A Parent's Guide to Maths at Starcross Primary School

Year 5

The way Maths is taught in primary schools may seem to have changed considerably since you yourself were in the classroom. With the introduction of a new National Curriculum in 2014, some more complicated concepts have been introduced and a much deeper understanding of what is taught is now necessary.

From starting in Foundation, all the way through to Year Six, your child will follow a progressive scheme of learning that will build on their previous knowledge and adapt known methods and images to ensure their working becomes more efficient as they work with larger numbers.

This guide is designed to support you to understand the methods that are being taught in the classroom on a year group basis and the understanding that your child will be gaining. We provide the children with images to match the concrete tools they may be using to complete maths problems with the aim to be able to remove the concrete depictions and replace them with pictorial representations by the end of KS2.

It is however very important to recognise that although a new method may be introduced to your child as they progress through the school, if they find it more difficult to grasp, they will always be supported to continue using *their* most efficient method whilst being provided with plenty of opportunities to practise the new (more effective) technique. It is very important that your child understands the workings of each method, not simply a mechanical means to answer a question.

Terminology

It is important to note the vocabulary we use in school and that you try to embed this in any maths talk at home.

Your child will now be working with much larger numbers (up to 6-digits) as well as beginning to develop an understanding of decimal values.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
M	HTh	TTh	Th	H	T	O	.	t	h	th

Addition (+)	Subtraction (-)	Multiplication (x)	Division (÷)	Equals (=)
add more plus increase total sum altogether	subtract minus less decrease take away fewer leave difference	multiply times lots of groups of product array multiplied by repeated addition	divide by share divisible by group divide share equally	equivalent same as total makes balances

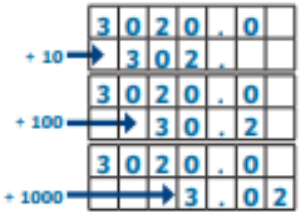
Multiplying and Dividing by Multiples of 10

Dividing by 10, 100 or 1,000 Where Answers Are Decimals

When dividing a number by 10, 100 or 1,000 the value of each digit is divided sometimes giving a decimal answer.

3020 ÷ 10 = 302
3020 ÷ 100 = 30.2
3020 ÷ 1000 = 3.02

Each digit moves the necessary number of place to the right because dividing by 10 decreases the number.



Remember:

1. Keep the digits together. Don't let any 0's jump in!
34 ÷ 10 = 3~~0~~.4

2. Round to check:
340 ÷ 100 = 3.4
use 300 ÷ 100 = 3

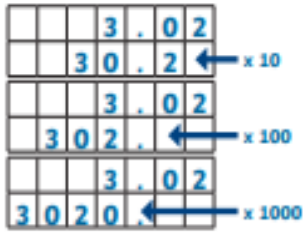
3. Use the inverse to check:
3.4 x 1000 = 3400

Multiplying Decimals by 10, 100 or 1000

When multiplying a decimal number by 10, 100 or 1000, the value of each digit is multiplied.

3.02 x 10 = 30.2
3.02 x 100 = 302
3.02 x 1000 = 3020

Each digit moves the necessary number of places to the left because multiplying by 10, 100 or 1000 increases the number.



Remember:

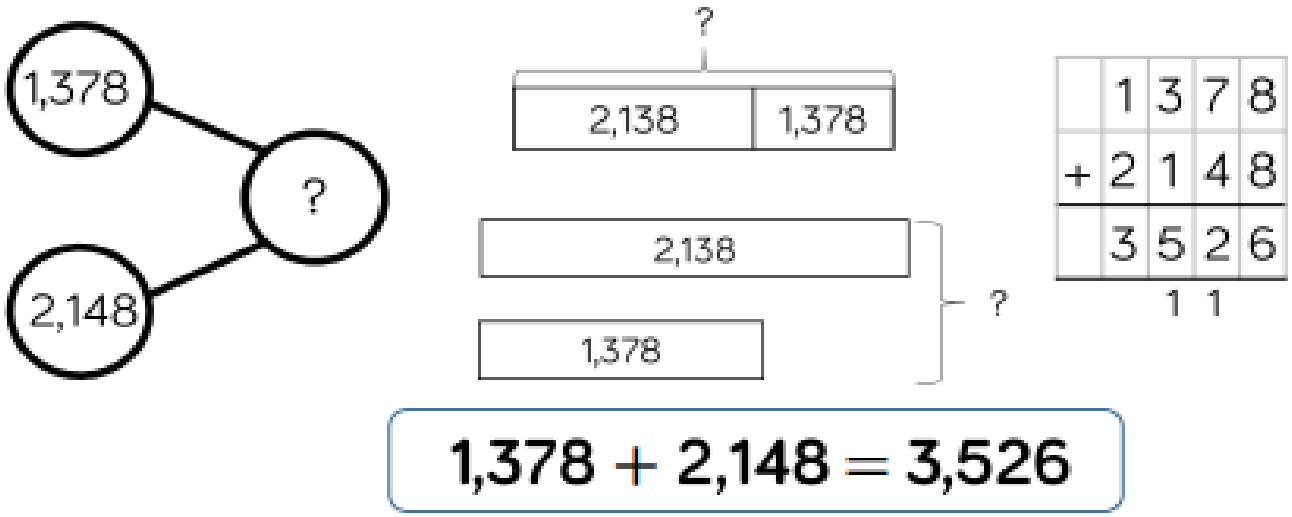
1. Keep the digits together. Don't let any 0s jump in!
3.02 x 100 = 300.2 ✗
302 ✓

2. Round to check:
3.02 x 1000 = 3020
use 3 x 1000 = 3000

When multiplying and dividing by multiples of 10, the children are taught to move their number up or down the place value chart the correct number of places. They then may need to add 'place holder 0s'.

Addition

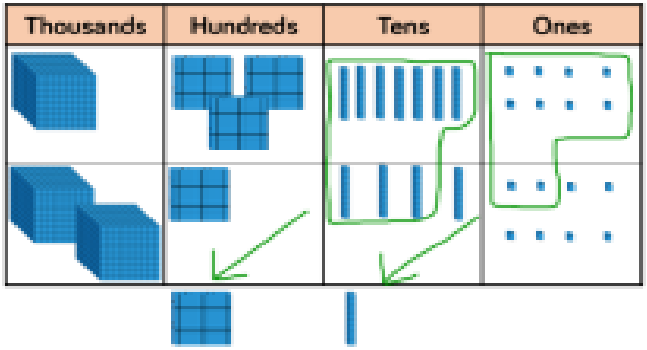
Skill: Add numbers with up to 4 digits



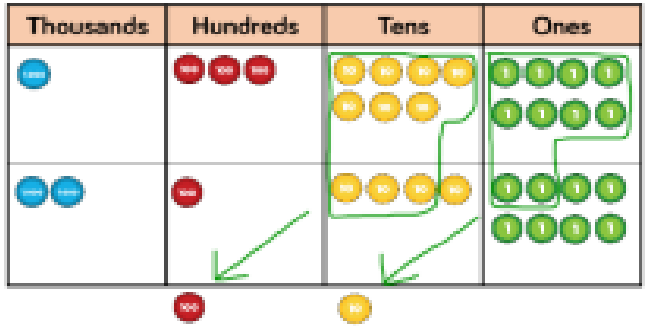
Previous Learning

Your child will have seen a range of representations and worked with numbers up to 4-digits.

They should be able to complete written column addition.



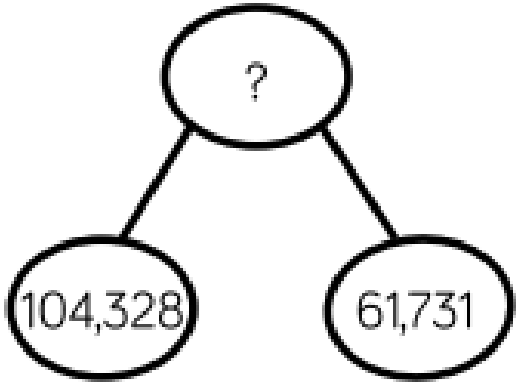
Dienes Apparatus (Base 10)

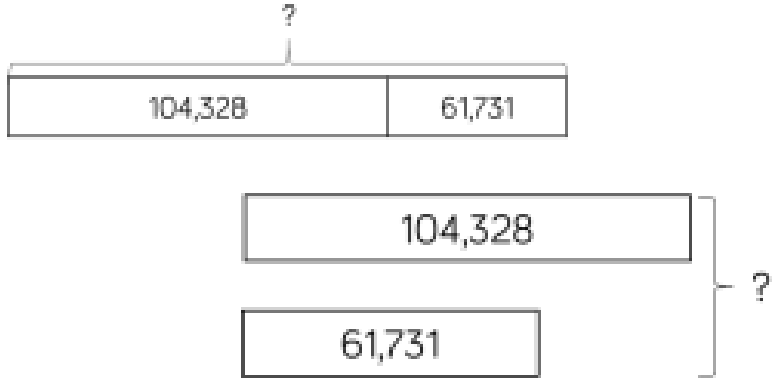


Place Value Counters

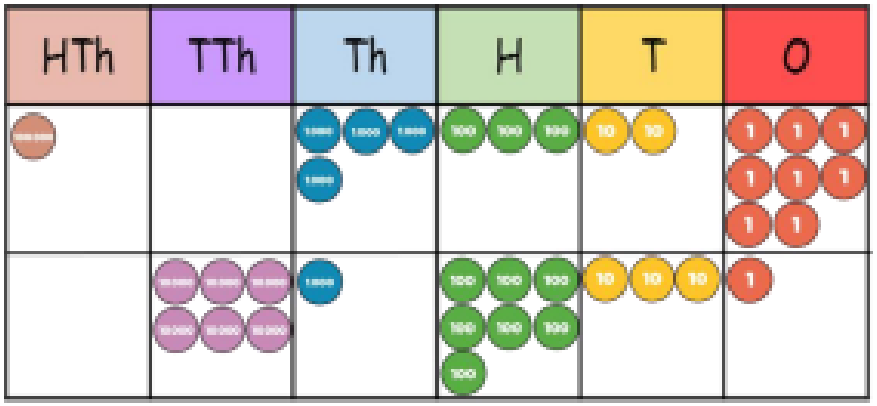
Your child may also like to use more concrete or pictorial representations to support their workings.

Skill: Add numbers with more than 4 digits





$$104{,}328 + 61{,}731 = 166{,}059$$



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

1

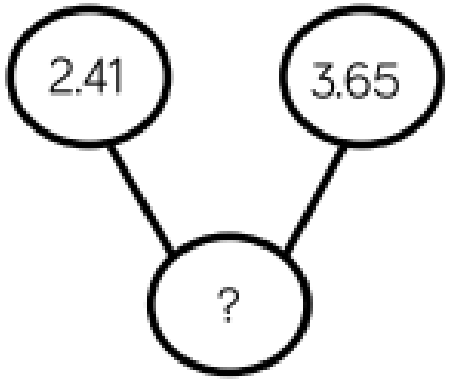
New Learning

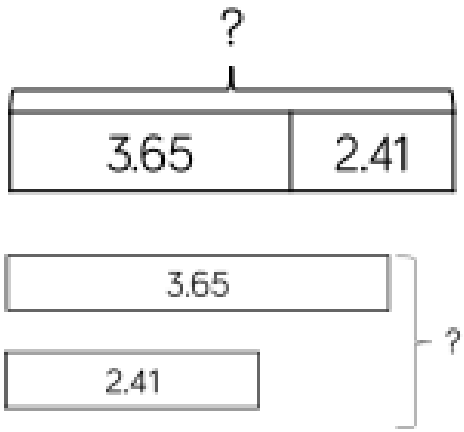
The 'bar tool' will be the most common pictorial representation your child will use now.

Your child will become much more fluent when using the column method and will be able to add much larger numbers.

They will be encouraged to use mostly written methods and will rely less and less on pictorial representations.

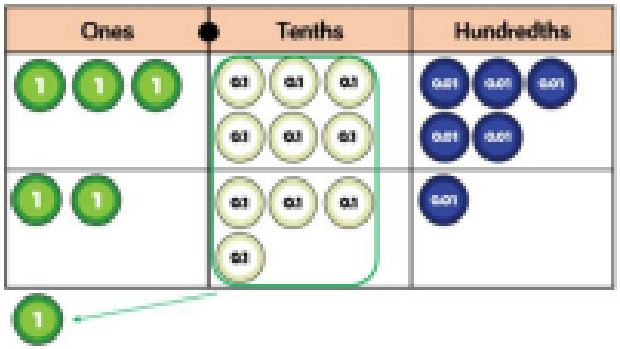
Skill: Add with up to 3 decimal places

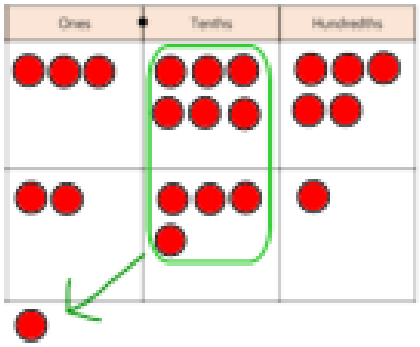




$$\begin{array}{r} 3.65 \\ +\ 2.41 \\ \hline 6.06 \\ \hline 1 \end{array}$$

$$3.65 + 2.41 = 6.06$$





New Learning

Your child will learn to add numbers with up to three decimal places.

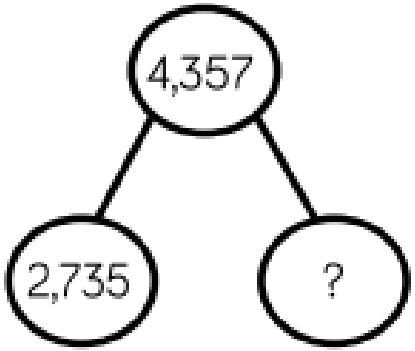
Their learning will be linked to problems involving measures and money.

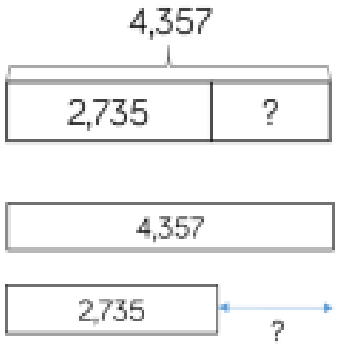
Some children will work on problems with numbers that have different amounts of decimal places and will be expected to use PV columns to correctly 'line them up'.

They will have the opportunity to use place value counters again to support their understanding of the new place value columns that they are exploring.

Subtraction

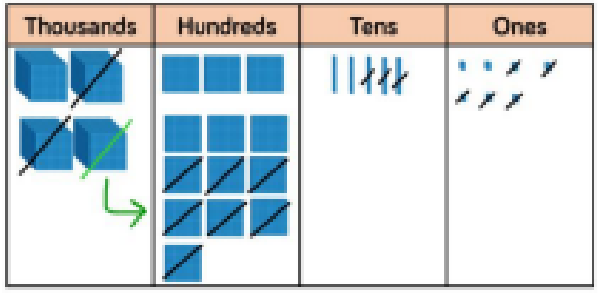
Skill: Subtract numbers with up to 4 digits





$$\begin{array}{r} {}^{3}\cancel{4}^{1}357 \\ -\ 2735 \\ \hline 1622 \end{array}$$

$$4{,}357 - 2{,}735 = 1{,}622$$



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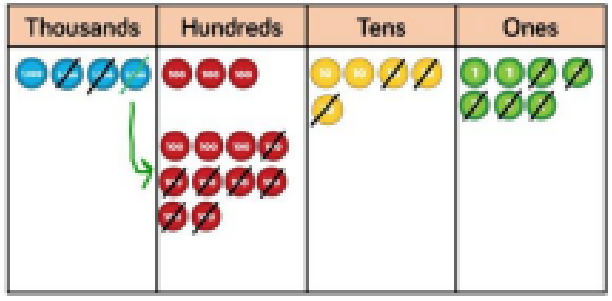


Place Value Counters

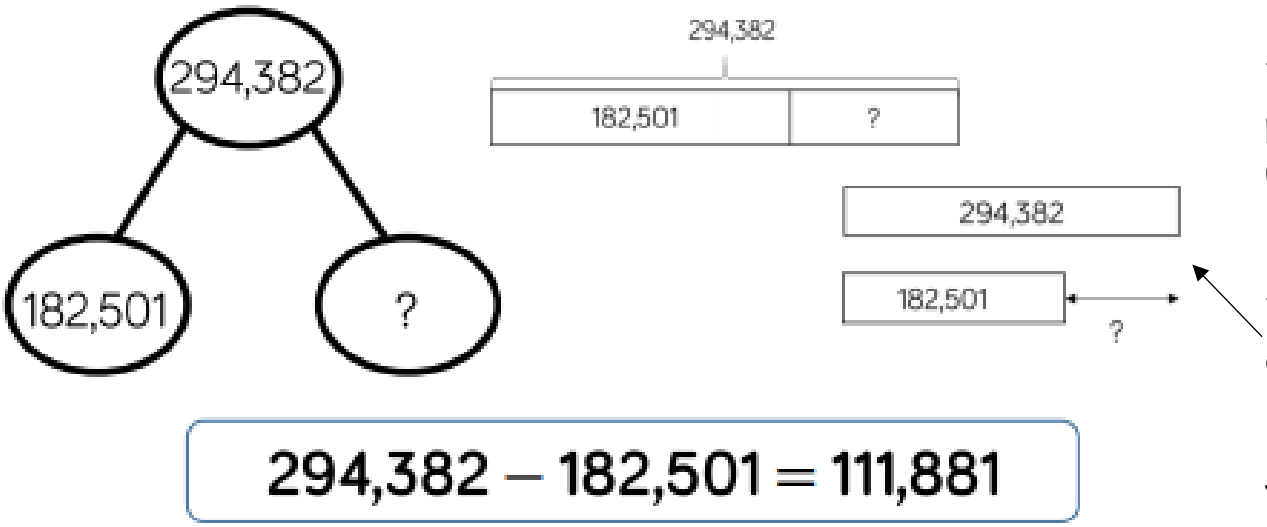
Previous Learning

Your child will have seen a range of representations and worked with numbers up to 4-digits.

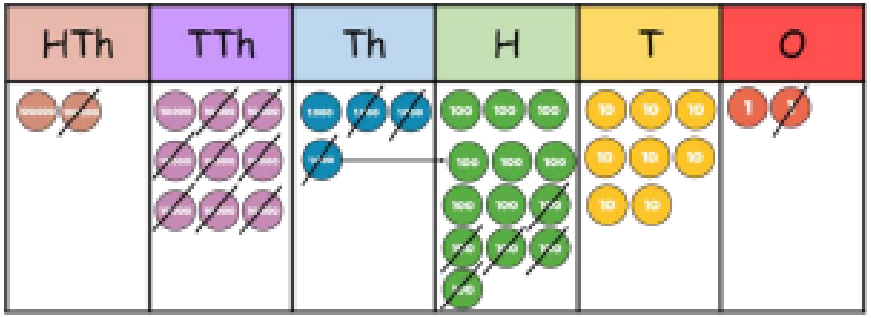
They should be able to complete written column subtraction.

Your child may also like to use more concrete or pictorial representations to support their workings.

Skill: Subtract numbers with more than 4 digits



$$294{,}382 - 182{,}501 = 111{,}881$$



	2	9	$^{3}\not{4}$	$^{1}3$	8	2
−	1	8	2	5	0	1
	1	1	1	8	8	1

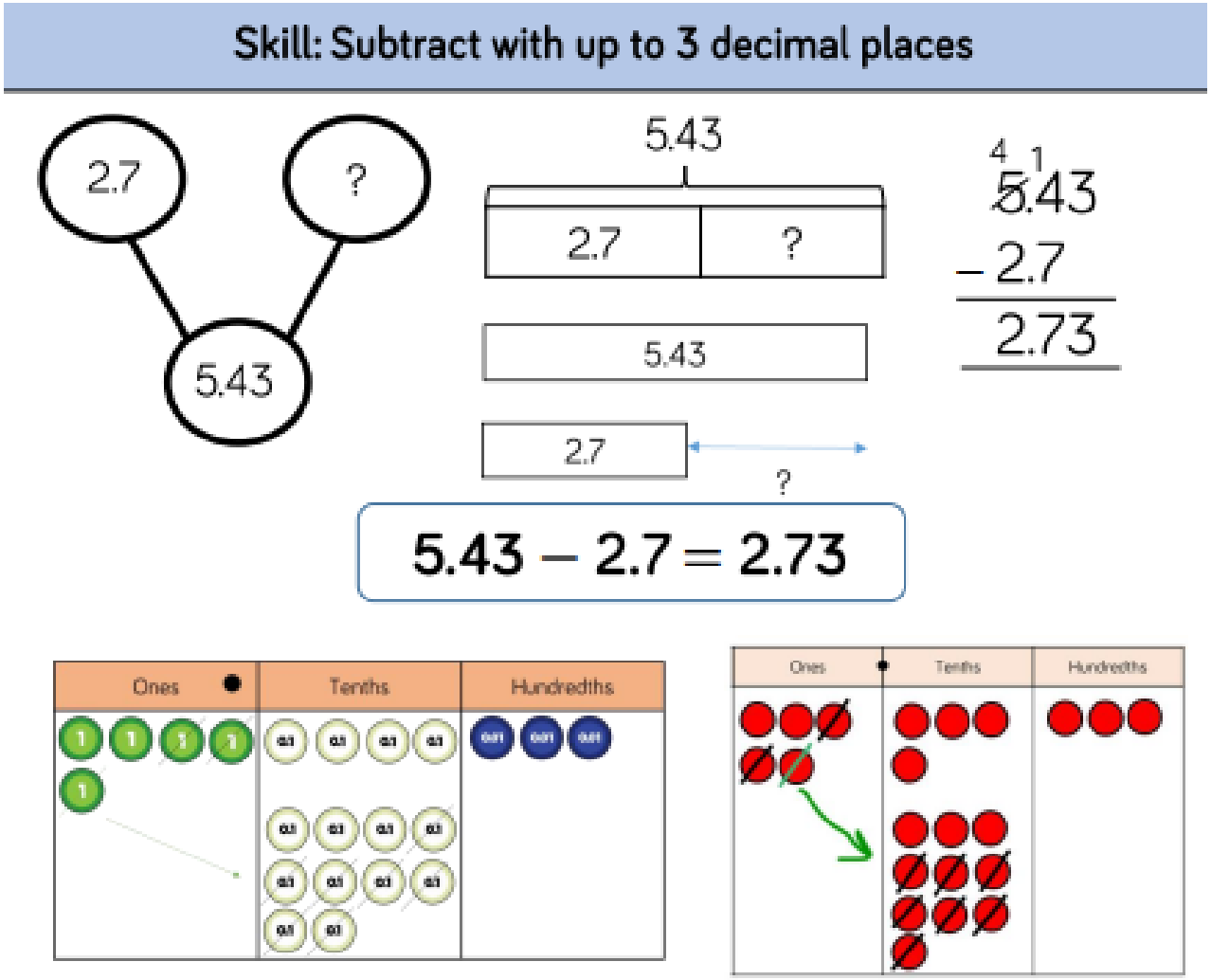
New Learning

The 'bar tool' will be the most common pictorial representation your child will use now.

This bar very clearly shows the concept of 'difference'.

Your child will become much more fluent when using the column method and will be able to subtract much larger numbers.

They will be encouraged to use mostly written methods and will rely less and less on pictorial representations.



New Learning

Your child will learn to subtract numbers with up to three decimal places.

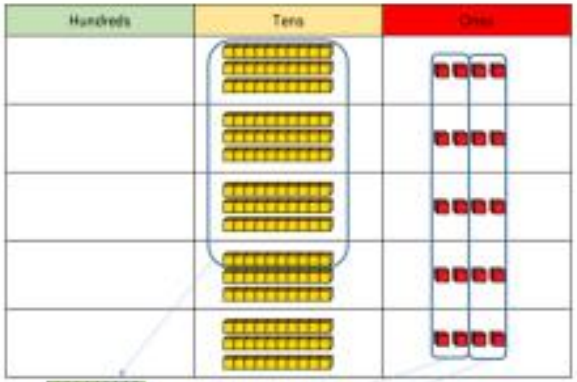
Their learning will be linked to problems involving measures and money.

Some children will work on problems with numbers that have different amounts of decimal places and will be expected to use PV columns to correctly 'line them up'.

They will have the opportunity to use place value counters again to support their understanding of the new place value columns that they are exploring.

Multiplication

Skill: Multiply 2-digit numbers by 1-digit numbers



	H	T	O	
		3	4	
×			5	
		2	0	(5 × 4)
+	1	5	0	(5 × 30)
	1	7	0	

$$34 \times 5 = 170$$

	H	T	O	
		3	4	
×			5	
	1	7	0	

1 2

Previous Learning

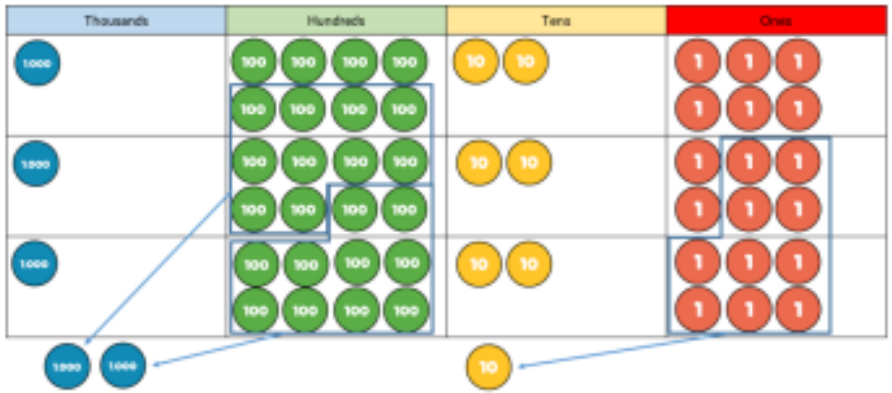
Your child will have again used concrete representations to support their understanding of written methods.

The 'expanded method' of multiplication clearly sets out all of the steps required to solve the problem.

Some children will have confidently moved on to the use of 'short multiplication'.

They will use place value counters to support their understanding of this.

Skill: Multiply 4-digit numbers by 1-digit numbers



$$1{,}826 \times 3 = 5{,}478$$

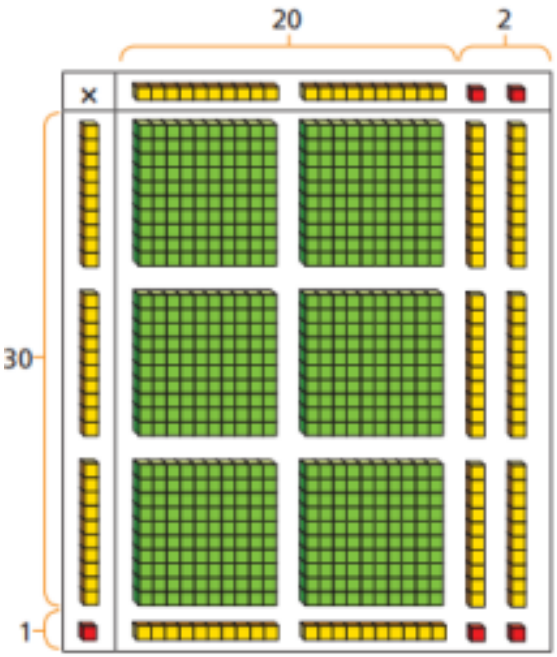
	Th	H	T	O
	1	8	2	6
×				3
	5	4	7	8
	2		1	

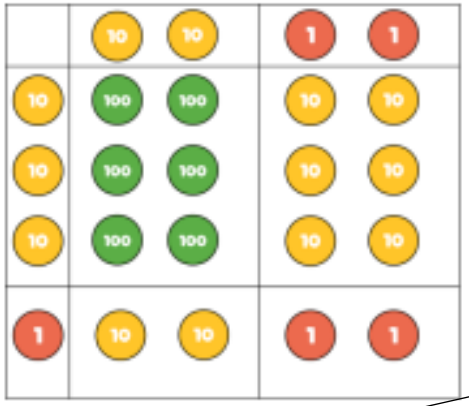
New Learning

Your child will work with larger numbers and will be encouraged to use 'short multiplication'.

It is still perfectly acceptable for them to be using the 'expanded' method if they find it easier to understand.

Skill: Multiply 2-digit numbers by 2-digit numbers





×	20	2
30	600	60
1	20	2

	H	T	O
		2	2
×		3	1
		2	2
	6	6	0
	6	8	2

$22 \times 31 = 682$

New Learning

Your child will use the 'area model' to support their understanding of all of the steps required to multiply two two-digit numbers together. They may use dienes or place value counters to support them.

They will then convert this understanding into the use of the 'grid method'.

When your child is confident, they will move onto using the formal written methods.

Again, it is perfectly ok for them to be using the 'expanded' method to keep track of their workings.

They will then use their knowledge and understanding to multiply even larger numbers.

Skill: Multiply 4-digit numbers by 2-digit numbers

TTh	Th	H	T	O
	2	7	3	9
×			2	8
2 (2)	1 (5)	9 (3)	1 (7)	2
5 (1)	4	7 (1)	8	0
7	6	6	9	2
		1		

$2{,}739 \times 28 = 76{,}692$

New Learning

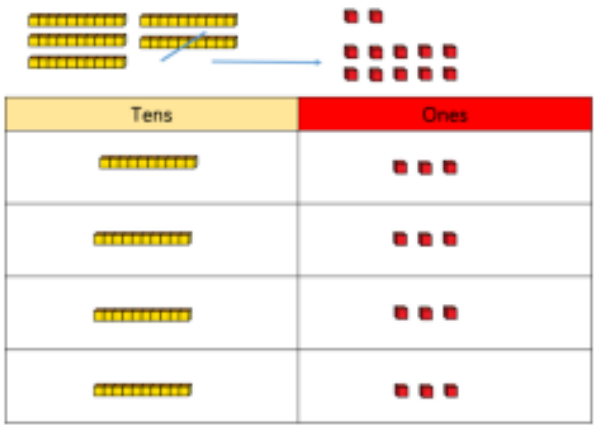
If your child is very confident with the formal written methods for multiplication, they may move onto even larger numbers.

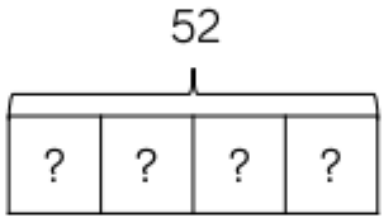
They will be shown how to consistently record any exchanges to ensure their workings are clear.

Some children may not visit this method until Year Six.

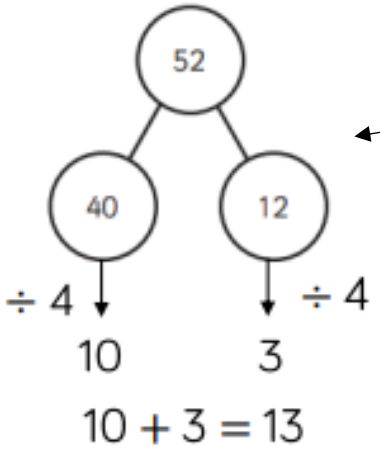
Division

Skill: Divide 2-digits by 1-digit (sharing with exchange)

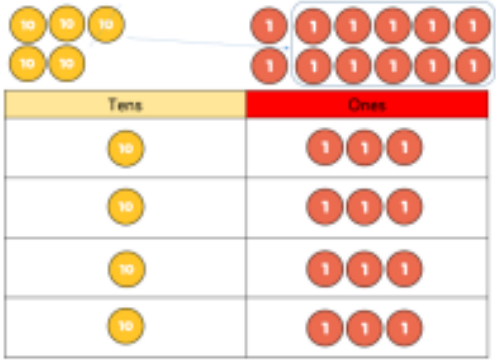




$52 \div 4 = 13$



$10 + 3 = 13$



Previous Learning

Your child will have learned how to divide two-digit numbers by one-digit numbers using a variety of methods and should have chosen their favourite and most efficient.

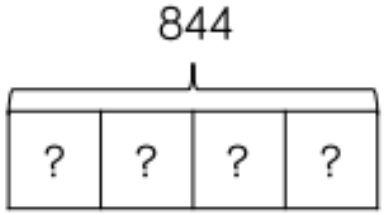
Some like to partition and use their times tables knowledge.

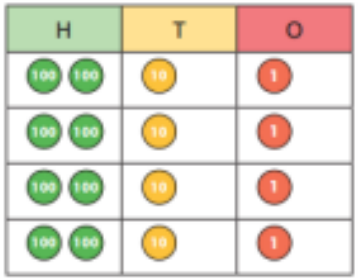
Others will still prefer to use concrete representations.

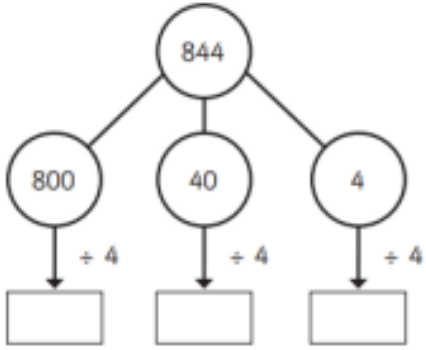
They will begin to understand remainders.

Skill: Divide 3-digits by 1-digit (sharing)

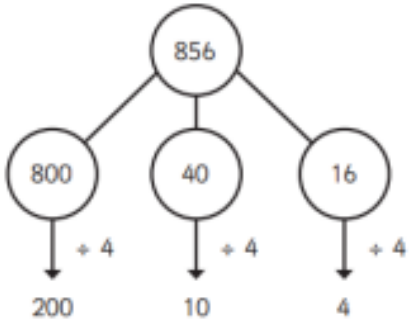
844 ÷ 4 = 211

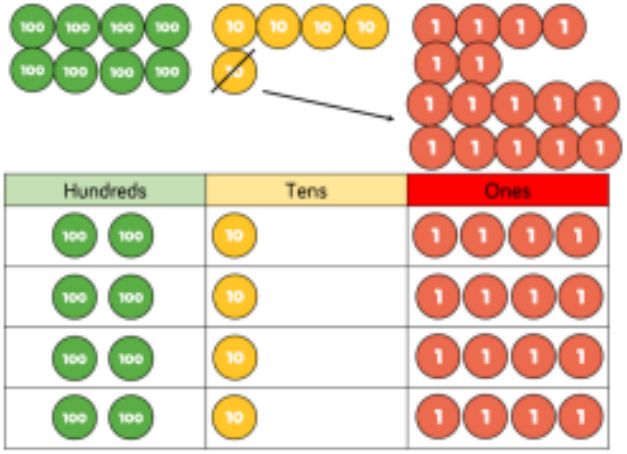






856 ÷ 4 = 214



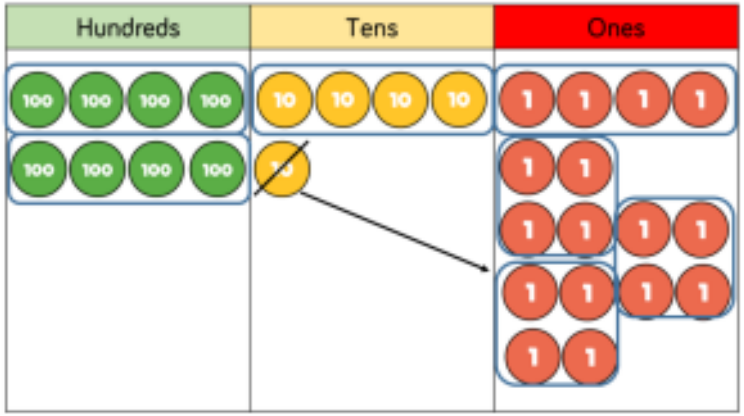


Previous Learning

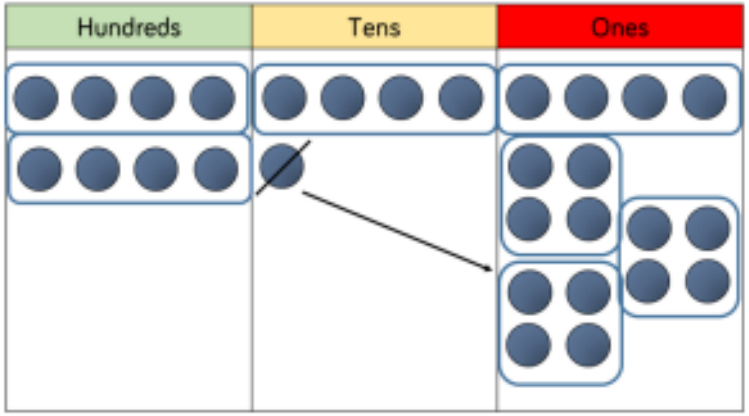
Your child will have been taught to divide larger numbers by one-digit numbers using sharing.

This will be very well supported using concrete representations and they will have begun to learn how to record this pictorially too.

Skill: Divide 3-digits by 1-digit (grouping)



		2	1	4
	4	8	5	$^{1}6$



$856 \div 4 = 214$

New Learning

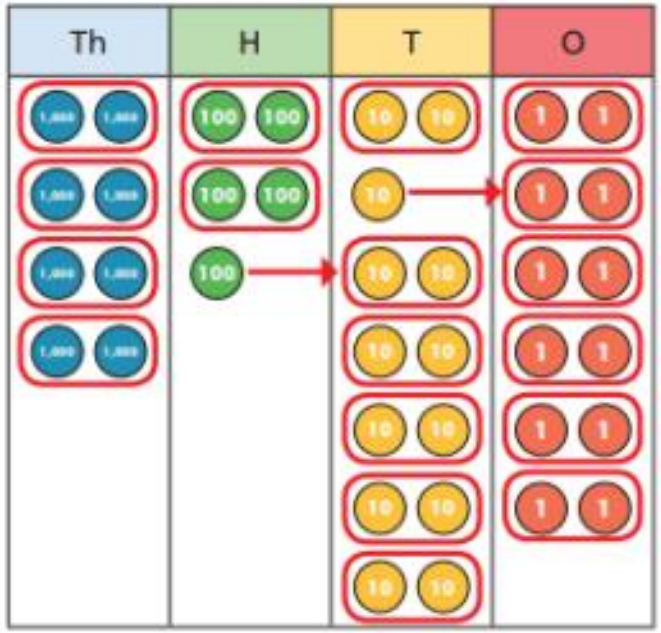
Your child will start to use the 'short division or bus stop' method.

They will use grouping, starting with the largest place value column.

Your child will be taught to consider 'how many groups of four hundreds can we make' and then 'how many groups of four tens can we make'.

Remainders will be seen as ungrouped counters.

Skill: Divide 4-digits by 1-digit (grouping)



	4	2	6	6
2	8	5	$^{1}3$	$^{1}2$

$$8{,}532 \div 2 = 4{,}266$$

New Learning

They will practise using this method with increasingly large numbers.

The divisor will never be more than one-digit.