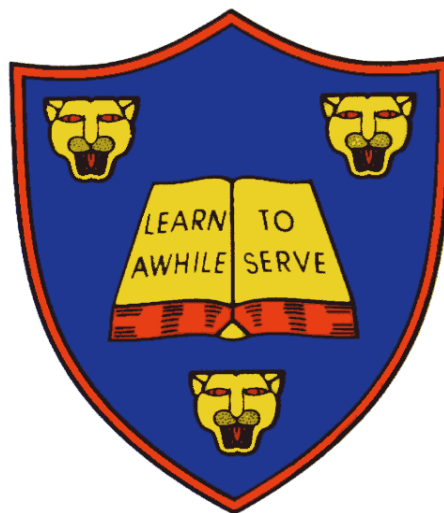


STRATFORD PRIMARY SCHOOL



Calculation Policy

Date adopted by Governors:	Oct 2016
Date for policy review:	Oct 2018
Person responsible for review:	Headteacher
Signed by Chair of Governors	

Stratford –Upon –Avon

Primary School

CALCULATION POLICY – Oct 2016



The following calculation policy has been devised to meet requirements of the National Curriculum 2014 for the teaching and learning of mathematics, and is also designed to give pupils a consistent and smooth progression of learning in calculations across the school. Please note that early learning in number and calculation in Reception follows the ‘Development Matters’ EYFS document.

Age stage expectations

The calculation policy is organised according to age stage expectations as set out in the National Curriculum 2014, however it is vital that pupils are taught according to the stage that they are currently working at, being moved onto the next level as soon as they are ready, or working at a lower stage until they are secure enough to move on.

Providing a context for calculation.

At Stratford Primary we believe that it is vitally important that any type of calculation is given a real life context or problem solving approach to help build children’s understanding of the purpose of calculation, and to help them recognise when to use certain operations and methods when faced with problems. This must be a priority within calculation lessons. Children should not be given more than 10 calculations of one level of difficulty at a time and once they have demonstrated mastery of the skill the calculations must be put into context.



Choosing a calculation method

Children need to be taught and encouraged to use the following processes in deciding what approach they will take to a calculation, to ensure they select the most appropriate method for the numbers involved.

To work out a tricky calculation: **Approximate, Calculate, Check it!**

Solving Word problems

When approaching word problems children will use the RUCSAC framework to help them go through the thinking processes necessary to solve the task set.

1). **R . U . C . S . A . C**

RUCSAC can be written by the question number of a problem and each section ticked as the child has completed it as a way of self checking as they move through the problem.

The calculation signs can be written in the order that they need to be performed under **RUCSAC** and where appropriate children can check by using the inverse calculation **RUCSAC**. The former is especially important if it is a multi-step problem.



Problem Solving

- **R** Read the Question
- **U** Understand it /Underline it
(what do I have to do to find out?)
- **C** Choose the operation
(Addition, subtraction, multiplication, division and in what order?)
- **S** Solve it
- **A** Answer
(Have I answered the question ?)
- **C** Check the answer (Go back and check again)



Calculation in Early Years and Foundation stage



Maths in the Early Years



At Stratford –Upon –Avon Primary School our staff believe that our young children's learning is not compartmentalised. That children will learn when they make connections between experiences that are related to their lives in a variety of settings be it, at school , at home and in their surrounding community.





The value of a number

Before we start any addition or subtraction, it is really important that children understand the value of number.

There are two very different ways of counting at this age, rote counting and synchronic counting. Rote counting is your child's ability to say the numerals in order. For example, simply reciting "1, 2, 3, 4, 5"

A much more difficult concept is synchronic counting. This counting involves saying one numeral for each object, such as having 5 teddies and counting "1, 2, 3, 4, 5".

Addition



In Years we concentrate on concrete methods of addition.
We use counters, cubes and physical objects.

$$\text{●} + \text{●} \text{ ●} \text{ ●} \text{ ●} \text{ ●} =$$

Children solve problems using their fingers.



Number tracks are used to help children count on and to find one
More than the given number.

0	1	2	3	4	5	6	7	8	9	10

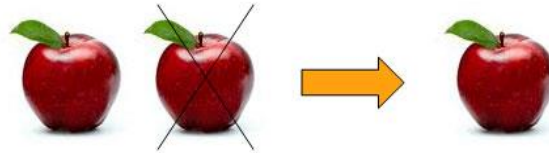
Then we progress to recording single digit number calculations.

$$1 + 5 = 6$$



Subtraction

In Early Years we use counters, cubes and physical objects to begin teaching subtraction.



Number tracks are used to help children count back and to find one less than the given number.



We then progress to pictorial methods where the children begin recording this by themselves.





Multiplication

In our Early Years classes we introduce multiplication by learning to count objects in groups. This leads children into learning to count in 2s 5s and 10s. Children are taught to count in groups rather than counting in 1s and this will prepare them to learn times tables and use the multiplication symbol in number sentences in Key Stage One.



2



4



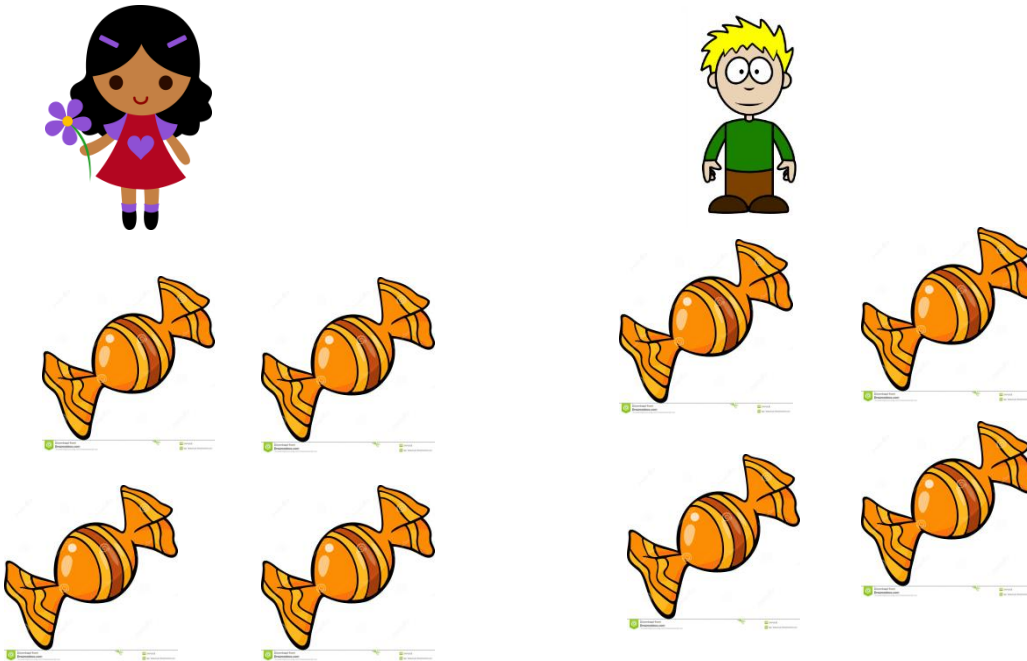
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Division

In Early Years division is known as sharing. We will use real life example and objects to gain an understanding of dividing.

If Eva and Joseph brought 10 sweets from the shop, how many did they have each? How did they share the sweets?



Children will then show their Math's thinking about sharing pictorially and use the division symbol in Key Stage One.

Development Matters in the Early Years Foundation Stage (EYFS)



30 – 50 months

- Beginning to represent numbers using fingers, marks on paper or pictures.
-
- Compares two groups of objects, saying when they have the same number.
- Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same.

40 – 60 months

- Says the number that is one more than a given number.
- Finds one more or one less from a group of up to five objects, then ten objects.
- In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.
- Records, using marks that they can interpret and explain.

Early Learning Goal for Numbers

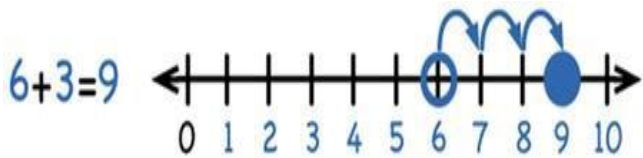
- Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number.
- Using quantities and
- objects, they add and subtract two single-digit numbers and count on or back to find the answer.
- They solve problems, including doubling, halving and sharing.

Year 1–Addition with numbers up to 20



Use numbered number lines to add, by counting on in ones. Encourage children to start with the **larger** number and count on.

$$+1 +1 +1$$



Children should:

Have access to a wide range of counting equipment, everyday objects, number tracks and number lines, and be shown numbers in different contexts;

Read and write the addition (+) and equals (=) signs within number sentences;

Interpret addition number sentences and solve missing box problems, using concrete objects and number line addition to solve them:

$$8 + 3 = \underline{\quad} \quad 15 + 4 = \underline{\quad} \quad 5 + 3 + 1 = \underline{\quad} \quad \underline{\quad} + \underline{\quad} = 6$$

This builds on from prior learning of adding by combining two sets of objects into one group (5 cubes and 3 cubes) in Early Years.

Bead strings or bead bars can be used to illustrate addition including bridging through ten by counting on 2 then counting on 3.





Key vocabulary/Skills in Year One

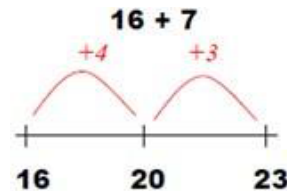
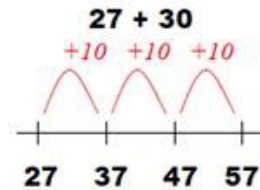
Key vocabulary:

- add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line
- Key skills for addition at Y1
- Read and write numbers to 100 in numerals, incl. 1—20 in words
- Recall bonds to 10 and 20, and addition facts within 20
- Count to and across 100
- Count in multiples of 1, 2, 5 and 10
- Solve simple 1-step problems involving addition, using objects, number lines and pictorial representations.

• Year 2– Addition with 2-digit numbers

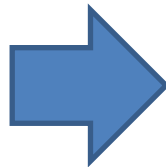
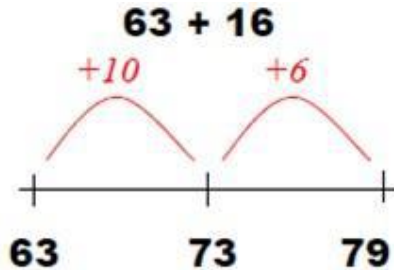


- Developing mental fluency with addition and place value involving 2-digit numbers, then establish more formal methods.
- Add 2-digit numbers and tens:



Use empty number lines, concrete equipment, hundred squares etc. to build confidence and fluency in mental addition skills.

- Add 2-digit numbers and units:



2	0	+	3	
+	3	0	+	4
5 0 + 7				
= 57				

- Add pairs of 2-digit numbers, moving to the partitioned column method when
- secure adding tens and units:
- 23 + 34:
- STEP 1: Only provide examples that do NOT cross the tens boundary until they are secure with the method itself.



STEP 2: Once children can add a multiple of ten to a 2-digit number mentally (e.g. $80 + 11$), they are ready for adding pairs of 2-digit numbers that DO cross the tens boundary (e.g. $58 + 43$).

58 + 43:

$$\begin{array}{r} 50 + 8 \\ 40 + 3 \\ \hline 90 + 11 \\ \hline = 101 \end{array}$$

- **STEP 3:** Children who are confident and accurate with this stage should move onto the expanded addition methods with 2 and 3-digit numbers (see Y3).

STEP 3: Children who are confident and accurate with this stage should move onto the expanded addition methods with 2 and 3-digit numbers (see Y3).

Key vocabulary/Skills in Year Two



Key vocabulary: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary

- **Key skills for addition at Y2.**
- Add a 2-digit number and ones (e.g. $27 + 6$)
- Add a 2-digit number and tens (e.g. $23 + 40$)
- Add pairs of 2-digit numbers (e.g. $35 + 47$)
- Add three single-digit numbers (e.g. $5 + 9 + 7$)
- Show that adding can be done in any order (the commutative law).
- Recall bonds to 20 and bonds of tens to 100 ($30 + 70$ etc.)
- Count in steps of 2, 3 and 5 and count in tens from any number.
- Understand the place value of 2-digit numbers (tens and ones)
- Compare and order numbers to 100 using $<$, $>$ and $=$ signs.
- Read and write numbers to at least 100 in numerals and words.
- Solve problems with addition, using concrete objects, pictorial representations



Year 3– Add numbers with up to 3-digits

Introduce the expanded column addition method

Add the **units** first, in preparation for the compact method.

In order to carry out this method of addition.

Children need to recognise the value of the hundreds, tens and units without recording the partitioning.

Pupils need to be able to add in columns.

	2	3	6	
+		7	3	
			9	
	1	0	0	
	2	0	0	
	3	0	9	

Move to the compact **column addition** method, with ‘carrying’:

Children who are very secure and confident with 3-digit expanded column addition should be moved onto the **compact column addition** method, being introduced to ‘carrying’ for the first time. Compare the expanded method to the compact column method to develop an understanding of the process and the reduced number of steps involved.

$$\begin{array}{r} 236 \\ + 73 \\ \hline 309 \end{array}$$

1

Carry
numbers
underneath
the bottom
line

Key Vocabulary in Year Three



Key vocabulary: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, plus, addition, column, tens boundary, **hundreds boundary**, increase, vertical, 'carry', expanded, compact

- **Key skills for addition at Y3:**
- Read and write numbers to 1000 in numerals and words.
- Add 2-digit numbers mentally, including those exceeding 100.
- **Add a three-digit number and ones mentally ($175 + 8$)**
- **Add a three-digit number and tens mentally ($249 + 50$)**
- **Add a three-digit number and hundreds mentally ($381 + 400$)**
- Estimate answers to calculations, using inverse to check answers.
- Solve problems, including missing number problems, using number facts, place value, and more complex addition.
- Recognise place value of each digit in 3-digit numbers (hundreds, tens, ones.)
- Continue to practise a wide range of mental addition strategies, i.e. number bonds, adding the nearest multiple of 10, 100, 100 and adjusting, using near doubles, partitioning and recombining.

Year 4– Add with up to 4 digit numbers



- Move from expanded addition to the compact column method, **adding units first**, and ‘carrying’ numbers **underneath** the calculation. Also include money and measures contexts.
- e.g. $3517 + 396 = 3913$

Introduce the compact column addition method by asking children to add the two given numbers together using the method that they are familiar with (expanded column addition—see Y3). Teacher models the compact method with carrying, asking children to discuss similarities and differences and establish how it is carried out

	3	5	1	7
+		3	9	6
<hr/>				
	3	9	1	3

‘Carry’ numbers **underneath** the bottom line.

Add units first.

Reinforce correct place value by reminding them the actual value is 5 hundreds add 3 hundreds, **not 5 add 3**, for example.

Use this method for money and measurement values.

Key Vocabulary/Skills in Year Four



Key vocabulary: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, plus, addition, column, tens boundary, hundreds boundary, increase, vertical, carry, expanded, compact, **thousands, hundreds, digits, inverse**

- **Key skills for addition at Y4:**
- Select most appropriate method: mental, jottings or written and explain why.
- Recognise the place value of each digit in a four-digit number.
- Round any number to the nearest 10, 100 or 1000.
- Estimate and use inverse operations to check answers.
- Solve 2-step problems in context, deciding which operations and methods to use and why.
- Find 1000 more or less than a given number.
- Continue to practise a wide range of mental addition strategies, i.e. number bonds, add the nearest multiple of 10, 100, 1000 and adjust, use near doubles, partitioning and recombining.
- Add numbers with up to 4 digits using the formal written method of column addition.
- Solve 2-step problems in contexts, deciding which operations and methods to use and why.
- Estimate and use inverse operations to check answers to a calculation.

Year 5 Add with more than 4 digits

(including money, measures and decimals with different numbers of decimal places)



£	2	3	.	5	9
+	£	7	.	5	5
<hr/>					
£	3	1	.	1	4

The decimal point should be aligned in the same way as the other place value columns and must be in the same column in the answer

	2	3	.	4	8	1
+		1	3	6	2	
<hr/>						
	2	4	8	4	3	

Numbers should exceed 4 digits

£	2	3	.	5	9
+	£	7	.	5	5
<hr/>					
£	3	1	.	1	4

Pupils should be able to add more than two values, carefully aligning place value columns.



	2	3	4	8	1
+		1	3	6	2
<hr/>					
	2	4	8	4	3

Numbers should exceed 4 digits.

Empty decimal places can be filled with zero to show the place value in each column.

1	9	.	0	1
	3	.	6	5
+	0	.	7	
<hr/>				
2	3	.	3	6

Say '6 tenths add 7 tenths' to **reinforce** place value.

Children should:

*Understand the place value of **tenths** and **hundredths** and use this to align numbers with different numbers of decimal places.*

Key Vocabulary/Skills in Year Five



- **Key vocabulary:** add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, plus, addition, column, tens boundary, hundreds boundary, increase, ‘carry’, expanded, compact, vertical, thousands, hundreds, digits, inverse & **decimal places, decimal point, tenths, hundredths, thousandths** .
- **Key skills for addition at Y5:**
- Add numbers mentally with increasingly large numbers, using and practising a range of mental strategies i.e. add the nearest multiple of 10, 100, 100 and adjust; use near doubles, inverse, partitioning and
- re-combining; using number bonds.
- Use rounding to check answers and accuracy.
- Solve multi-step problems in contexts, deciding which operations and methods to use and why.
- Read, write, order and compare numbers to at least 1 million and determine the value of each digit.
- Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10 000 and 100 000.
- Add numbers with more than 4 digits using formal written method of columnar addition.

Year 6 Add several numbers of increasing complexity



	2	3	.	3	6	1	
		9	.	0	8	0	
	5	9	.	7	7	0	
+		1	.	3		0	
<hr/>							
	9	3	.	5	1	1	
	2	1		2			

Empty decimal places can be filled with zero to show the place value in each column.

Adding several numbers with different numbers of decimal places (including money and measures):

Tenths, hundredths and thousandths should be correctly aligned, with the decimal point lined up vertically including in the answer row.

Zeros could be added into any empty decimal places, to show there is no value to add.

	8	1	,	0	5	9	
				3	6	6	8
				1	5	3	0
				1	5	3	0
+	2	0	,	5	5	1	
<hr/>							
	1	2	0	,	5	7	9
	1	1		1	1		

Adding several numbers with more than 4 digits.

Key Vocabulary/Skills in Year Six



Key vocabulary: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, plus, addition, column, tens boundary, hundreds boundary, increase, 'carry', expanded, compact, vertical, thousands, hundreds, digits, inverse, decimal places, decimal point, tenths, hundredths, thousandths

Key skills for addition at Y6:

- Perform mental calculations, including with mixed operations and large numbers, using and practising a range of mental strategies.
- Solve multi-step problems in context, deciding which operations and methods to use and why.
- Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.
- Read, write, order and compare numbers up to 10 million and determine the value of each digit.
- Round any whole number to a required degree of accuracy.
- Pupils understand how to add mentally with larger numbers and calculations of increasing complexity.



Year 1 Subtract from numbers up to 20

- Subtract by taking away

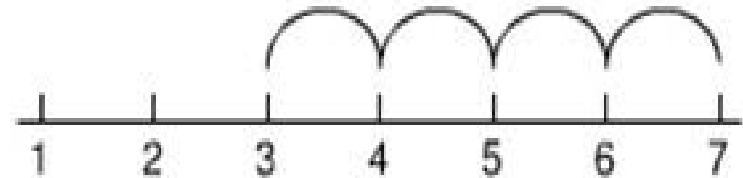
Count back in ones on a numbered number line to take away, with numbers up to 20:

Find the 'distance between'

-1 -1 -1 -1

Model subtraction using hundred squares and numbered number lines/tracks and practically.

understanding of subtraction practically, showing subtraction on bead strings, using cubes etc. and in familiar contexts, and are introduced to more formal recording using number lines as



$$7 - 4 = 3$$



Model subtraction using hundred squares and numbered number lines/tracks and practice

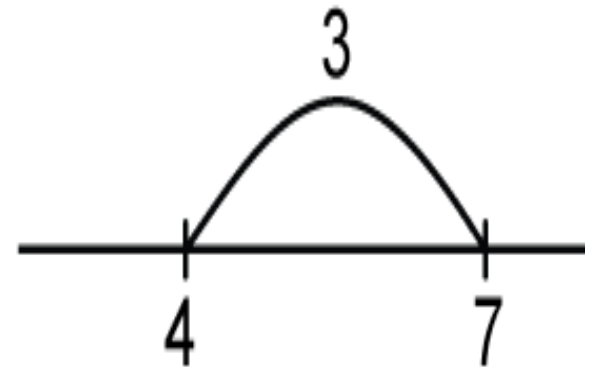
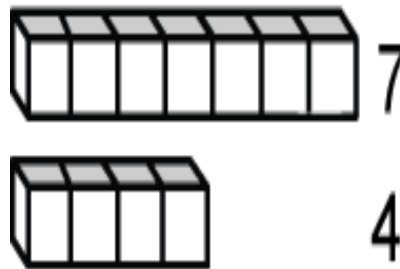


Find the ‘distance between’

This will be introduced practically with the language ‘**find the distance between**’ and ‘**how many more?**’ in a range of familiar contexts.

‘Seven is 3 more than 4.’

‘I am 2 years older than my sister.’



Mental subtraction
Children should start recalling subtraction facts up to **and within** 10 and 20, and should be able to subtract zero.

The difference between 7 and 4 is 3.

Key vocabulary /Skills for year 1



Key vocabulary: equal to, take, take away, less, minus, subtract, leaves, distance between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is?

Key skills for subtraction at Y1:

- Given a number, say **one more or one less**.
- Count to and over 100, **forward and back**, from any number.
- Represent and use **subtraction facts to 20 and within 20**.
- Subtract with **one-digit and two-digit** numbers to 20, including zero.
- Solve one-step problems that involve addition and subtraction, using concrete objects (i.e. bead strings, objects, cubes) and pictures, and missing number problems.
- Read and write numbers from 0 to 20 in numerals and words.

Year 2 Subtract with 2-digit numbers



Children are taught to subtract on a number line by counting back, aiming to develop mental subtraction skills.

This strategy will be used for:

(Use Dienes blocks for subtraction calculations too).

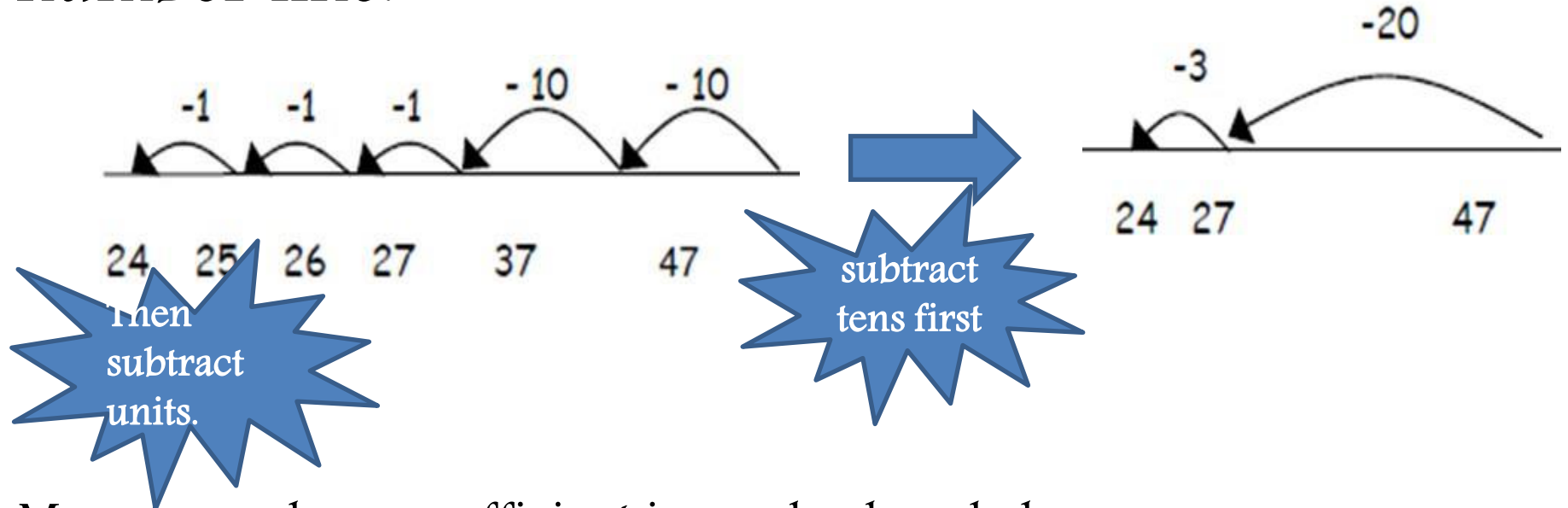
2-digit numbers subtract units (by taking away / counting back) e.g. $36 - 7$

2-digit numbers subtract tens (by taking away / counting back) e.g. $48 - 30$

Subtracting pairs of 2-digit numbers

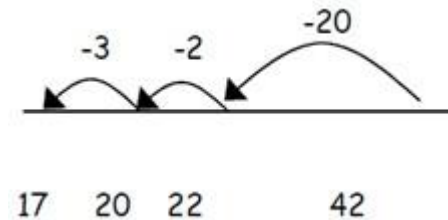


Subtracting pairs of 2-digit numbers on a number line.



Move towards more efficient jumps back, as below:

Combine methods with use of a hundred square to reinforce understanding of number value and order.

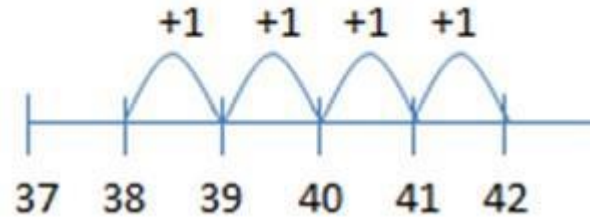


Teaching children to **bridge through ten** can help them to become more efficient, for example $42 - 25$:



Start with the smaller number and count on to the largest.

$$42 - 38 = 4$$



Children are taught to recognise that when numbers are close together, it is more efficient to **count on** the difference.

Children need to be clear about the relationship between addition and subtraction.



Key Vocabulary/Skills for Year Two

Key vocabulary: equal to, take, take away, less, minus, subtract, leaves, distance between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is _? **difference, count on, strategy, partition, tens, units**

Key skills for subtraction at Y2:

- Recognise the place value of each digit in a two-digit number.
- Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100.
- Subtract using concrete objects, pictorial representations, 100 squares and mentally, including: a two-digit number and ones, a two-digit number and tens, and two two-digit numbers.
- Show that subtraction of one number from another cannot be done in any order.
- Recognise and use inverse relationship between addition and subtraction, using this to check calculations and missing number problems.
- Solve simple addition and subtraction problems including measures, using concrete objects, pictorial representation, and also applying their increasing knowledge of mental and written method

Year 3 Subtracting with 2 and 3-digit numbers.

Introduce partitioned column subtraction method



STEP 1: introduce this method with examples where **no exchanging** is required.

$$89 - 35 = 54$$

$$\begin{array}{r} 80 + 9 \\ - 30 + 5 \\ \hline 50 + 4 \end{array}$$

When learning to 'exchange', explore partitioning in different ways so that pupils understand that when you exchange, the **VALUE** is the same i.e. $72 = 70 + 2 = 60 + 12 = 50 + 22$ etc. Emphasise that the **value hasn't changed**, we have just partitioned it in a different way.



STEP 2: introduce
'exchanging' through practical subtraction. Make the larger
number with Base 10, then subtract 47 from it.

$$\begin{array}{r} 60/70 + 12 \\ - 40 + 7 \\ \hline 20 + 5 = 25 \end{array}$$



Before subtracting '7' from the 72 blocks, they will need to
exchange a row of 10 for ten units. Then subtract 7, and
subtract 4 tens.

STEP 3: Once pupils are secure with the understanding of 'exchanging', they can use the partitioned column method to subtract any 2 and 3-digit numbers.



$$\begin{array}{r} 238 - 146 = 92 \\ \hline \begin{array}{l} 100 \\ \cancel{200} + 30 + 8 \\ - 100 + 40 + 6 \\ \hline 0 + 90 + 2 \end{array} \end{array}$$

Subtracting money:
partition into e.g.
£1 + 30p + 8p

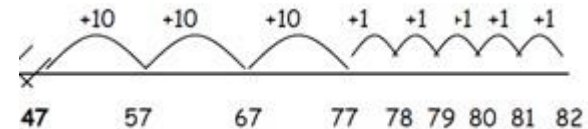
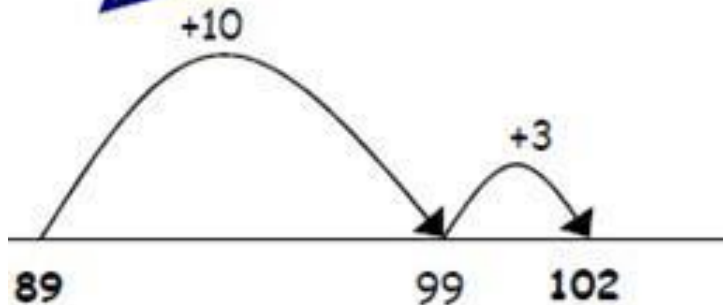


Counting on as a mental strategy for subtraction:

Continue to reinforce counting **on** as a strategy for **close-together numbers** (e.g. $121 - 118$), and also for numbers that are ‘nearly’ multiples of 10, 100, 1000 or £s, which make it easier to count on (e.g. $102 - 89$, $131 - 79$, or calculating change from £1 etc.).

Start at the smaller number and count on in **tens** first, then count on in units to find the rest of the difference.

Because counting on in tens is the way we use a 100 square.





Key Vocabulary/Skills for Year Three

- **Key vocabulary:** equal to, take, take away, less, minus, subtract, leaves, distance between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is? difference, count on, strategy, partition, tens, units **exchange, decrease, hundreds, value, digit**
- **Key skills for subtraction at Y3:**
- Subtract mentally a: **3-digit number and ones, 3-digit number and tens, 3-digit number and hundreds** .
- Estimate answers and use inverse operations to check.
- Solve problems, including missing number problems.
- Find 10 or 100 more or less than a given number.
- Recognise the place value of each digit in a 3-digit number.
- Counting up differences as a mental strategy when numbers are close together or near multiples of 10 (see examples above)
- Read and write numbers up to 1000 in numerals and words.
- Practise mental subtraction strategies, such as subtracting near multiples of 10 and adjusting (e.g. subtracting 19 or
- 21), and select most appropriate methods to subtract, explaining why.

Year 4 Subtract with up to 4-digit numbers



- Partitioned column subtraction with exchanging (decomposition):

2	7	5	4	-	1	5	6	2	=	1	1	9	2
2	0	0	0	+	7 00	+	5	0	+	4			
-	1	0	0	+	5	0	0	+	6	0	+	2	
1	0	0	0	+	1	0	0	+	9	0	+	2	

Use **place value counters** to reinforce 'exchanging'

Compact column addition

	2	7	5	4
-	1	5	6	2
	1	1	9	2

To introduce the compact method, ask children to perform a subtraction calculation with the familiar partitioned column subtraction then display the compact version for the calculation they have done. Ask pupils to consider how it relates to the method they know, what is similar and what is different, to develop an understanding of it.

Key Vocabulary/Skills for Year 4



Key vocabulary: equal to, take, take away, less, minus, subtract, leaves, distance between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is_? difference, count on, strategy, partition, tens, units exchange, decrease, hundreds, value, digit,

Key skills for subtraction at Y4:

- Subtract by counting on where numbers are close together or they are near to multiples of 10, 100 etc.
- Children select the most appropriate and efficient methods for given subtraction calculations.
- Estimate and use inverse operations to check answers.
- Solve addition and subtraction 2-step problems, choosing which operations and methods to use and why.
- Solve simple measure and money problems involving fractions and decimals to two decimal places.
- Find 1000 more or less than a given number.
- Count backwards through zero, including negative numbers.
- Recognise place value of each digit in a 4-digit number Round any number to the nearest 10, 100 or 1000
- Solve number and practical problems that involve the above, with increasingly large positive numbers.

Year 5 Subtract with at least 4-digit numbers

including money ,measures and decimals



Compact column subtraction (with exchanging)

	2	1	0	5	6
-		2	1	2	8
<hr/>					
	2	8	9	2	8

Use place value lessons to introduce using the comma to separate the thousands and then millions (digits are grouped in threes, from the left.) This helps with reading and recording large numbers, accurately.

Subtract with decimal values, including mixtures of integers and decimals, aligning the decimal point.



$$\begin{array}{r} \overset{6}{\cancel{7}} \overset{10}{\cancel{1}} \overset{8}{\cancel{6}} \overset{9}{\cancel{9}} \cdot \overset{1}{0} \\ - \quad \quad 372 \cdot 5 \\ \hline 6796 \cdot 5 \end{array}$$

Write a 'zero' in any empty decimal places to aid understanding of what to subtract in that column.

Key Vocabulary/Skills for Year Five



- **Key vocabulary:** equal to, take, take away, less, minus, subtract, leaves, distance between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is _? difference, count on, strategy, partition, tens, units
- Calculate, exchange, decrease, hundreds, value, digit, inverse, **tenths, hundredths, decimal point, decimal**
- **Key skills for subtraction at Y5:**
- Subtract numbers mentally with increasingly large numbers .
- Use rounding and estimation to check answers to calculations and determine, in a range of contexts, levels of accuracy.
- Solve addition and subtraction multi-step problems in context, deciding which operations and methods
- to use and why.
- Read, write, order and compare numbers to at least 1 million and determine the value of each digit.
- Count forwards or backwards in steps of powers of 10 for any given number up to 1 million.
- Interpret negative numbers in context, counting forwards and backwards with positive and negative integers through 0.
- Round any number up to 1 million to the nearest 10, 100, 1000, 10,000 and 100,000.

Year 6 Subtracting with increasingly large and more complex numbers (and decimal values)



Using the compact column method to subtract more complex integers.

$$\begin{array}{r}
 \cancel{9} \cancel{8} \cancel{0}, \cancel{6} \ 9 \ 9 \\
 - \quad \quad 8 \ 9, \ 9 \ 4 \ 9 \\
 \hline
 \quad \quad 6 \ 0, \ 7 \ 5 \ 0
 \end{array}$$

$$\begin{array}{r}
 \cancel{9} \cancel{8} \ 5 \cdot \cancel{4} \ 1 \ 9 \text{ kg} \\
 - \quad \quad 3 \ 6 \cdot \ 0 \ 8 \text{ kg} \\
 \hline
 \quad \quad 6 \ 9 \cdot \ 3 \ 3 \ 9 \text{ kg}
 \end{array}$$

Using the compact column method to subtract money and measures, including decimals with different numbers of decimal places.

Write a zero in any empty decimal places to aid understanding of what to subtract in that column.

Pupils should be able to apply their knowledge of a range of mental strategies, mental recall skills, and informal and formal written methods when selecting **the most appropriate method** to work out subtraction problems

Key Vocabulary/Skills for Year Six



Key vocabulary: equal to, take, take away, less, minus, subtract, leaves, distance between, how many more, how many fewer / less than, most, least, count

- Calculate, Check it mate!
- back, how many left, how much less is _? difference, count on, strategy, partition, tens, units exchange, decrease, hundreds, value, digit, inverse, tenths, hundredths, decimal point, decimal

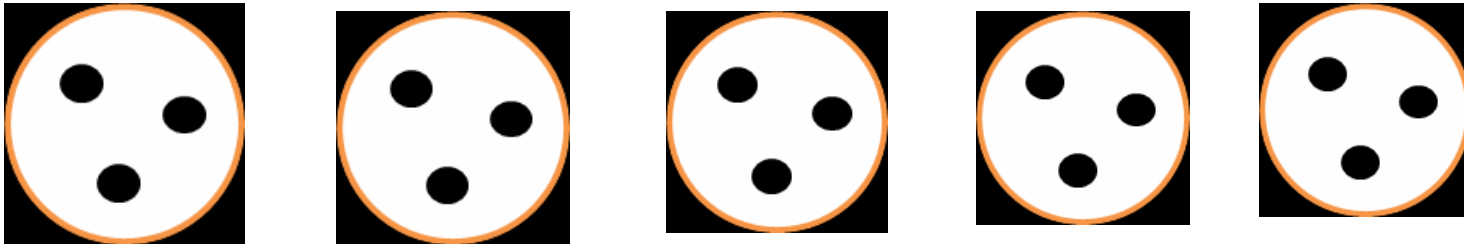
Key skills for subtraction at Y6:

- Solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why.
- Read, write, order and compare numbers up to 10 million and determine the value of each digit
- Round any whole number to a required degree of accuracy
- Use negative numbers in context, and calculate intervals
- across zero.
- Children need to utilise and consider a range of mental subtraction strategies, jottings and written methods before choosing how to calculate.

Year 1 Multiply with concrete objects, arrays and pictorial representations.



- How many legs will 3 teddies have? $2 + 2 + 2 = 6$



There are 3 sweets in one bag.

How many sweets are in 5 bags altogether?

$$3+3+3+3+3=15$$

Give children experience of counting equal group of objects in 2s, 5s and 10s.

Present practical problem solving activities involving counting equal sets or groups, as above.

Key Vocabulary/Skills for Year One



Key vocabulary: groups of, lots of, times, array, altogether, multiply, count

Key skills for multiplication at Y1:

- Count in multiples of 2, 5 and 10.
- Solve one-step problems involving multiplication, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.
- Make connections between arrays, number patterns, and counting in twos, fives and tens. Begin to understand doubling using concrete objects and pictorial representations.

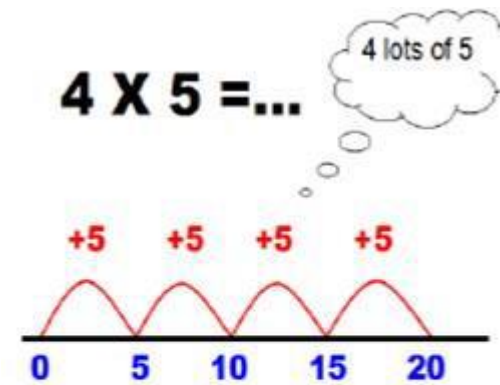
Year 2 Multiply using arrays and repeated addition



(using at least 2s, 5s and 10s)

- Use repeated addition on a number line.

Starting from zero, make equal jumps up on a number line to work out multiplication facts and write multiplication statements using x and = signs.



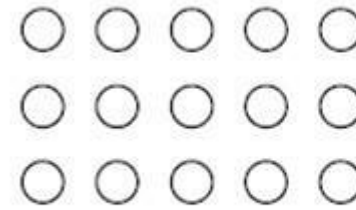
$$4 \times 5 = 20$$



- Use arrays:

$$5 \times 3 = 3 + 3 + 3 + 3 = 15$$

$$3 \times 5 = 5 + 5 + 5 = 15$$



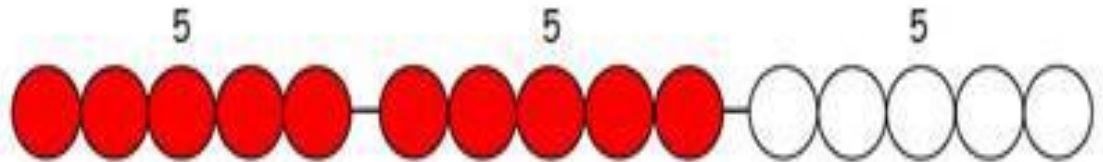
$$5 \times 3 = 15$$

$$3 \times 5 = 15$$

- Use arrays to help teach children to understand the commutative law of multiplication, and give examples such as 3×6 .

$$5 \times 3 = 5 + 5 + 5$$

Use practical apparatus:



Use mental recall.

Children should begin to **recall** multiplication facts for 2, 5 and 10 times tables through practice in counting and understanding of the operation.

Key Vocabulary/Skills for Year Two



Key vocabulary: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times...

Key skills for multiplication at Y2:

- Count in steps of 2, 3 and 5 from zero, and in 10s from any number.
- Recall and use multiplication facts from the **2, 5 and 10** multiplication tables, including recognising odds and evens.
- Write and calculate number statements **using the x and = signs**.
- Show that multiplication can be done in any order (commutative).
- Solve a range of problems involving multiplication, using concrete objects, arrays, repeated addition, mental methods, and multiplication facts.
- Pupils use a variety of language to discuss and describe multiplication.

Year 3 Multiply 2-digits by a single digit number



Introduce the grid method for multiplying 2-digit by single-digits.

Link the layout of the grid to an array initially:

Eg. $23 \times 8 = 184$

X	20	3
8	160	24

$$160 + 24 = 184$$

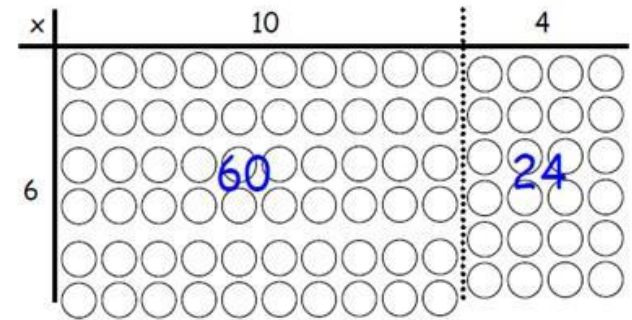
To do this, children must be able to:

Partition numbers into tens and units

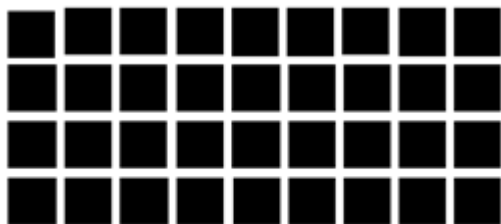
Multiply multiples of ten by a single digit (e.g. 20×4) using their knowledge of multiplication facts and place value

Recall and work out multiplication facts in the 2, 3, 4, 5, 8 and 10 times tables.

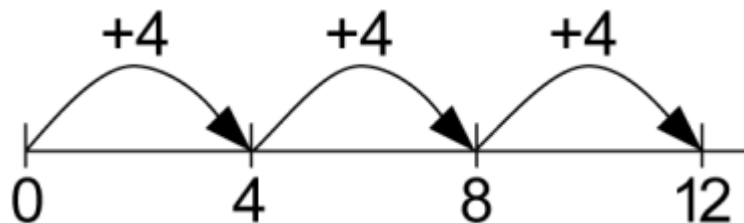
Work out multiplication facts not known by repeated addition or other taught mental strategies (e.g. by commutative law, working out near multiples and adjusting, using doubling etc.) Strategies to support this are repeated addition using a number line, bead bars and arrays.



Introduce the grid method with children physically making an array to represent the calculation (e.g. make 8 lots of 23 with 10s and 1s place value counters), then translate this to grid method format.



$$9 \times 4 = 36$$



- **To do this, children must be able to:**
- Partition numbers into tens and units
- Multiply multiples of ten by a single digit (e.g. 20×4) using their knowledge of multiplication facts and place value
- Recall and work out multiplication facts in the 2, 3, 4, 5, 8 and 10 times tables.
- Work out multiplication facts not known by repeated addition or other taught mental strategies (e.g. by commutative law, working out near multiples and adjusting, using doubling etc.) Strategies to support this are repeated addition using a number line, bead bars and arrays:



Key Vocabulary/Skills for Year 3

Key vocabulary: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times, times as big as, once, twice, three times..., **partition, grid method, multiple, product, tens, units, value**

Key skills for multiplication.

- Recall and use multiplication facts for the **2, 3, 4, 5, 8 and 10** multiplication tables, and multiply
- multiples of 10.
- Write and calculate number statements using the multiplication tables they know, including **2-digit x single-digit**, drawing upon mental methods, and progressing to reliable written methods.
- Solve multiplication problems, including missing number problems.
- Develop mental strategies using commutativity (e.g. $4 \times 12 \times 5 = 4 \times 5 \times 12 = 20 \times 12 = 240$)
- Solve simple problems in contexts, deciding which operations and methods to use.
- Develop efficient mental methods to solve a range of problems e.g. using commutativity ($4 \times 12 \times 5 = 4 \times 5 \times 12 = 20 \times 12 = 240$) and for missing number problems $1 \times 5 = 20$, $3 \times 1 = 18$, $1 \times 1 = 32$

Year 4 Multiply 2 and 3-digits by a single digit, using all multiplication tables up to 12×12



• Developing the grid method:

Eg. $136 \times 5 = 680$

X	100	30	6
5	500	150	30

500
150
+ 30
680

Encourage column addition to add accurately.

Children should be able to:

Approximate before they calculate, and make this a regular part of their calculating, going back to the approximation to check the reasonableness of their answer. e.g.:

346×9 is approximately $350 \times 10 = 3500$

Record an approximation to check the final answer against.

Multiply multiples of ten and one hundred by a single-digit, using their multiplication table knowledge.

Recall all times tables up to 12×12

Confident children can move to short multiplication methods

Key vocabulary/skills for Year Four



Key vocabulary: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, array, column, row, commutative, groups of, sets of, lots of, equal groups, times, multiply, times as big as, once, twice, three times... partition, grid method, total, multiple, product, sets of, **inverse**

Key skills for multiplication at Y4:

- Count in multiples of 6, 7, 9, 25 and 1000
- Recall multiplication facts for **all multiplication tables up to 12 x 12.**
- Recognise place value of digits in up to 4-digit numbers
- Use place value, known facts and derived facts to multiply mentally, e.g. multiply by 1, 10, 100, by 0, or to multiply 3 numbers.
- Use commutativity and other strategies mentally $3 \times 6 = 6 \times 3$, $2 \times 6 \times 5 = 10 \times 6$, $39 \times 7 = 30 \times 7 + 9 \times 7$.
- Solve problems with increasingly complex multiplication in a range of contexts.
- Count in multiples of 6, 7, 9, 25 and 1000
- Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)

Year 5– Multiply up to 4–digits by 1 or 2 digits.



Introducing column multiplication

Teaching staff introduce column multiplication methods by comparing a grid method calculation to a short multiplication method, to see how the steps are related, but notice how there are less steps involved in the column method.

Children need to be taught to approximate first, e.g. for 72×38 , they will use rounding: 72×38 is approximately $70 \times 40 = 2800$, and use the approximation to check the reasonableness of their answer against.

Short multiplication for
multiplying by a single digit

	3	2	7	
\times			4	
<hr/>				
1	3	0	8	
	1	2		

Pupils could be asked to work out a given calculation using the grid (see year 4), and then compare it to ‘your’ column method. What are the similarities and differences? Unpick the steps and show how it reduces the steps.

Introducing long multiplication for multiplying by 2 digits



	10	8
10	100	80
3	30	24



Children will be actively encouraged to use the column method in year 5 but may use the grid method to solve calculations.

		1	8
	×	1	3
		5	4
	1	8	0
	2	3	4

18 x 3 on the 1st row
(8 x 3 = 24, carrying the 2 for twenty, then '1' x 3).

Moving towards more complex numbers:

18 x 10 on the 2nd row. Put a zero in units first, then say 8 x 1, and 1 x 1.
Approximate

	1	2	3	4
×			1	6
	7	4	0	4
1	2	3	4	0
	1	9	7	4



Key vocabulary/skills for Year Five

Key vocabulary groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times..., partition, grid method, total, multiple, product, inverse, **square, factor, integer, decimal, short/long multiplication, 'carry'**

Key skills for multiplication at Y5:

- Identify multiples and factors, using knowledge of **multiplication tables to 12x12**.
- Solve problems where larger numbers are decomposed into their factors
- Multiply and divide integers and decimals by 10, 100 and 1000
- Recognise and use square and cube numbers and their notation
- Solve problems involving combinations of operations, choosing and using calculations and methods appropriately



Year 6 Short and long multiplication (seen in Y5) multiplication with decimals with up to 2d.p. by a single digit

Remind children that the single digit belongs in the units column

	3	.	1	9	
×	8				
<hr/>					
2	5	.	5	2	
	1		7		

Line up the decimal points in the question and the answer.

In Year 6 children will be able to:

Use rounding and place value to make approximations before calculating and use these to check answers against.

Use **short multiplication** (see Y5) to multiply numbers with **more than 4-digits** by a **single digit**; to multiply money and measures, and to **multiply decimals with up to 2d.p. by a single digit**.

Use **long multiplication** (see Y5) to multiply numbers with **at least 4 digits** by a **2-digit number**.

Key vocabulary/skills in Year Six



Key vocabulary: groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, array, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times... partition, grid method, total, multiple, product, inverse, square, factor, integer, decimal, short / long multiplication, 'carry', **tenths, hundredths, decimal**

Key skills for multiplication at Y6:

- Recall multiplication facts for all times tables up to **12 x 12** (as Y4 and Y5).
- Multiply multi-digit numbers, up to 4-digit x 2-digit using long multiplication.
- Perform mental calculations with mixed operations and large numbers.
- Solve multi-step problems in a range of contexts, choosing appropriate combinations of operations and methods.
- Estimate answers using round and approximation and determine levels of accuracy.
- Round any integer to a required degree of accuracy.

Year 1 Group and share small quantities



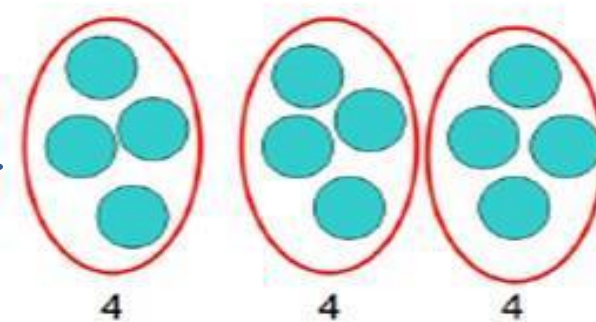
Using objects, diagrams and pictorial representations to solve problems involving both grouping and sharing.

Grouping



How many groups of 4 can be made with 12 stars? = 3

Sharing



12 shared between 3 is 4

Pupils are encouraged to talk about division problems in a familiar context.

There are 8 pupils on this table and there are 24 plums to share between us. If we share them equally, how many will we each get?

Can they work it out and give a division statement...?

“24 shared between 8 people gives you 3 each.”



At Stratford Upon
Avon Primary
school our children
will be encouraged
to :

- Use lots of practical apparatus, arrays and picture representations;
- Be taught to understand the difference between 'grouping' objects (how many groups of 2 can you make?) and 'sharing' (share these sweets between 2 people);
- Be able to count in multiples of 2s, 5s and 10s;
- Find **half** of a group of objects by sharing into 2 equal groups.

Key vocabulary/skills for Year One



Key Vocabulary: share, share equally, one each, two each..., group, groups of, lots of, arrays and lots of practical hands on learning tasks.

Key number skills needed for division at Y1:

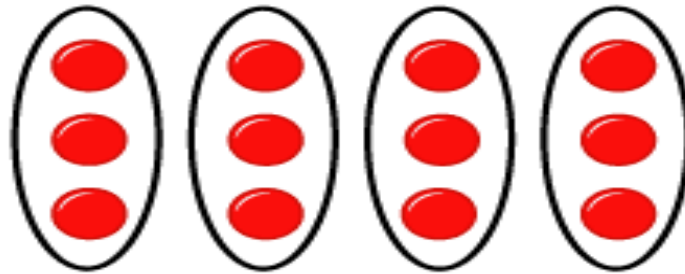
- Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations arrays with the support of the teacher
- Through grouping and sharing small quantities, pupils begin to understand, division, and finding
- simple fractions of objects, numbers and quantities.
- They make connections between arrays, number patterns, and counting in twos, fives and tens.



Year 2 Group and share, using the \div and $=$ signs

- Children will regularly practise using objects, arrays, diagrams and pictorial representations, and grouping on a number line.

Arrays:



$$12 \div 3 = 4$$

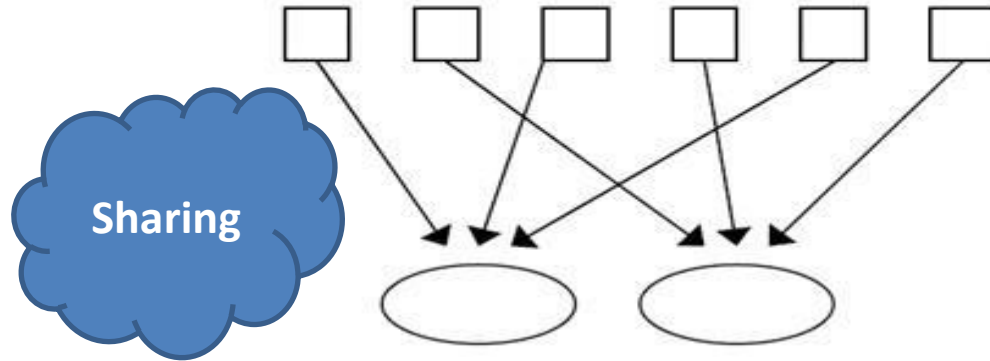
Children will be encouraged to question visual maths problems asking ,If this represents $12 \div 3$, **posed as** how many groups of 3 are in 12?

Pupils should also show that the same array can represent $12 \div 4 = 3$ if grouped horizontally.

Know and understand sharing and grouping

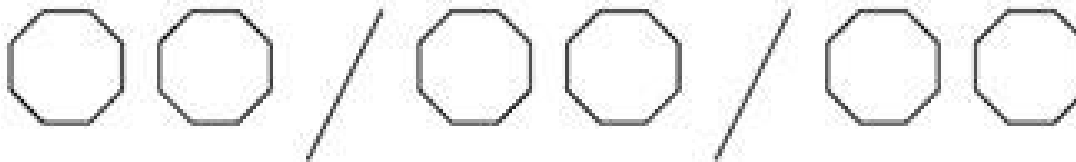


6 sweets shared between 2 people, how many do they each get?



*This is an important stage in teaching the difference between **grouping** and **sharing**.*

There are 6 sweets, how many people can have 2 sweets each?



Grouping

Children will be taught to recognise independently whether problems require sharing or grouping.



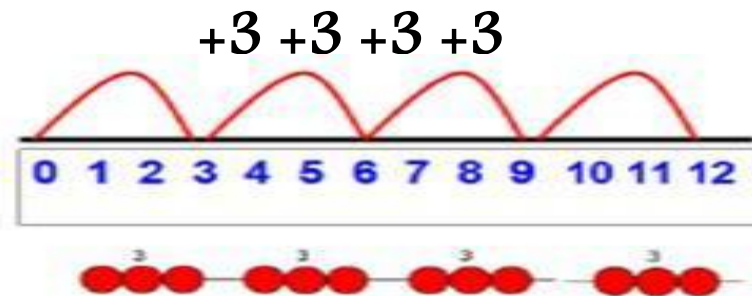
Grouping using a number line

Grouping using a number line.

Group from zero in equal jumps of the divisor to find out “how many groups of _ in _?”. Pupils could use a bead string or practical apparatus to work out problems like

E.G “A CD costs £3. How many CDs can I buy with £12?”

This is an important method to develop understanding of division as grouping.



$$12 \div 3 = 4$$

Key Vocabulary/Skills for Year Two



Key Vocabulary:

share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over

Key number skills needed for division at Y2:

- Count in steps of 2, 3, and 5 from 0
- Recall and use multiplication and division facts for the **2, 5 and 10** multiplication tables, including recognising odd and even numbers.
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the \times , \div and $=$ signs.
- Show that multiplication of two numbers can be done in any order (commutative) and division of one
- number by another cannot.
- Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Year 3– Divide 2-digit numbers by a single digit (with no remainder present in final answer)



Grouping on a number line.

4 r 1

+3 +3 +3 +3 r 1

13 ÷ 3 =



STEP 1: Children continue to work out unknown division facts by grouping on a number line from zero. They are also now taught the concept of **remainders**, as in the example. This should be introduced practically and with arrays, as well as being translated to a number line. Children should work towards calculating some basic division facts with remainders mentally for the 2s, 3s, 4s, 5s, 8s and 10s, ready for ‘carrying’ remainders across within the short division method.

STEP 2: Once children are secure with division as grouping and demonstrate this using number lines, arrays etc., **short division** for larger 2-digit numbers should be introduced, initially with carefully selected examples requiring no calculating of remainders at all. Start by introducing the layout of short division by comparing it to an array

$$\begin{array}{r} 32 \\ 3 \overline{) 96} \end{array}$$



Short division:



STEP 3: Once children demonstrate a full understanding of remainders, and also the short division method taught, they can be taught how to use the method when remainders occur within the calculation (e.g. $96 \div 4$), and be taught to ‘carry’ the remainder onto the next digit. *If needed, children should use the number line to work out individual division facts that occur which they are not yet able to recall mentally.*

$$\begin{array}{r} 18 \\ 4 \overline{) 732} \end{array}$$

Step 3 Only taught when pupils can calculate ‘remainders’.

Key Vocabulary/Skills for Year Three



Key Vocabulary:

- Share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, 'carry', remainder, multiple

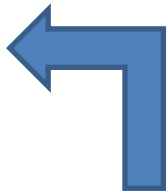
Key number skills needed for division at Y3:

- Recall and use multiplication and division facts for the 2, 3, 4, 5, 8 and 10 multiplication tables (through doubling, connect the 2, 4 and 8s).
- 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, in contexts, and including missing number problems, involving multiplication and division.
- Pupils develop efficient mental methods, for example, using multiplication and division facts (e.g. using $3 \times 2 =$
- 6 , $6 \div 3 = 2$ and $2 = 6 \div 3$) to derive related facts ($30 \times 2 = 60$, so $60 \div 3 = 20$ and $20 = 60 \div 3$).
- Pupils develop reliable written methods for division, starting with calculations of 2-digit numbers by 1-digit numbers and progressing to the formal written method of short division.

Year 4 Divide up to 3-digit numbers by a single digit



$$\begin{array}{r} 18 \\ 4 \overline{) 72} \end{array}$$



STEP 1: Pupils must be

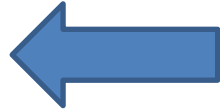
secure with the process of short division for dividing 2-digit numbers by a single digit (those that do not result in a final remainder)

—see steps in Y3), but must understand how to calculate remainders, using this to “carry” remainders within the calculation process

Short division will only be taught once children have secured the skill of calculating ‘remainders’.



STEP 2: Pupils move onto dividing numbers with up to 3-digits by a single digit, however problems and calculations provided should **not result in a final answer with remainder** at this stage.



$$\begin{array}{r} 218 \\ 4 \overline{) 872} \end{array}$$

Children who exceed step 2 expectation may progress to Y5 level

When the answer for the **first column** is zero recognise the place of division and how to apply it to problems.

($1 \div 5$, as in example), children could initially write a zero above to acknowledge its place, and must always “carry” the number (1) over to the next digit as a remainder.

Include



$$\begin{array}{r} 037 \\ 5 \overline{) 185} \end{array}$$

Key Vocabulary/skills for Year Four



Key Vocabulary:

share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, “carry”, remainder, multiple, divisible by, factor

Key number skills needed for division at Y4:

- **Recall multiplication and division facts for all numbers up to 12×12 .**
- Use place value, known and derived facts to multiply and divide mentally, including: multiplying and dividing by 10 and 100 and 1.
- Pupils practise to become fluent in the formal written method of short division with exact answers when
- dividing by a one-digit number
- Pupils practise mental methods and extend this to three-digit numbers to derive facts, for example 200
- $\times 3 = 600$ so $600 \div 3 = 200$
- Pupils solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions such as three cakes shared equally
- between 10 children.

Year 5 Divide up to 4 digits by a single digit, (including remainders)



$$\begin{array}{r} 663 \text{ r } 5 \\ 8 \overline{) 5309} \end{array}$$

The answer to $5309 \div 8$ could be expressed as 663 and five eighths, 663 r 5, as a decimal, or rounded as appropriate to the problem involved.

Short division with remainders:

pupils are introduced to examples that give rise to remainder answers, division needs to have a real life problem solving context, where pupils consider the meaning of the remainder and how to express it, i.e. as a fraction, a decimal, or as a rounded number or value, depending upon the context of the problem

Introduce long division for pupils who are ready to divide any number by a 2-digit number (e.g. $2678 \div 19$). **This is a Year 6 expectation.**

Key Vocabulary/Skills for Year Five



Key Vocabulary:

- share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division,
- 'carry', remainder, multiple, divisible by, factor, inverse, quotient, prime number, prime factors, composite number (non-prime)

Key number skills needed for division at Y5:

- Recall multiplication and division facts for all numbers up to 12×12 (as in Y4).
- Multiply and divide numbers mentally, drawing upon known facts.
- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two number.
- Solve problems involving multiplication and division where larger numbers are decomposed into their factors.
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
- Use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
- Work out whether a number up to 100 is prime, and recall prime numbers to 19.
- Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
- Use multiplication and division as inverses.
- Interpret non-integer answers to division by expressing results in different ways according to the context, including with remainders, as fractions, as decimals or by rounding (e.g. $98 \div 4 = 24 \text{ r } 2 = 24\frac{1}{2} = 24.5 \approx 25$).
- Solve problems involving combinations of all four operations, including understanding of the equals sign, and including division for scaling by different fractions and problems involving simple rates.



Year 6 – Divide at least 4 digits by both single-digit and 2-digit numbers (decimal numbers and quantities)

Short division with remainders. Pupils should continue to use this method, but with numbers to at least 4 digits, and understand how to express remainders as fractions, decimals, whole number remainders, or rounded numbers. Real life problem solving contexts need to be the starting point, where pupils have to consider the most appropriate way to express the remainder.

$$\begin{array}{r} 0812.125 \\ 8 \overline{) 6497.000} \end{array}$$

Calculating a decimal remainder. In this example, rather than expressing the remainder as r 1, a decimal point is added after the units because there is still a remainder, and the one remainder is carried onto zeros after the decimal point (to show there was no decimal value in the original number). Keep dividing to an appropriate degree of accuracy for the problem being solved.

Introducing long division for dividing by 2 digits.



Division Long vs. Short

$$\begin{array}{r} 422 \\ 6 \overline{) 2532} \\ \underline{24} \\ 13 \\ \underline{12} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

$$\begin{array}{r} 422 \\ 6 \overline{) 2532} \end{array} \text{EASY!}$$

Children will be encouraged to draw arrows to show the number moving down in the column.

As schools have autonomy to decide children's progression in learning between long and short division in Years 5 and 6, we at Stratford suggest moving from long division to short division.



Introducing long division for dividing by 2 digits.

LONG DIVISION

11 r. 1

25 | 276

-25

026

-25

1

Look to see how many times 27 can be divided by 25!

Subtract that product!

1. Divide
2. Multiply
3. Subtract
4. Bring Down

Bring down the number to the right!

Repeat the process until there are no more numbers to bring down!

This is the traditional method for division! Students can remember the steps with "Dead Mice Smell Bad" (Divide, Multiply, Subtract, Bring Down)!



Key Vocabulary/Skills for Year Six

Key Vocabulary: See Year 5

Key number skills needed for division at Y6:

- Recall and use multiplication and division facts for all numbers to 12×12 for more complex calculations
- Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for
- the context. Use short division where appropriate.
- Perform mental calculations, including with mixed operations and large numbers.
- Identify common factors, common multiples and prime numbers.
- Solve problems involving all 4 operations.
- Use estimation to check answers to calculations and determine accuracy, in the context of a problem.
- Use written division methods in cases where the answer has up to two decimal places.
- Solve problems which require answers to be rounded to specified degrees of accuracy.



- With Thanks to Hamilton Trust Maths resources.