



## Parent's Guide to Supporting Maths in the New National Curriculum

### Year 3 / 4

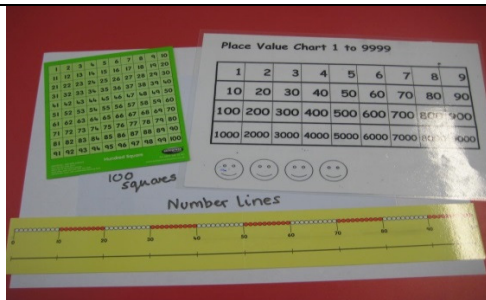
The New National Curriculum is significantly more challenging than before. Therefore, children will need to develop a very sound understanding of their maths to be able to meet these challenges. These need to be taught in an "age appropriate" manner which allow the children to use a series of methods and resources that will be suitable for a developing 7-9 year old brain.

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 methods we use with them. Remember children will all progress at different rates and may be using a different method to that of their peers.

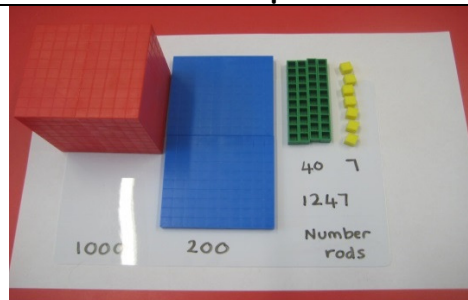
Year 3/4 focusses more on the application of number skills with ever increasing complexity. This means the children need to use their reasoning skills and will do best if they are fluent in their number / table facts and methods. Practical handling of resources still remains essential to aid secure understanding ready for this more demanding curriculum, so at home you could use money, counters, buttons etc. to support your child.

Place Value	
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>

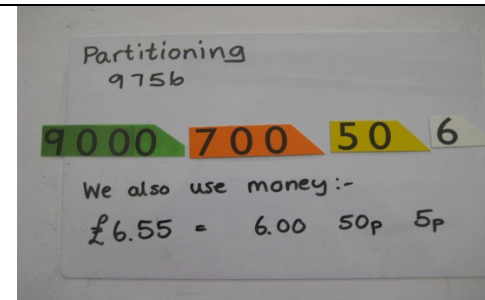
### Representations we use for Place Value



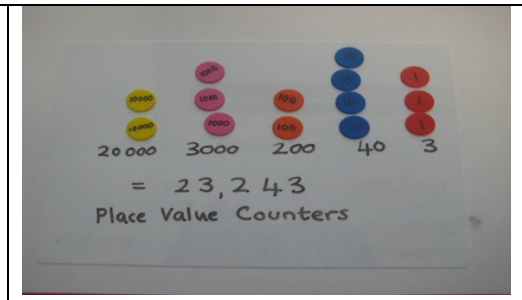
We use hundreds squares, number lines and place value charts to help us understand the value of the digit in each position.



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



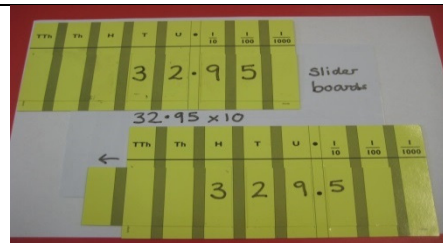
Breaking the number into its parts or partitioning helps secure understanding of place value and is an important step in beginning calculations.



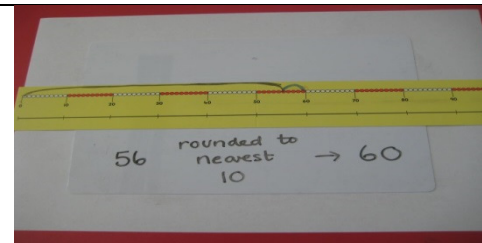
When we are very secure with using number blocks and rods we progress onto using Place Value Counters. Each colour counter represents a place value and to help these are also written on each colour. We start by building numbers and exploring bigger numbers; how to write and say them.

THOUSANDS	HUNDREDS	TENS	ONES

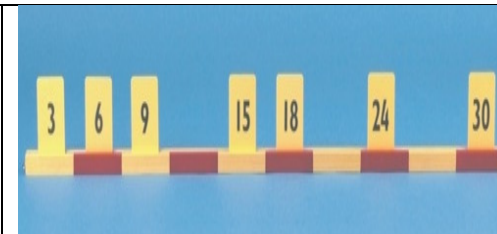
Place Value boards consolidate how to partition numbers and get ready for calculations.



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.



Counting sticks are regularly used to practice counting in different sized steps. We count aloud as a class, forwards and backwards. Practicing at home would be really useful too.

## Addition and Subtraction

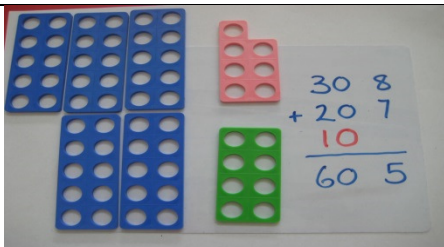
### Year 3

- 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 ( $29 - \square = ?$ ), using number facts, place value, and more complex addition and subtraction.

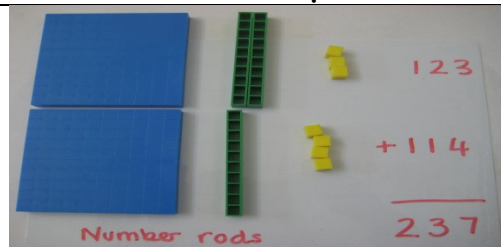
### Year 4

- 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 ie.  $25 - 5 = 20$  and  $20 + 5 = 25$
- solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. Ie. Max brought two chocolate bars costing £1.75p each. How much change did he have from £5?

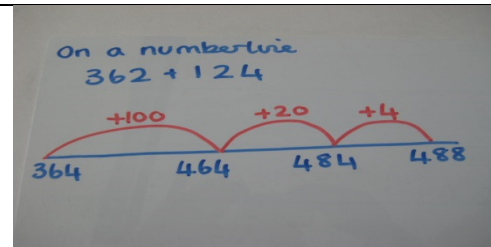
## Representations we use for Addition



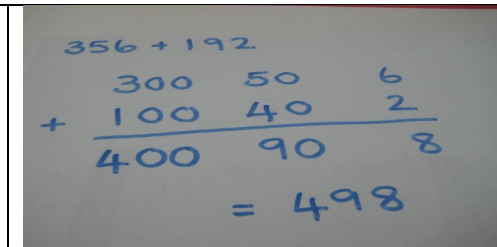
Some of us still feel secure using Numicon to build numbers before adding them together.



Making the number with number rods then adding the two together. We use these also to introduce the need to visit the "Swop Shop" and exchange for the next set.....a very practical introduction to "carrying". We do this with practical resources for a long time first.



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.



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

2310  
+ 4203  
-----  
6513

With place value counters

Following using number rods we add up using larger numbers using place value counter.

2231  
+ 2171  
-----  
4402

With exchange

With place value counters

Place value counters help us get used to exchanging or "carrying" in a practical manner.

352  
+ 178  
-----  
530

With carrying

At the same time we record addition with carrying by partitioning.

324  
+ 243  
-----  
567

2369  
+ 4254  
-----  
6623

With exchange

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

Bar Model:-  
Jane has 42 stickers. Sam gives her 12 more and Mark gives her 15 more. How many does she have?

42    15    12

Nº. of stickers = 69

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.

### Representations we use for Subtraction

38  
- 25  
-----  
13

Use Numicon

Lay over each other.

Some of us still use Numicon to build the numbers. We can lay the tiles over each other to understand the concept of subtraction practically.

135  
- 71  
-----  
64

With exchange

Using the Number rods allows us to build an understanding of how to exchange in subtraction too. Doing it practically is very important.

345  
- 124  
-----  
221

By moving Place Value counters

Place Value counters are the next step as they allow us to still use practical resources but with bigger numbers too.

Numberline  
360 - 154

Counting on (like giving change)

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.

Numberline  
480 - 256

Counting backwards

Check 224 + 256 = 480

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.

356 - 234  
-----  
122

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

545 - 363  
-----  
182

With exchange

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.

Bar Model.  
Tom had 58 cars and Ben had 42 cars. What is the difference?

58  
42

difference

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.

Bar Model.  
Sally had 38 books but gave 12 to Jo. How many did she have left?

38 books  
12

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.

265  
- 96  
-----  
169

Adding On

Decomposition

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

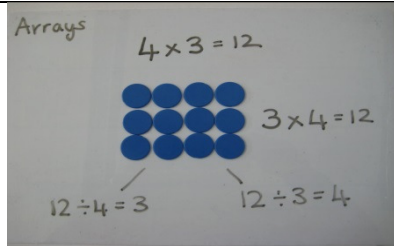
### Year 3

- 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.

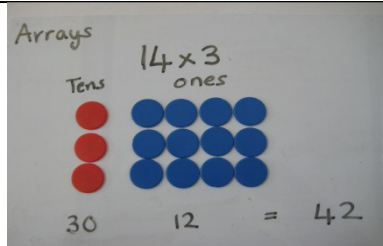
### Year 4

- 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 ie. 12..... factors are 1,12 ; 2,6 ; 3,4
- understand 6 x 8 is same as 8 x 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.

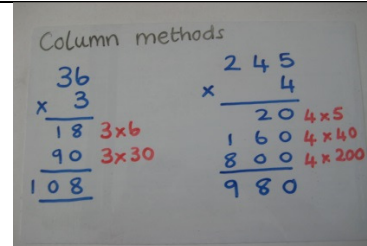
### Representations we use for Multiplication



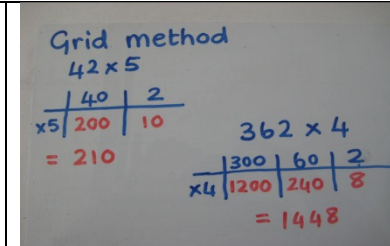
Arrays continue to be important and we are encouraged to link all the relevant facts together to help with our mental maths. Learning tables is critical in yr 3 / 4. Lots of practice at home is essential to secure fluency.



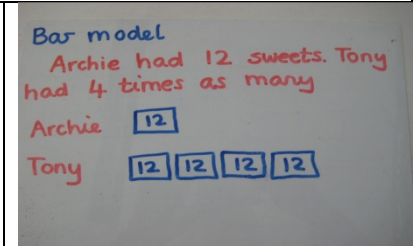
Arrays also help us understand multiplying 2 and 3 digit numbers.



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.

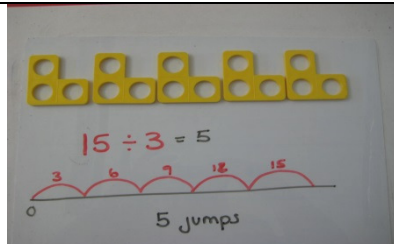


We are also introduced to the grid method. Some of us find this easier. It helps when we are in yr 5 when we start to x decimals.

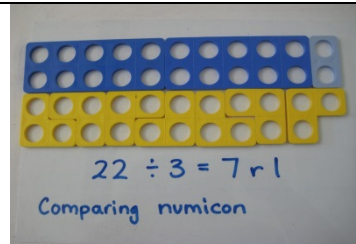


Often when we have a word problem we put the information into a bar to make sure we understand what we need to do. This doesn't work out the answer for us but helps us see what we need to do.

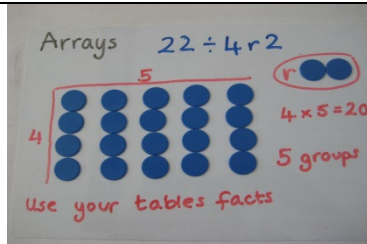
### Representations we use for Division



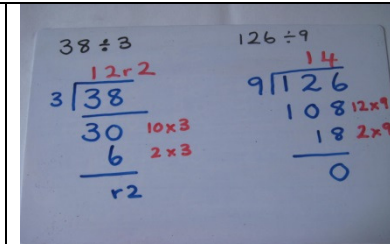
We begin to see division as adding groups of the same size. We make links to our multiplication facts.



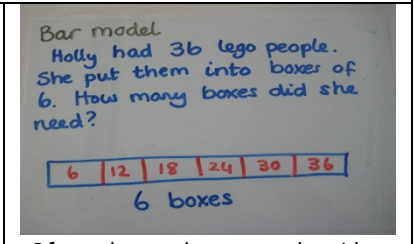
Using Numicon makes the image very clear.



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.



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.