters, buttons etc in the same way.

<h3>Place Value</h3>	
Year 3	Year 4
<ul style="list-style-type: none"> <li>• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number</li> <li>• recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</li> <li>• compare and order numbers up to 1000</li> <li>• identify, represent and estimate numbers using different representations</li> <li>• read and write numbers up to 1000 in numerals and in words</li> <li>• solve number problems and practical problems involving these ideas</li> </ul>	<ul style="list-style-type: none"> <li>• count in multiples of 6, 7, 9, 25 and 1000</li> <li>• find 1000 more or less than a given number</li> <li>• count backwards through zero to include negative numbers</li> <li>• recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</li> <li>• order and compare numbers beyond 1000</li> <li>• identify, represent and estimate numbers using different representations</li> <li>• round any number to the nearest 10, 100 or 1000</li> <li>• solve number and practical problems that involve all of the above and with increasingly large positive numbers</li> <li>• read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value</li> </ul>

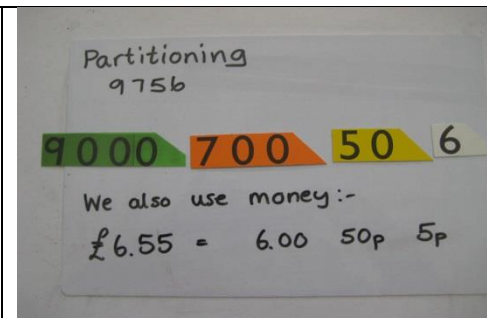
### Representations we use



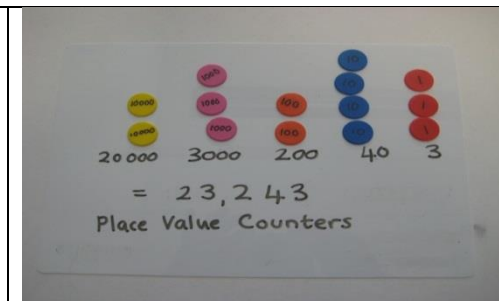
We use hundreds squares, number lines and place value charts to help us understand the value of the digit in each position.



Lots of practice using Number rods and blocks help us appreciate the relevant size of each number in its place value position.



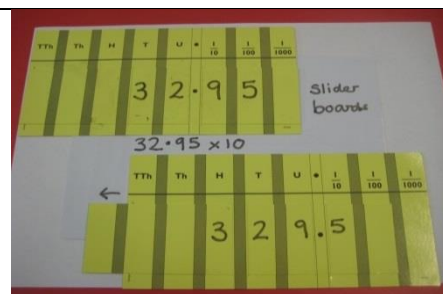
Breaking the number into its parts or partitioning helps secure understanding of place value and is an important step in beginning calculations.



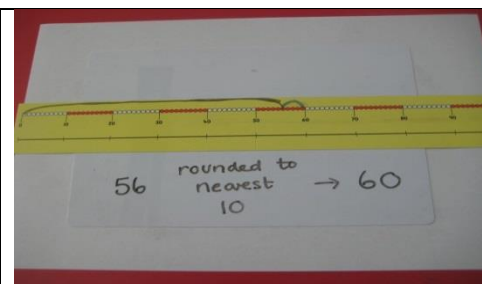
When we are very secure with using number blocks and rods we progress onto using Place Value Counters. Each colour counter represents a place value and to help these are also written on each colour. We start by building numbers and exploring bigger numbers; how to write and say them.

THOUSANDS	HUNDREDS	TENS	ONES

Place Value boards consolidate how to partition numbers and get ready for calculations.



Using sliding Place Value boards we can explore what happens when we X and ÷ by 10 and 100.



Using a number line supports us to round to the nearest 10 or 100. It is easy to see which one it is closest to.

Hundred Chart with Multiples of 4 (A)				
Row	Multiples			Row
1	4	8	12	16
2	16	20	24	28
3	28	32	36	40
4	40	44	48	52
5	52	56	60	64
6	64	68	72	76
7	76	80	84	88
8	88	92	96	100

We count aloud as a class, in steps, forwards and backwards. Practicing at home would be really useful too.

## Addition and Subtraction

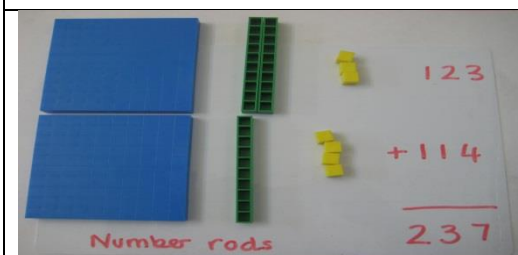
### Year 3

- add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens and a three-digit number and hundreds
- add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- estimate the answer to a calculation and use inverse operations to check answers
- solve problems, including missing number problems (  $\square - 15 = 18$  ), using number facts, place value, and more complex addition and subtraction

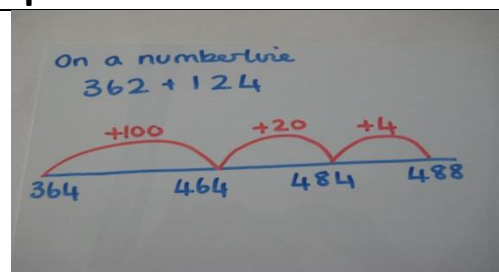
### Year 4

- add and subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction where appropriate
- estimate and use inverse operations to check answers to a calculation i.e.  $25 - 5 = 20$  and  $20 + 5 = 25$
- solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why i.e. Max brought two chocolate bars costing £1.75p each. How much change did he have from £5?

## Representations we use for Addition



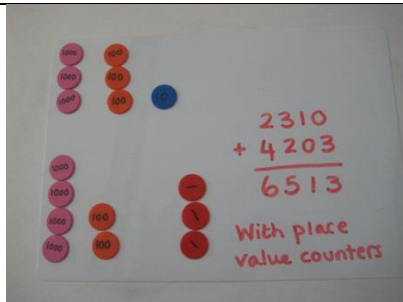
Making the number with number rods than adding the two together. We use these also to introduce the need to visit the "Swap Shop" and exchange for the next set.....a very practical introduction to "carrying". We do this with practical resources for a long time first. We always start from the ones first when we add. So  $3+4=7$ , then  $20+10=30$ , then  $100+100=200$ .



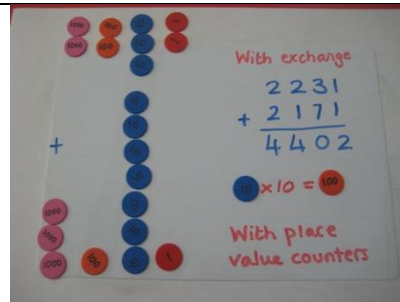
At the same time we continue to use number lines a lot as it is very similar to how we add on when we are doing it mentally. Remember to make your jumps big enough. Lots of practice helps us become very quick and a lot of children find this a very successful method, especially for mental strategies.

$$\begin{array}{r}
 356 + 192 \\
 300 \quad 50 \quad 6 \\
 + 100 \quad 40 \quad 2 \\
 \hline
 400 \quad 90 \quad 8 \\
 = 498
 \end{array}$$

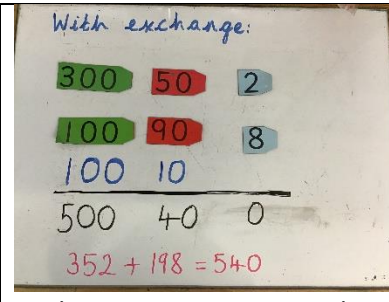
Soon we move on to Partitioning numbers to add up, using place value to help us. This is working towards compact column addition.



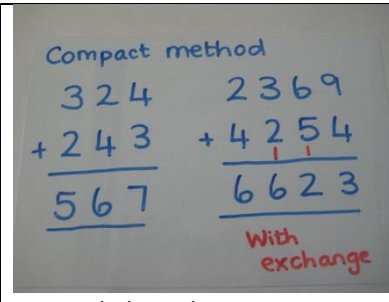
Following using number rods we add up using larger numbers using place value counter. We always start with the ones column.



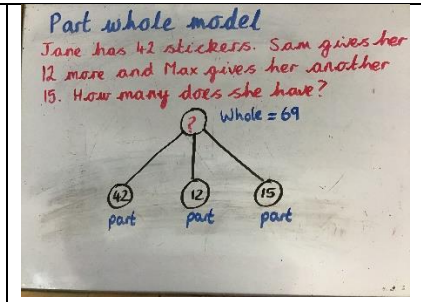
Place value counters help us get used to exchanging ten tens for a hundred, in a practical manner. We always start with the ones column.



At the same time we record addition by partitioning into hundreds, tens and ones and exchanging ten ones for a ten and ten tens for a hundred.

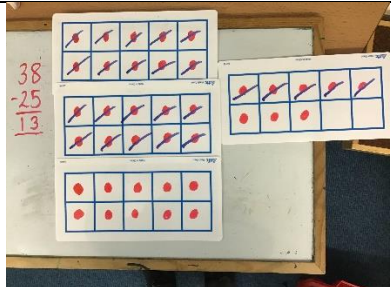


We work throughout year 4 to secure a compact form of addition, when we have really grasped the concept of exchange.

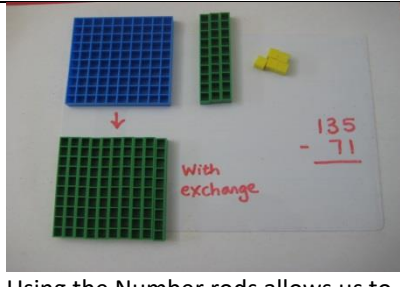


Often when we have a word problem we put the information into a bar model or a part whole model to make sure we understand what we need to do. This doesn't work out the answer for us but helps us see what we need to do.

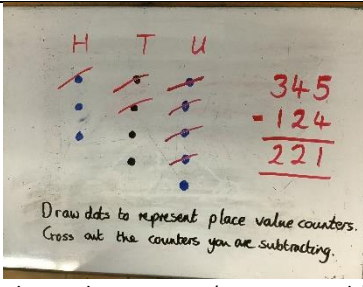
## Representations we use for Subtraction



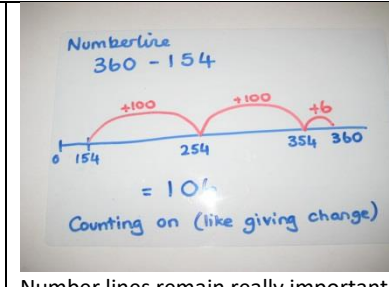
Some of us still use tens frames to build the numbers. We can remove the counters we are subtracting or cross them out.



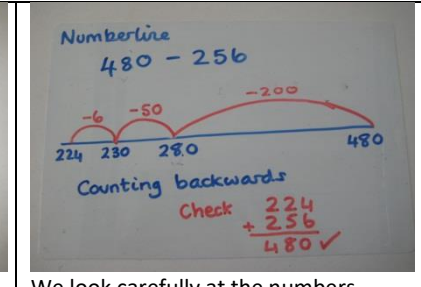
Using the Number rods allows us to build an understanding of how to exchange in subtraction too. Doing it practically is very important. We always start from the ones column.



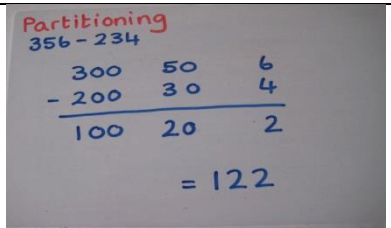
Place Value counters (or arrow cards) are the next step as they allow us to still use practical resources but with bigger numbers too. We can cross out the ones we are subtracting.



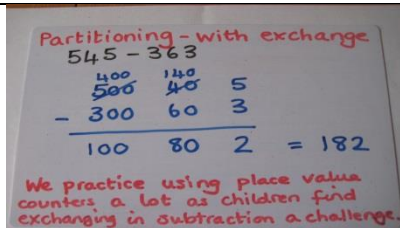
Number lines remain really important as they copy the way we subtract mentally too. We begin with "counting on" from the smaller number to the larger. This is linked to giving change.



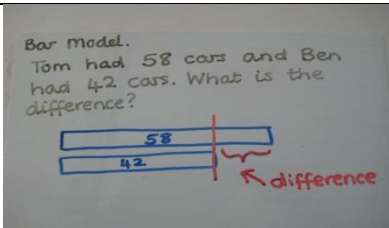
We look carefully at the numbers because sometimes it will be better to "count backwards" on the number line. Especially if they are close together. Using the inverse rule is good as an additional check.



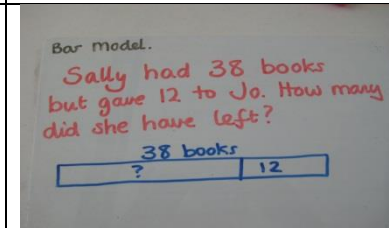
Soon we move onto Partitioning without exchange. We start by doing this alongside using place value counters at the same time.



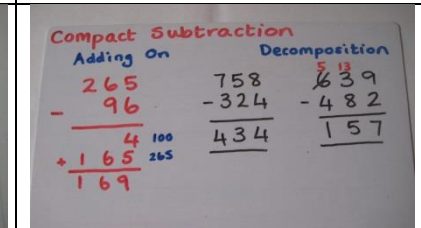
Partitioning with exchange. This is the stage that when rushed will have children saying  $4 - 6 = 2$ . A lot of time needs to be given so that they understand you just can't reverse the numbers like you can for addition.



Often when we have a word problem we put the information into a bar to make sure we understand what we need to do. This doesn't work out the answer for us but helps us see what we need to do.



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Some year 4's will show a good understanding of the concept and will be able to use a more compact method of subtraction quite quickly.



# Multiplication and Division

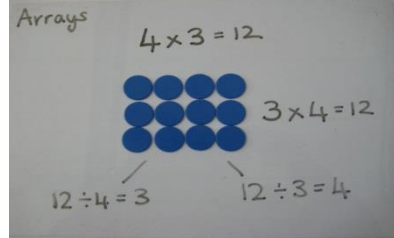
## Year 3

- recall and use multiplication and division facts for the 3, 4, 6 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division

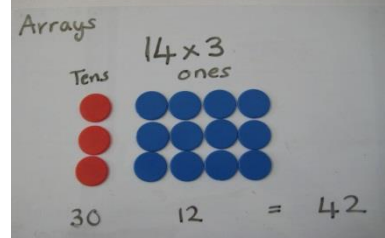
## Year 4

- recall multiplication and division facts for 7, 9, 11 and 12 multiplication tables
- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- recognise and use factor pairs i.e. 12..... factors are 1,12 ; 2,6 ; 3,4
- understand  $6 \times 8$  is same as  $8 \times 6$  in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- solve more complex problems involving multiplying and division

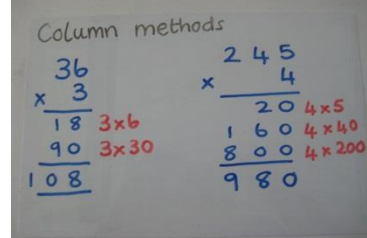
## Representations we use for Multiplication



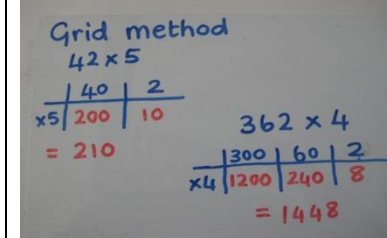
Arrays continue to be important and we are encouraged to link all the relevant facts together to help with our mental maths. Learning tables is critical in Y3/4. Lots of practice at home is essential to secure fluency.



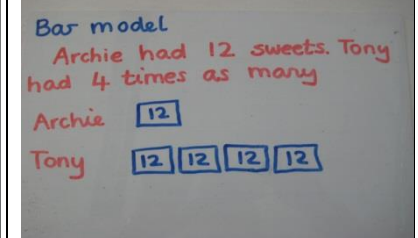
Arrays also help us understand multiplying 2 and 3 digit numbers.



Alongside arrays, we begin to record using column methods. We use practical resources to support this step for quite a while to make sure we understand the concept.

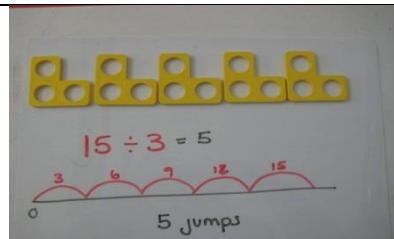


We are also introduced to the grid method. Some of us find this easier. It helps when we are in yr 5 when we start to x decimals.

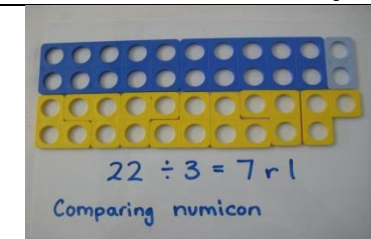


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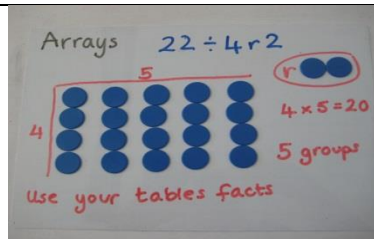
## Representations we use for Division



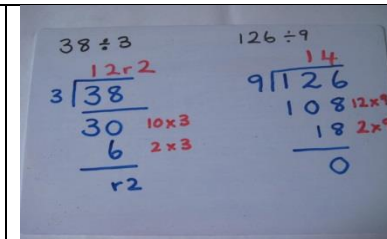
We begin to see division as adding groups of the same size. We make links to our multiplication facts.



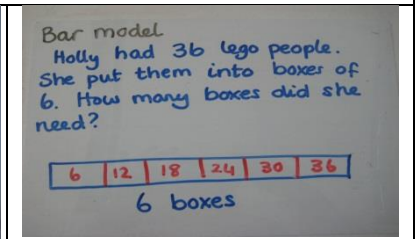
Using Numicon makes the image very clear.



Using arrays helps with division too. Using our tables is important. We start with numbers which leave no remainders first. Sometimes we draw dots for arrays.



We can begin to use a formal layout, often by using our tables to chunk down the answer.



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