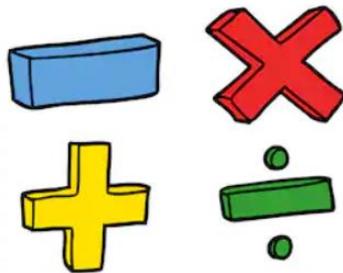




Helping your child with maths



Trowse Primary Calculation Policy 2019

CALCULATION

This policy contains the key pencil and paper procedures that will be taught within our school. It has been written to ensure consistency and progression throughout the school to follow the statutory requirements from the National Curriculum 2014. **As children progress at different rates some may need to use the strategies from previous or future year groups.**

Although the focus of this policy is on pencil and paper procedures, it is important to recognise that the ability to calculate mentally lies at the heart of the curriculum. In every written method there is an element of mental processing. The mental methods in the Framework for teaching mathematics are taught systematically from Reception onwards and pupils are given regular opportunities to develop the necessary skills. However, mental calculation is not at the exclusion of written recording and should be seen as complementary to, and not as separate from, it.

The policy concentrates on the use of jotting aids to mental calculations and on the introduction of more formal paper and pencil procedures. It is important that children do not abandon jottings and mental methods once these more formal procedures are introduced. Our long-term aim is for children to be able to select an efficient method of their choice, which is also appropriate for the given task. They will do this by always asking themselves:

- 'Can I do this in my head?'
- 'Can I do this using drawings or jottings?'
- 'Do I need to use paper and pencil procedures?'

Aims

The overall aim of this policy is that when children leave the school they:

- have a secure knowledge of number facts and a good understanding of the four operations;
- are able to use this knowledge and understanding to carry out calculations mentally and to apply general strategies when using one-digit and two-digit numbers and particular strategies to special cases involving bigger numbers;
- make use of diagrams and informal notes to help record steps and part answers when using mental methods that generate more information than can be kept in their heads;
- have an efficient, reliable, written method of calculation for each operation that children can apply with confidence when undertaking calculations that they cannot carry out mentally.

ADDITION

EYFS & Year One Onwards Progression

Year One Onwards Progression

$2 + 3 =$

At a party, I eat 2 cakes and my friend eats 3 cakes. How many cakes did we eat altogether?



Drawing a picture will help them work out the answer. Encourage children to start with the larger number and count on.

Key vocabulary: add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on and number line.

Add with numbers up to 20

$7 + 4 =$

7 people are on the bus. 4 more get on at the next stop. How many people are on the bus now?

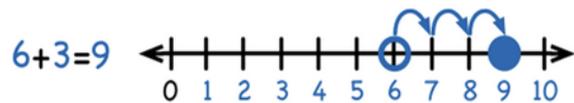


Key number skills needed:

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.

$6 + 3 =$

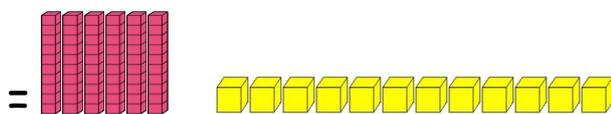
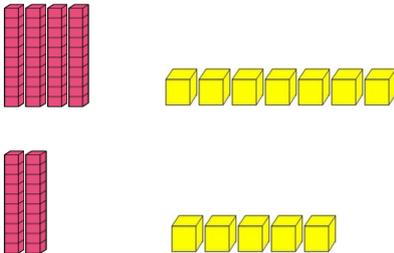
Numbered number line



Add with 2-digit numbers

Partitioning:

$47 + 25$



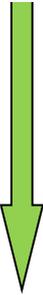
$$\begin{array}{r} 40 \\ + 20 \\ \hline 60 \end{array} \quad \begin{array}{r} 7 \\ + 5 \\ \hline 12 \end{array}$$

$60 + 12 = 72$

Key vocabulary: As before, & sum, tens, ones, partition, addition, columns and tens boundary.

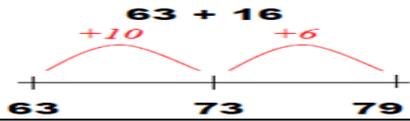
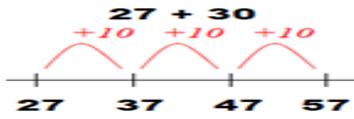
Key number skills needed:

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 one-digit numbers (e.g. $5 + 9 + 7$)
Show that adding can be done in any order.
Recall bonds to 20 and bonds of tens to 100 ($30 + 70$ etc.)
Understand the place value of 2-digit numbers (tens and units)
Compare and order numbers to 100 using $<$ $>$ and $=$ signs.
Read and write numbers to at least 100 in numerals and words.



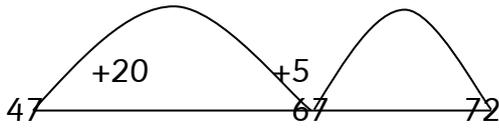
Number Line

Concrete: Bead strings

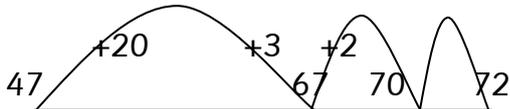


$47 + 25 =$

My sunflower is 47cm tall. It grows another 25cm. How tall is it now?



or



Add with numbers up to 3-digits
 $47 + 34 =$

	T	U			
	4	7	⇒	40	+ 7
+	3	4	⇒	30	+ 4
	8	1	⇐	70	+ 11

Progress onto:
 $126 + 265 =$

100	20	6
+200	60	5
300	90	1
	10	

Key vocabulary: As before, & **hundreds boundary, increase, 'carry', expanded.**

Key number skills needed:

- Read and write numbers to 1000 in numerals and words.
- Add 2-digit numbers mentally, incl. 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. Recognise place value of digits in 3-digit numbers (hundreds, tens, units)

Add numbers with up to 4 digits

Using the **compact column method**, adding units first, and 'carrying' numbers underneath the calculation. Pupils should also add money and measures.

	3	5	1	7
+		3	9	6
	3	9	1	3

e.g. $3517 + 396 = 3913$

Key vocabulary: As before & **thousands, hundreds, digits and inverse.**

Key number skills needed:

- 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.
- Find 1000 more or less than a given number.

Add numbers with more than 4 digits including money, measures and decimals with different numbers of decimal places.

£ 23	. 59		2 3 4 8 1		1 9 . 0 1	
+	£ 7 . 55		+	1 3 6 2	+	3 . 6 5
	£ 3 1 . 14			2 4 8 4 3		+ 0 . 7
						2 3 . 3 6

Key vocabulary: As before & **decimal places, decimal point, tenths, hundredths and thousandths.**

Key number skills needed:

- Add numbers mentally with increasingly large numbers.
- Use rounding to check answers and accuracy.
- 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 several numbers of increasing complexity

23.361	81059
9.080	3668
59.770	15301
+ 1.300	+ 20551
93.511	120579
212	1111

Add 'zeros' where needed to show the place value.

Key vocabulary: As before.

Key number skills needed:

Perform mental calculations, including with mixed operations and large numbers. 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.

SUBTRACTION

Children are taught to understand subtraction as taking away (counting back) and finding the difference (counting up or back).

Take away using real objects. Subtract from numbers up to 20.

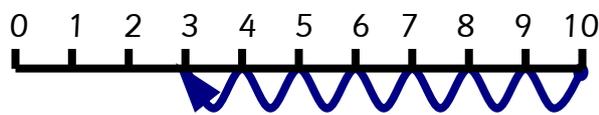
Concrete: Sam had 4 chocolates. He ate 2. How many has he got left?

$$4 - 2 =$$



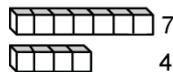
Count back in ones on a numbered number line to take away:

$$10 - 7 =$$



Find the 'difference between' —including 'how many more' and 'how many less' is introduced practically by counting on.

Begin to write number sentences with - and = signs.



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

Note: children will begin by taking away from a group of pictures or apparatus, e.g. bead string, objects, cubes.

Key number skills needed:

Given any 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 0.

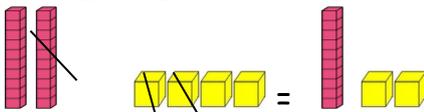
Subtract with 2-digit numbers

Partitioning

$$24 - 12 =$$

$$24 - 10 = 14$$

$$14 - 2 = 12$$



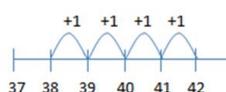
Subtract by **counting back** on a number bead string, blank number line, gradually using more efficient jumps.



$$47 - 23 =$$



$$42 - 38 = 4$$



Use **counting on** as a mental strategy for subtraction where numbers are close together e.g. 42-38:

Key vocabulary: As before, & difference, count on, strategy, partition, ten and units.

Key number skills needed:

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 (37 - 6), a two-digit number and tens (78 - 20), and two two-digit numbers (89 - 38)

Show that subtraction cannot be done in

any order.

Recognise and use inverse relationship between addition and subtraction, to check calculations and missing number problems.

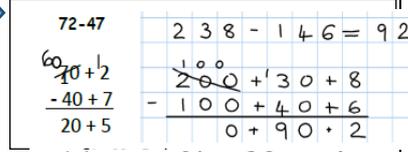
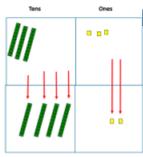
Subtract with 2 and 3 digit numbers

Use **expanded column subtraction** method (using base 10 and place value cards initially):

$75 - 42 =$

$72 - 47 =$

$$\begin{array}{r} 70 + 5 \\ - 40 + 2 \\ \hline 30 + 3 \end{array}$$



Money: partition as £1 + 30p + 4p

$334 - 217 =$

$$\begin{array}{r} 3 \quad 3 \quad 14 \\ - 2 \quad 1 \quad 7 \\ \hline 1 \quad 1 \quad 7 \end{array}$$

(Carrying tens to units)

$537 - 274 =$

$$\begin{array}{r} 5 \quad 13 \quad 17 \\ - 2 \quad 7 \quad 4 \\ \hline 2 \quad 6 \quad 3 \end{array}$$

(Carrying hundreds to tens)

Key vocabulary: As before, & **exchange, decrease, hundreds, value and digit.**

Key number skills needed:

Subtract mentally:

- a 3-digit number and ones ($467 - 8$)
- a 3-digit number and tens ($472 - 50$)
- a 3-digit number and hundreds ($789 - 400$)

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.

The expanded method leads children to the more compact method or Column method sometimes known as Decomposition. The amount of time that should be spent teaching and practicing this method will depend on how secure the children are in their recall of number facts and with partitioning.

Subtract with up to 4 –digit numbers

Compact column subtraction with exchanging.

$874 - 523$ becomes

$$\begin{array}{r} 8 \quad 7 \quad 4 \\ - 5 \quad 2 \quad 3 \\ \hline 3 \quad 5 \quad 1 \end{array}$$

Answer: 351

$932 - 457$ becomes

$$\begin{array}{r} 8 \quad 12 \quad 1 \\ 9 \quad 3 \quad 2 \\ - 4 \quad 5 \quad 7 \\ \hline 4 \quad 7 \quad 5 \end{array}$$

Answer: 475

Key vocabulary: As before, & **inverse and column.**

Key number skills needed:

Subtract by counting on where numbers are close together or are near to multiples of 10, 100 etc. ($87-79$, $202-197$)

Estimate and use inverse operations to check answers.

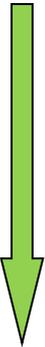
Solve addition and subtraction 2-step problems in contexts, choosing which operations and methods to use and why.

Find 1000 more or less than a given number.

Count backwards through zero to include negative numbers.

Recognise the place value of each digit in a four-digit number.

Round any number to the nearest 10, 100 or 1000.



Subtract with at least 4-digit numbers and money, measures, decimals

7	6	9	0	3	1	0	5	6
-	3	7	2	.	5			
6	7	9	6	.	5			

3	1	0	5	6
-	2	1	2	8
2	8	9	2	8

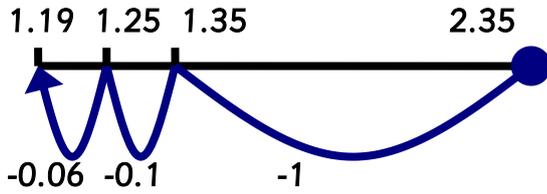
Key vocabulary: As before, & **tenths, hundredths, decimal point and decimal.**

Key number skills needed:

Subtract numbers mentally with increasingly large numbers.
 Use rounding and estimation to check answers to calculations.
 Solve addition and subtraction multi-step problems in context, deciding which operations and best 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 10, 100, 1000, 10,000...
 Interpret negative numbers in context, counting forwards and backwards with positive and negative integers through 0.

Subtract with increasingly large and more complex numbers and decimal values

$2.35 - 1.19$



Key vocabulary: As before.

Key number skills needed:

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, calculating intervals across zero.

1.00
0.10 +
0.06
1.16

8	9	9	4	9	3	1	0	5	.	3	1	9	kg
-	8	9	9	4	-	3	6	.	0	8			
6	0	7	5	0	6	9	.	3	3	9			

$334 - 217 =$

$$\begin{array}{r} 3 \quad 3 \quad 14 \\ - 2 \quad 1 \quad 7 \\ \hline 1 \quad 1 \quad 7 \end{array}$$

(Carrying tens to units)

$537 - 274 =$

$$\begin{array}{r} 5 \quad 13 \quad 17 \\ - 2 \quad 7 \quad 4 \\ \hline 2 \quad 6 \quad 3 \end{array}$$

(Carrying hundreds to tens)

The expanded method leads children to the more compact method or Column method sometimes known as Decomposition. The amount of time that should be spent teaching and practicing this method will depend on how secure the children are in their recall of number facts and with partitioning.

MULTIPLICATION

Children are taught to understand multiplication as repeated addition and scaling.
It can also describe an array.

EYFS, Year 1 & 2 onwards Progression

$$2 \times 4 =$$

Each child has two eyes. How many eyes do four children have?

$$2 + 2 + 2 + 2$$



Key vocabulary: groups of, lots of, times, array, altogether, multiply, total and count up in...

Key skills for multiplication:

Count in 2s, 5s and 10s.

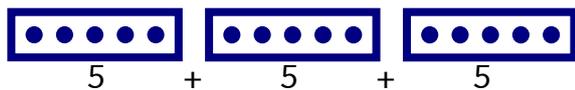
Solve 1-step problems involving multiplication, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

Make connections between arrays, number patterns, and counting in twos, fives and tens.

Begin to understand doubling using concrete objects and pictorial representations.

$$5 \times 3 =$$

There are 5 cakes in a pack. How many cakes in 3 packs?



Dots or tally marks are often drawn in groups. This shows 3 groups of 5 or 3 lots of 5.

Key vocabulary: As before, & multiplied by, column, row, repeated addition, commutative, sets of, equal groups, _ times as big as, once, twice, three times etc.

Key skills for multiplication:

Count in steps of 2, 3 and 5 from 0, and in 10s from any number.

Recall and use multiplication facts from the 2, 5 and 10 multiplication tables, incl. recognising odds and evens.

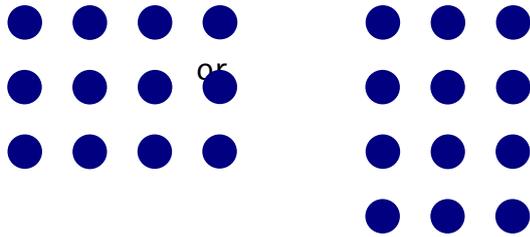
Write and calculate number statements using the x and = signs.

Show that multiplication can be done in any order (commutative).

Solve a range of problems involving multiplication, using materials, arrays, repeated addition, mental methods, and multiplication facts.

$4 \times 3 =$

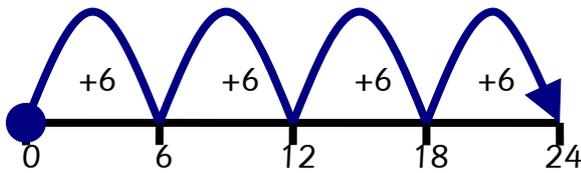
A chew costs 4p. How much do 3 chews cost?



Drawing an array (3 rows of 4 or 3 columns of 4) gives children an image of the answer. It also helps develop the understanding that 4×3 (4 three times) is the same as 3×4 (3 four times).

$6 \times 4 =$

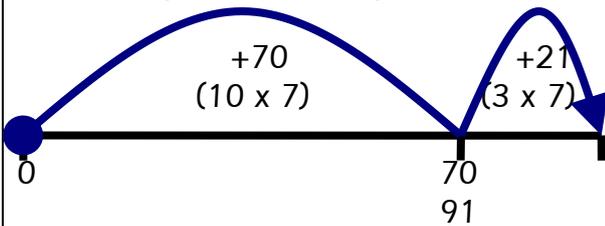
There are 4 cats. Each cat has 6 kittens. How many kittens are there altogether?



Children could count on in equal steps, recording each jump on an empty number line. This shows 4 jumps of 6 or 6 four times.

$13 \times 7 =$

There are 13 biscuits in a packet. How many biscuits in 7 packets?



When numbers get bigger, it is inefficient to do lots of small jumps. Split 13 into parts (10 and 3). This gives you two jumps (10x7 and 3x7).

or this could be written as:-

$$\begin{array}{r} 10 \times 7 = 70 \\ 3 \times 7 = \underline{21} \\ \hline 91 \end{array}$$



$6 \times 124 =$

124 books were sold. Each book cost £6. How much money was taken?

$$\begin{array}{r|l|l|l} \times & 1 & 0 & 0 \\ 6 & 6 & 0 & 0 \\ \hline & 1 & 2 & 0 \\ \hline & & & 2 & 4 \\ \hline & & & & & = 744 \end{array}$$

Key vocabulary: As before, & **partition, grid method, multiple, product, tens, units and 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 ten.

Write and calculate number statements using the multiplication tables they know, incl. 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 commutative laws (e.g. $4 \times 12 \times 5 = 4 \times 5 \times 12 = 20 \times 12 = 240$)

$72 \times 34 =$

A cat is 72cm long. A tiger is 34 times longer. How long is the Tiger?

$$\begin{array}{r|l|l} \times & 7 & 0 \\ 3 & 2 & 1 & 0 & 0 \\ \hline 4 & 2 & 8 & 0 & 8 \\ \hline & & & & & = 2 & 1 & 6 & 0 \\ & & & & & = & 2 & 8 & 8 \\ & & & & & & 2 & 4 & 4 & 8 \end{array}$$

Key vocabulary: As before, & **square, factor, integer, decimal.**

Key skills for multiplication:

Count in multiples of 6, 7, 9, 25 and 1000

Recall multiplication facts for multiplication tables up to 12×12 .

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 multiply 3 numbers.

Use commutativity and other strategies in mental calculations $3 \times 6 = 6 \times 3$, $2 \times 6 \times 5 = 10 \times 6$, $39 \times 7 = 30 \times 7 + 9 \times 7$.



$72 \times 34 =$
 (This is approximately 70×30 which equals 2100).

$$\begin{array}{r} 72 \\ \times 34 \\ \hline 2100 \\ 60 \\ \hline 280 \\ 8 \\ \hline 2448 \end{array}$$

$70 \times 30 = 2100$
$2 \times 30 = 60$
$70 \times 4 = 280$
$2 \times 4 = 8$

Key vocabulary: As before, & **cubed, integer, square, factor, decimal and grid multiplication.**

Key skills for multiplication:

Identify multiples and factors, using knowledge of multiplication tables to 12×12 .

Solve problems where larger numbers are decomposed into their factors.

Multiply and divide integers and decimals by 10, 100, 1000.

Recognise and use square and cube numbers and their notation.

342×7

$$\begin{array}{r} 342 \\ \times 7 \\ \hline 2^2 3^2 9^1 4 \end{array}$$

124×26

$$\begin{array}{r} 124 \\ \times 26 \\ \hline 7^1 4^2 4 \\ \hline 2480 \\ \hline 3224 \\ \hline \end{array}$$

1.6×2.4

$$\begin{array}{r} 16 \\ \times 24 \\ \hline 6^2 4 \\ \hline 3^1 2^0 \\ \hline 384 \\ \hline = 3.84 \end{array}$$

Key vocabulary: As before, & **tenths, hundredths, short/long multiplication and 'carry.'**

Key skills for multiplication:

Multiply multi-digit numbers, up to 4-digit x 2-digit using formal long multiplication.

Perform mental calculations with mixed operations and large numbers.

Estimate answers using round and approximation and determine levels of accuracy.

Round any integer to a required degree of accuracy.

DIVISION

Children are taught to understand division as sharing and grouping.

EYFS, Year 1 & 2 Progression



Year 2 Progression

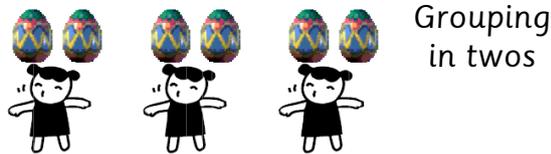


$$6 \div 2 =$$

6 Easter eggs are shared between 2 children. How many eggs do they get each?



There are 6 Easter eggs. How many children can have two each?

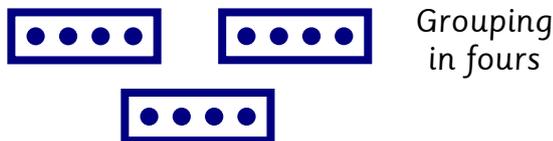


Key vocabulary: share, share equally, one each, two each..., group, groups of, lots of and array.

Key number skills: Solve one-step problems, calculating answers using concrete objects, pictorial representations, arrays with support. Through grouping and sharing small quantities, begin to understand division, and find simple fractions of objects, numbers / quantities. Make connections between arrays, number patterns, and counting in 2s, 5s and 10s.

$$12 \div 4 =$$

4 Apples are packed in a basket. How many baskets can you fill with 12 apples?

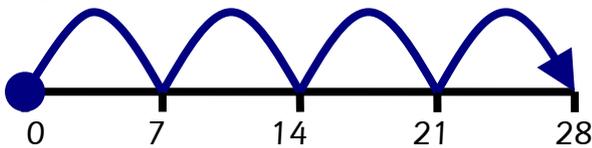


Key vocabulary: As before, & divide, divided by, divided into, division, grouping, number line, left and left over.

Key number skills: Count in 2s, 3s and 5s from 0. Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, recognising odds and evens. Calculate statements for multiplication and division within the multiplication tables, writing them using x, ÷ and = signs. *Show that division cannot be done in any order. Solve problems in context using materials, arrays, repeated addition, mental methods, multiplication and division facts.

$$28 \div 7 =$$

A chew bar costs 7p. How many can I buy with 28p?

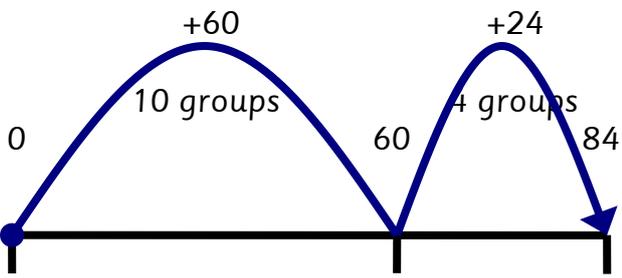


Use what you already know about multiplication.

$$\begin{array}{r} 4 \times 7 = 28 \\ 28 \div 7 = 4 \end{array}$$



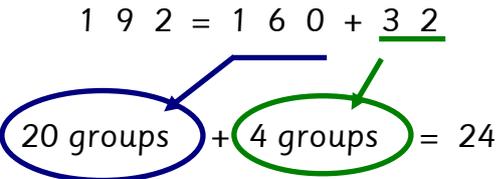
$84 \div 6 =$
I need 6 drawing pins to put up a picture. How many pictures can I put up with 84 pins?



Key vocabulary: As before & **chunking and multiple.**

Key number skills needed:
Recall and use multiplication/ division facts for 2, 3, 4, 5, 8, 10 multiplication tables (through doubling, connect the 2, 4 and 8s). Write and calculate number statements for multiplication and division using multiplication tables that they know, including for 2-digit numbers x 1-digit numbers.
Solve problems, in contexts, and including missing number problems, involving multiplication and division.
Develop efficient mental methods, e.g. 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 $20 = 60 \div 3$).

$192 \div 8 =$
8 pencils fit in each pocket. If you have 192 pencils, how many packets can be filled?



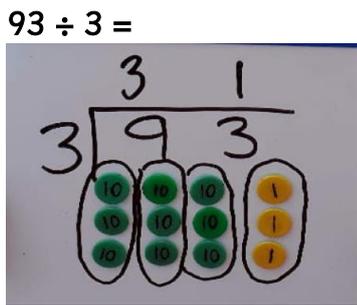
It is helpful to split 192 into sensible 'chunks' before dividing. As you are dividing by 8, the 'chunks' chosen must also be multiples of 8. Divide each 'chunk' (how many groups of 8?) and then add the answers together.

$196 \div 6 =$
What easy facts do I know about the 6 times table?

- $1 \times 6 = 6$
 - $5 \times 6 = 30$
 - $10 \times 6 = 60$
 - $20 \times 6 = 120$
 - $30 \times 6 = 180$
- That leaves 16, so $16 \div 6 = 2 \text{ r}4$
- 30** lots of 6 + **2** lots of 6 and the remainder equals:-
 $196 \div 6 = 32 \text{ r}4$

Children can work out larger division, with remainders, by using their own number knowledge. This method is called 'What do I know?'
Children write down easy table facts and use these to estimate what the answer could be.
Workings out could be jottings, columns or using a number line.

Short division with place value counters





$184 \div 7 =$

I need 184 chairs for a concert. I arrange them in rows of 7. How many rows do I need?

$$\begin{array}{r}
 026 \text{ r. } 2 \\
 7 \overline{) 184} \\
 \underline{- 140} \quad 20 \text{ groups} \\
 44 \\
 \underline{- 42} \quad 6 \text{ groups} \\
 2 \\
 \hline
 = 26 \text{ r}2
 \end{array}$$

This method is known as chunking. In this example, you are taking away chunks of 7. First subtract 140 (20 groups of 7) and you are left with 44. Then subtract 42 (6 groups of 7), to leave 2. Altogether, that is 26 sevens with a remainder of 2.

This is long division by a single digit number.

Key vocabulary: As before & **divisible by, carry, short division and factor.**

Key number skills needed:

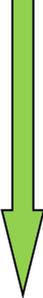
Recall all multiplication and division facts up to 12×12 .

Use place value, known and derived facts to multiply and divide mentally, incl. multiplying and dividing by 10 and 100 and

Use short division with exact answers.

Extend mental methods to 3-digit numbers, deriving facts, for example $200 \times 3 = 600$ so $600 \div 3 = 200$

Solve 2-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.



$$432 \div 15$$

$$\begin{array}{r}
 028 \text{ r. } 12 \\
 15 \overline{)432} \\
 \underline{30} \quad 0 \quad 20 \\
 132 \\
 \underline{120} \quad 8 \\
 12
 \end{array}$$

$$= 28 \text{ r. } 12$$

This is long division by a two digit number.

Key vocabulary: As before & **quotient, prime number, prime factors and composite number (non - prime)**

Key number skills needed:

Recall multiplication / division facts for all numbers up to 12 x 12. *Identify multiples and factors of any number. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.

Work out if numbers to 100 are prime, recalling primes to 19. *Use multiplication and division as inverses. Express remainder answers as fractions, decimals or rounded numbers, as appropriate to the context of the problem.

Progress onto short division.

$$\begin{array}{r}
 45 \text{ r. } 1 \\
 11 \overline{)496} \\
 \underline{49} \quad 6
 \end{array}$$

Key vocabulary: As before, & **common factor**

Key number skills needed:

Use multiplication and division facts for all numbers to 12 x 12 for more complex calculations.

Identify common factors, common multiples and prime numbers *Solve problems which require answers to be rounded to specified degrees of accuracy, and remainders to be expressed as rounded numbers, fractions or decimals.

Use estimation to check answers to calculations.

COUNTING IDEAS

- ◎ Practise chanting the number names. Encourage your child to join in with you. When they are confident, try starting from different numbers – 4, 5, 6 ...
- ◎ Sing number rhymes together – there are lots of commercial apps and CDs available
- ◎ Give your child the opportunity to count a range of interesting objects (coins, pasta shapes, buttons etc.). Encourage them to touch and move each object as they count.
- ◎ Count things you cannot touch or see (more difficult!!). Try lights on the ceiling, window panes, jumps, claps or oranges in a bag.
- ◎ Play games that involve counting (e.g. snakes and ladders, dice games, games that involve collecting objects).
- ◎ Look for numerals in the environment. You can spot numerals at home, in the street or when out shopping.
- ◎ Cut out numerals from newspapers, magazines or birthday cards. Then help your child to put the numbers in order.
- ◎ Make mistakes when chanting, counting or ordering numbers. Can your child spot what you have done wrong?
- ◎ Choose a number of the week e.g. 5. Practise counting to 5 and on from 5. Count out groups of 5 objects (5 dolls, 5 bricks, 5 pens). See how many places you can spot the numeral 5.

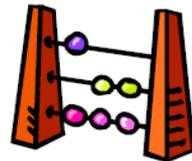


REAL LIFE PROBLEMS

- ❖ Go shopping with your child to buy two or three items. Ask them to work out the total amount spent and how much change you will get.
- ❖ Buy some items with a percentage extra free. Help your child to calculate how much of the product is free.
- ❖ Plan an outing during the holidays. Ask your child to think about what time you will need to set off and how much money you will need to take.
- ❖ Use a TV guide. Ask your child to work out the length of their favourite programmes. Can they calculate how long they spend watching TV each day / week?
- ❖ Use a bus or train timetable. Ask your child to work out how long a journey between two places should take? Go on the journey. Do you arrive earlier or later than expected? How much earlier or later?
- ❖ Help you child to scale a recipe up or down to feed the right amount of people.
- ❖ Work together to plan a party meal on a budget.



These are just a few ideas to give you a starting point. Try to involve your child in as many problem-solving activities as possible. The more 'real' a problem is, the more motivated they will be when trying to solve it.



PRACTISING NUMBER FACTS

- ✚ Find out which number facts your child is learning at school (addition facts to 10, times tables, doubles etc). Try to practice for a few minutes each day using a range of vocabulary.
- ✚ Have a 'fact of the day'. Pin this fact up around the house. Practise reading it in a quiet, loud, squeaky voice. Ask your child over the day if they recall the fact.
- ✚ Play 'ping pong' to practise complements with your child. You say a number. They reply with how much more is needed to make 10. You can also play this game with numbers totaling 20, 100 or 1000. Encourage your child to answer quickly, without counting or using fingers.
- ✚ Throw 2 dice. Ask your child to find the total of the numbers (+), the difference between them (-) or the product (x). Can they do this without counting?
- ✚ Use a set of playing cards (no pictures). Turn over two cards and ask your child to add or multiply the numbers. If they answer correctly, they keep the cards. How many cards can they collect in 2 minutes?
- ✚ Play Bingo. Each player chooses five answers (e.g. numbers to 10 to practise the five times tables). Ask a question and if a player has the answer, they can cross it off. The winner is the first one to cross off all their answers.
- ✚ Give your child an answer. Ask them to write as many addition sentences as they can with this answer. (e.g. $10 = \square + \square$). Try with multiplication or subtraction.
- ✚ Give your child a number fact (e.g. $5 + 3 = 8$). Ask them what else they can find out from this fact (e.g. $3 + 5 = 8$, $8 - 5 = 3$, $8 - 3 = 5$, $50 + 30 = 80$, $500 + 300 = 800$, $5 + 4 = 9$, $15 + 3 = 18$). Add to the list over the next few days. Try starting with a 'x' fact as well.

SHAPES AND MEASURES



- ❖ Choose a shape of the week e.g. cylinder. Look for this shape in the environment (tins, candles etc). Ask your child to describe the shape to you (2 circular faces, 2 curved edges...).
- ❖ Play 'guess my shape'. Think of a shape. Your child asks questions to try to identify it but you can only answer 'yes' or 'no' (e.g. Does it have more than 4 corners? Does it have any curved sides?)
- ❖ Hunt for right angles around your home. Can your child also spot angles bigger or smaller than a right angle?
- ❖ Look for symmetrical objects. Help your child to draw or paint symmetrical pictures / patterns.
- ❖ Make a model using boxes / containers of a different shapes and sizes. Ask your child to describe their model.
- ❖ Practise measuring the lengths or heights of objects (in metres or cm). Help your child to use different rulers and tape measures correctly. Encourage them to estimate before measuring.
- ❖ Let your child help with cooking at home. Help them to measure ingredients accurately using weighing scales or measuring jugs. Talk about what each division on the scale stands for.
- ❖ Choose some food items out of the cupboard. Try to put the objects in order of weight, by feel alone. Check by looking at the amounts on the packets.
- ❖ Practise telling the time with your child. Use both digital and analogue clocks. Ask your child to be 'timekeeper' (e.g. tell me when it is half past four because then we are going swimming).
- ❖ Use a stop clock to time how long it takes to do everyday tasks (e.g. how long does it take to get dressed?). Encourage your child to estimate first.

HOW CAN PARENTS HELP

- Be positive – show an interest and enthusiasm.
- Remember to make activities fun.
- Use the same method being used in school.
- Allow your children to show you how they do it.



Revision for Key Stage 1 & 2
<http://www.bbc.co.uk/bitesize/>

USEFUL WEBSITES

www.primarygames.co.uk

www.primaryhomeworkhelp.co.uk/maths

www.ictgames.com

www.maths-games.org

www.topmarks.co.uk

www.mathszone.co.uk

www.nrich.maths.org

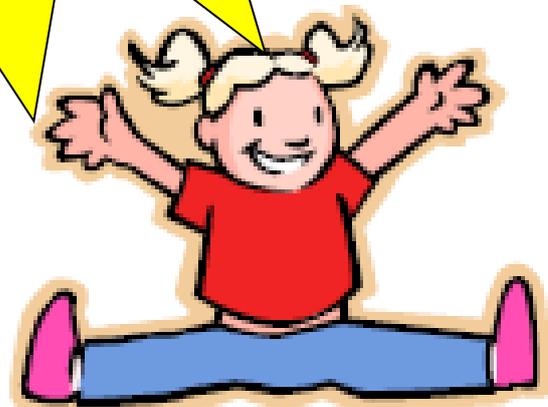
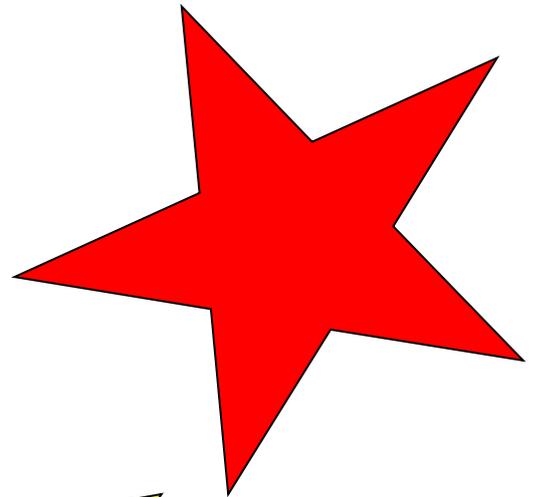
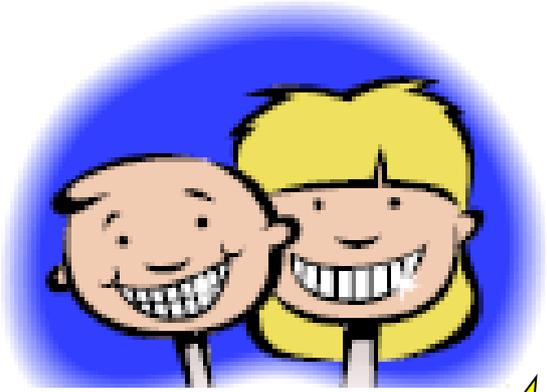
www.counton.org/resources

www.crickweb.co.uk

www.mathsbot.com

We'll try to keep you up-to-date with websites and apps via our school website.

A Place for your Notes



Remember!
Maths is all around us, we
use it everyday.