The background features a white central area framed by abstract, overlapping geometric shapes in various shades of green and yellow. The shapes have a layered, paper-like appearance with soft shadows.

Progression in Mental and Written Calculation Methods

The background features a large white hexagonal shape in the center. This hexagon is framed by several overlapping, semi-transparent geometric shapes. The top and right sides of the frame are composed of various shades of green, while the bottom and left sides are composed of various shades of yellow and orange. The overall effect is a layered, paper-like composition.

Addition

Addition

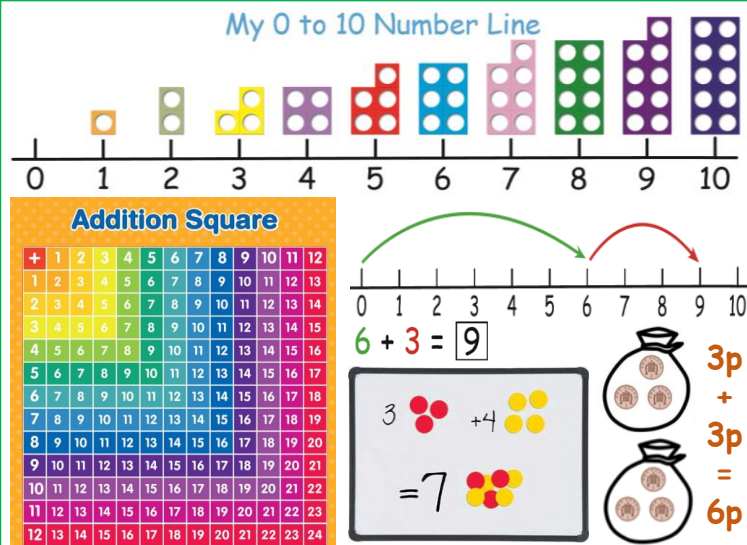
Pupils should be able to use addition flexibly and in context. They should understand that addition is the inverse of subtraction.

End of year expectations

Year 1

Write mathematical statements using the + and = symbols. Children must experience combining two, and then more than two groups of objects using counting on and the language of addition e.g. add, plus, altogether. Solve one-step problems; calculating the answer using concrete objects, pictorial representations and missing number problems.

Concrete and visual representations



Recording and Progression

Autumn Term

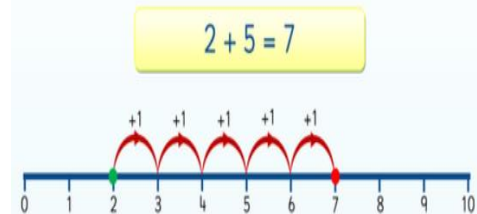
Photographs of practical materials which have been added by the children. This may include whiteboard annotations to label quantities. Children should also draw pictures of objects to add.

$$5 + 3 = 8$$

Spring Term

Photographs/ stickers/ Illustrations of objects alongside relevant number fact/s. Starting to use a number line to add.

Summer Term

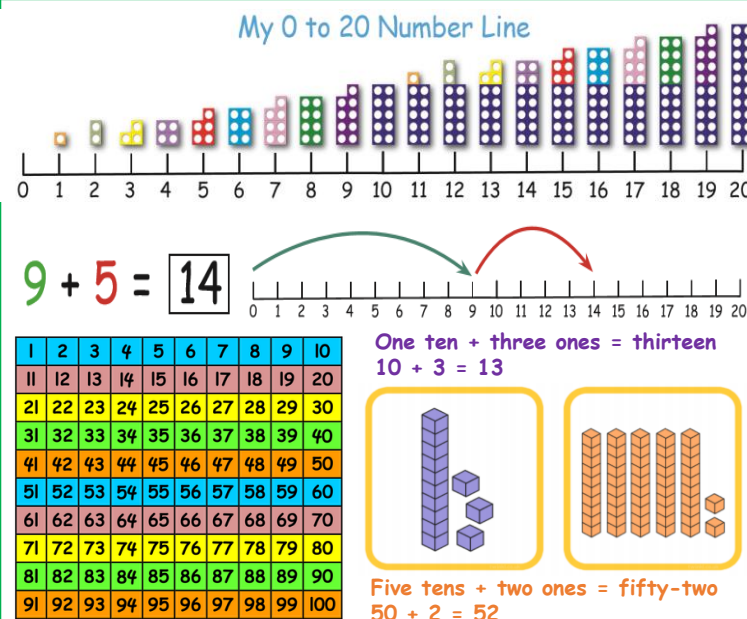


Number Fluency

Know number bonds to 10 and 20 and relate these to subtraction facts. Add numbers up to 20 together (including 0). Count forwards, to and across 100, beginning with 0 or 1 or from any given number. Compare quantities to say how many more e.g. what is 3 more than 6?. Count in tens and ones; and multiples of 2, 5 and 10. Find one more than a given number.

Year 2

Partition numbers in different ways e.g. 2 + 2 + 2 + 3, 4 + 5 or 26 as 20 + 6 or 10 + 16. Use concrete objects and pictorial representations to add numbers in context e.g. measures or money. Add more than two numbers together. Solve reasoning problems involving addition by using materials, arrays, repeated addition and mental methods. Understand that addition is commutative (it can be done in any order).



Autumn Term

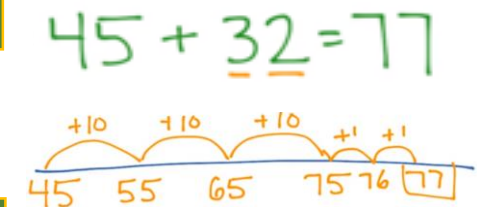
Solve number sentences using a number line.



Draw an empty number line to find an answer.

Spring Term

Solve number sentences using an empty number line.



Summer Term

Use the column method to add.

$\begin{array}{r} 323 \\ + 518 \\ \hline 841 \\ 1 \end{array}$	$\begin{array}{r} 607 \\ + 228 \\ \hline 835 \\ 1 \end{array}$	$\begin{array}{r} 507 \\ + 463 \\ \hline 970 \\ 1 \end{array}$
----------------------------------------------------------------	----------------------------------------------------------------	----------------------------------------------------------------

Increasingly fluent recalling number bonds to 10 and 20 and relate these to subtraction facts. Use knowledge of number to derive and use number facts between 0 and 100. Add numbers together mentally including: a 2-digit number and a 1-digit number, two 2-digit numbers, a 2-digit number and a 10, and three 1-digit numbers. Independently record addition in columns using suitable place value. Use mathematical language fluently e.g. sum of and difference. Count from 0 in multiples of 2, 5, 10, 20 and 100.

Addition

Pupils should be able to use addition flexibly and in context. They should understand that addition is the inverse of subtraction.

End of year expectations

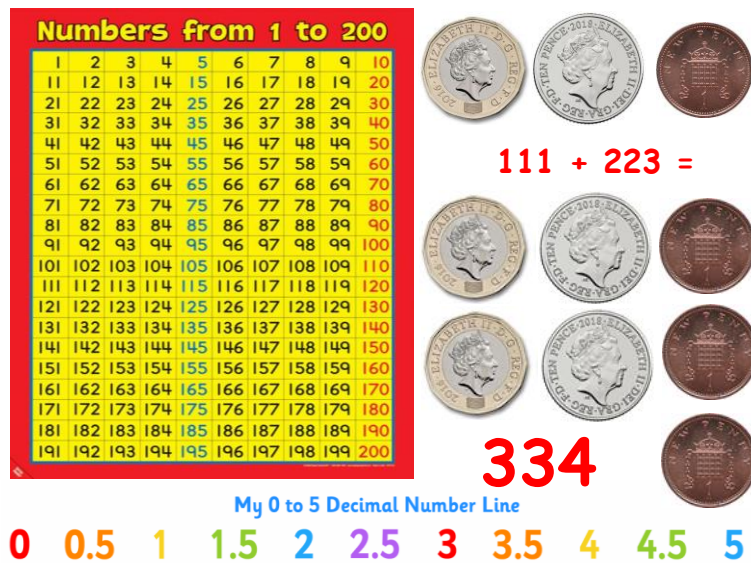
Concrete and visual representations

Recording and Progression

Number Fluency

Year 3

Solve two-step addition problems in different contexts, including missing number questions.
Add more than two numbers with different amounts of digits.
Partition numbers up to 1000 in different ways e.g. $200 + 60 + 4 = 200 + 40 + 24 = 264$.
Add numbers with up to three-digits using the column method.
Estimate the answer to calculations and use the inverse to check answers.



Autumn Term

$$\begin{array}{r} 128 \\ + 214 \\ \hline 342 \end{array}$$

$100 + 200 = 300$
 $20 + 10 = 30$
 $8 + 4 = 12$
 $300 + 30 + 12 = 342$

$\begin{array}{r} 534 \\ + 45 \\ \hline 579 \end{array}$	$\begin{array}{r} 213 \\ + 62 \\ \hline 275 \end{array}$
----------------------------------------------------------	----------------------------------------------------------

Spring Term

$\begin{array}{r} 607 \\ + 228 \\ \hline 835 \\ 1 \end{array}$	$\begin{array}{r} 507 \\ + 463 \\ \hline 970 \\ 1 \end{array}$
----------------------------------------------------------------	----------------------------------------------------------------

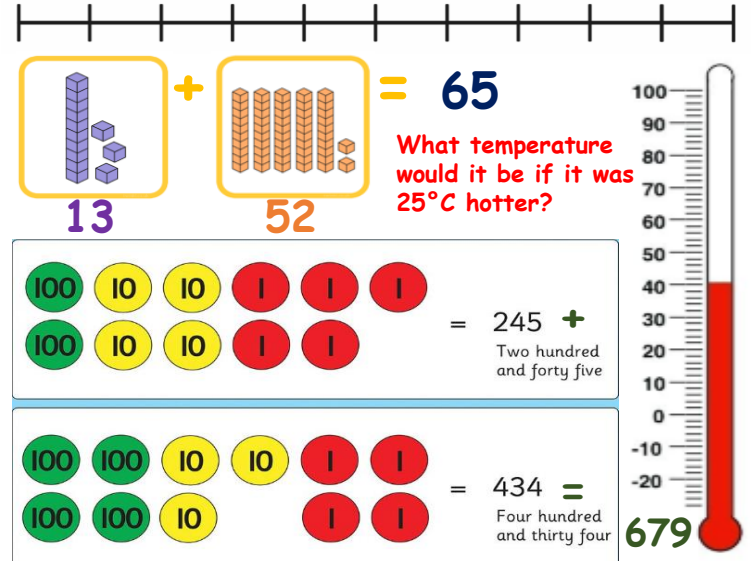
Summer Term

$\begin{array}{r} 933 \\ + 575 \\ \hline 1508 \\ 1 \end{array}$	$\begin{array}{r} 488 \\ + 753 \\ \hline 1241 \\ 1 \end{array}$
-----------------------------------------------------------------	-----------------------------------------------------------------

Count in ones, tens and hundreds maintaining fluency through regular practise.
Count from 0 in multiples of 4, 8, 50 and 100.
Find 10 or 100 more than a given number.
Mentally add HTO + ones, HTO + tens and HTO + hundreds.
Perform mental calculations with two-digit numbers when the answer exceeds 100.

Year 4

Solve two-step addition problems in different contexts, including missing number questions.
Add numbers with up to two decimal places; including within the context of money.
Add more than two numbers with different amounts of digits including a whole number and a decimal or two decimal numbers.
Add numbers with up to four-digits using the column method.



Autumn Term

$\begin{array}{r} 143 \\ + 305 \\ \hline 448 \end{array}$	$\begin{array}{r} 424 \\ + 36 \\ \hline 460 \end{array}$	$\begin{array}{r} 9701 \\ + 3652 \\ \hline 13353 \\ 1 \end{array}$
-----------------------------------------------------------	----------------------------------------------------------	--------------------------------------------------------------------

Spring Term

$\begin{array}{r} 1912 \\ + 3172 \\ \hline 5084 \\ 1 \end{array}$	$\begin{array}{r} 9408 \\ + 4774 \\ \hline 14182 \\ 1 \end{array}$
-------------------------------------------------------------------	--------------------------------------------------------------------

Summer Term

$\begin{array}{r} 4.5 \\ + .28 \\ \hline 4.78 \end{array}$	$\begin{array}{r} 4.50 \\ + .28 \\ \hline 4.78 \end{array}$	$\begin{array}{r} 1,457 \\ + 28 \\ \hline 1,485 \end{array}$	$\begin{array}{r} 1,457.0 \\ + 28 \\ \hline 1,485.0 \end{array}$
------------------------------------------------------------	-------------------------------------------------------------	--------------------------------------------------------------	------------------------------------------------------------------

How much change does he get from £10?

Count from 0 in multiples of 6, 7, 9, 25 and 100.
Find 1000 more than a given number.
Perform mental calculations with two-digit numbers when the answer exceeds 100.
Independently decide on a method of choice depending on the nature of the given numbers presented in a number sentence or within a problem.

The background features a large white hexagonal shape in the center. Surrounding this hexagon are several overlapping, layered geometric shapes in various shades of green and yellow, creating a dynamic, abstract border. The green shapes are primarily at the top and right, while the yellow shapes are at the bottom and left. The layers have a slight 3D effect with soft shadows.

Subtraction

Subtraction

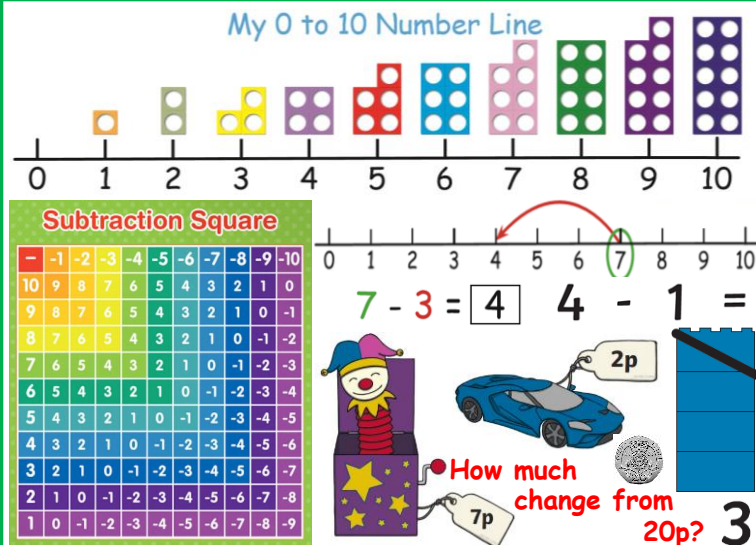
Pupils should be able to use subtraction flexibly and in context. They should understand that subtraction is the inverse of addition.

End of year expectations

Year 1

Write mathematical statements using the - and = symbols.
Understand subtraction as taking away.
Children must experience comparing quantities of objects by identifying how many less or how many more e.g. this group has two less, this group has two more.
Solve one-step problems; calculating the answer using concrete objects, pictorial representations and missing number problems.

Concrete and visual representations



Recording and Progression

Autumn Term

Photographs of practical materials which have been subtracted by the children. This may include whiteboard annotations to label quantities. Children should also draw pictures of objects to subtract.

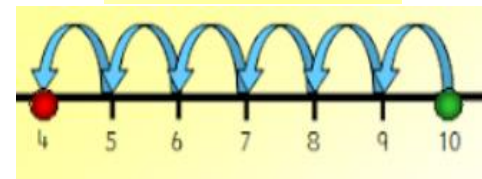
$$\begin{array}{c} \text{Blue blocks} \\ 8 \end{array} - \begin{array}{c} \text{Yellow blocks} \\ 3 \end{array} = 5$$

Spring Term

Photographs/stickers/ Illustrations of objects alongside relevant number fact/s.
Starting to use a number line to take away.

Summer Term

$$10 - 6 = 4$$

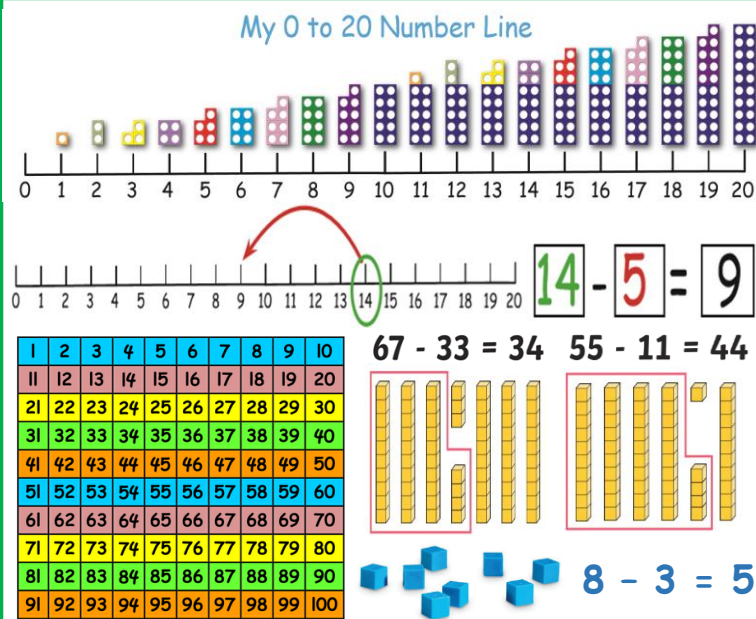


Number Fluency

Know number bonds to 10 and 20 and relate these to subtraction facts.
Subtract numbers up to 20 (including 0).
Count backwards from 100 or 10 or from any given number.
Switch count between tens and ones e.g. 23, 22, 21, 20, 10, 0.
Compare quantities to say how many less e.g. what is 3 less than 6?
Count back in tens and ones; and multiples of 2, 5 and 10.
Find one and ten less than a given number.

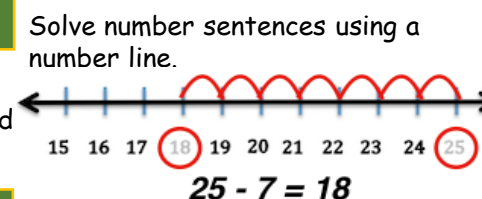
Year 2

Partition numbers in different ways e.g. 10 - 2 - 2 - 3, 9 - 5 or 32 as 40 - 8 or 34 - 2.
Use concrete objects and pictorial representations to subtract numbers in context e.g. measures or money.
Subtract two or more numbers from a given number.
Solve reasoning problems involving subtraction by using materials and mental methods.
Understand subtraction as taking away and finding the difference.
Understand that subtraction is not commutative; it cannot be done in any order.



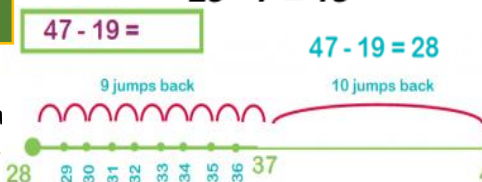
Autumn Term

Solve number sentences using a number line.
Draw an empty number line to find an answer.



Spring Term

Solve number sentences using an empty number line



Summer Term

Use the column method to subtract.

$$\begin{array}{r} 10 \\ 21 \\ -13 \\ \hline 08 \end{array}$$

$$\begin{array}{r} 67 \\ 56 \\ -16 \\ \hline 51 \end{array}$$

$$\begin{array}{r} 67 \\ 56 \\ -249 \\ \hline 426 \end{array}$$

Become increasingly fluent when subtracting numbers to 10 and 20 and relate these to number bond facts.
Use knowledge of number to derive and use number facts between 0 and 100.
Subtract numbers mentally including: a 2-digit number and a 1-digit number, two 2-digit numbers, a 2-digit number and a 10, and three 1-digit numbers.
Independently record subtraction in columns using suitable place value.
Recognise that subtraction is the inverse of addition; use this knowledge to check questions and solve missing number problems.
Count back in multiples of 2, 5, 10, 20 and 100.

Subtraction

Pupils should be able to use subtraction flexibly and in context. They should understand that subtraction is the inverse of addition.

End of year expectations

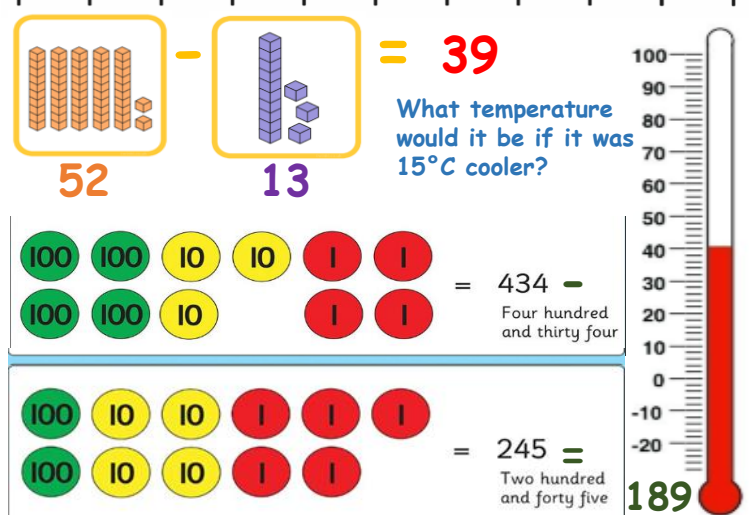
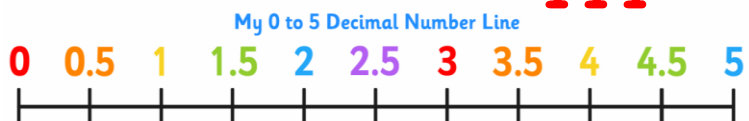
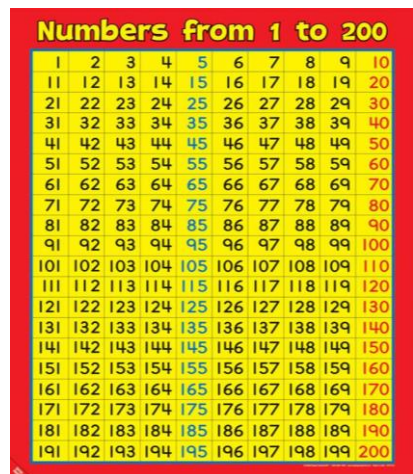
Concrete and visual representations

Recording and Progression

Number Fluency

Year 3

Solve two-step subtraction problems in different contexts, including missing number questions. Using a formal written method, subtract more than two numbers with different amounts of digits. Subtract numbers with up to three-digits using the column method. Apply, develop and secure understanding of place value and record calculations in columns. Estimate the answer to calculations and use the inverse to check answers.



Autumn Term

Spring Term

	H	T	U
		1	
	6	2	1
-	1	1	7
	5	0	4

Move a 'ten' across into the units column if you need to

Subtract the units, then the tens, then the hundreds.

	H	T	U		H	T	U
	8	9	5		7	7	6
-	4	5	2			5	3
	4	4	3		7	2	3

Summer Term

Move a 'hundred' or 'ten' across if you need to

Subtract the units, then the tens, then the hundreds.

	H	T	U
	2	9	
-	3	0	1
	1	5	5
	1	4	9

Year 4

Solve two-step subtraction problems in different contexts, including missing number questions. Subtract numbers with up to two decimal places; including within the context of money. Subtract more than two numbers with different amounts of digits including a whole number and a decimal or two decimal numbers. Subtract numbers with up to four-digits using the column method.

Autumn Term

Spring Term

$$\begin{array}{r} 975 \\ - 422 \\ \hline 553 \end{array}$$

Summer Term

$$\begin{array}{r} £1.34 \\ - £1.17 \\ \hline £0.17 \end{array}$$

Lucy was given £80 for her birthday. She spent £19.99 on an Elsa doll and £24.99 on a snow machine. How much money did she have left?

$$\begin{array}{r} 975 \\ - 422 \\ \hline 553 \end{array}$$



Count back in ones, tens and hundreds maintaining fluency through regular practise. Count back in multiples of 4, 8, 50 and 100. Find 10 or 100 less than a given number with up to 3-digits. Mentally subtract ones from HTO, tens from HTO and tens and hundreds from HTO. Perform mental calculations with two-digit or three-digit numbers. Switch count between hundreds, tens and ones e.g. 500, 400, 390, 380, 379, 378. Count back in multiples of 6, 7, 9, 25 and 100. Find 1000 less than a given number. Perform mental calculations with three-digit, two-digit and one-digit numbers. Check answers using the inverse operation: addition. Count back through zero to negative numbers. Independently decide on a method of choice depending on the nature of the given numbers presented in a number sentence or within a problem.

Subtraction

Pupils should be able to use subtraction flexibly and in context. They should understand that subtraction is the inverse of addition.

End of year expectations

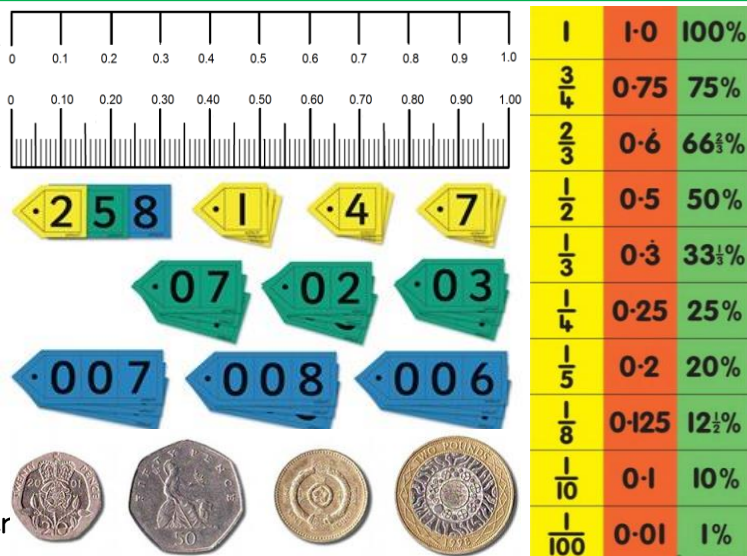
Concrete and visual representations

Recording expectations

Number Fluency

Year 5

Solve multi-step problems involving subtraction. Children should be able to select and justify their methods. Perform mental calculations with increasingly large numbers. Subtract numbers with more than four-digits. Using a formal written method, e.g. columnar subtraction, solve calculations. Subtract numbers with up to three decimal places. Children should be able to subtract more than two numbers including those with decimals and/or a different number of digits.



Autumn Term

$$\begin{array}{r} 847\,934 \\ - 303\,520 \\ \hline 544\,414 \end{array}$$

Katie had 2.45kg of sugar. She used 1.2kg in her cookie mixture. How much sugar did she have left?



Spring Term

$$\begin{array}{r} 2\,3.13\,47 \\ - 1.59 \\ \hline 1.88 \end{array}$$

Summer Term

$$\begin{array}{r} 2\,3.13\,47 \\ - 1.59 \\ \hline 1.88 \end{array}$$

Count backwards and forwards in steps of 10 from any given number up to 1,000,000. Count backwards in positive and negative whole numbers through zero. Use knowledge of the inverse to complete subtraction and addition problems effectively. Perform mental calculations involving increasingly high numbers by drawing on known number facts e.g. $12,462 - 2,300 = 10,162$. Use rounding to estimate and check answers effectively.

Year 6

Solve multi-step problems involving subtraction. Children should be able to select and justify their methods. Subtract numbers with more than four-digits. Perform mental calculations with increasingly complex steps. Using a formal written method, e.g. columnar subtraction, solve calculations. Subtract numbers with up to three decimal places. Children should be able to subtract more than two numbers including those with decimals and/or a different number of digits.

Amina posts three large letters.

The postage costs the same for each letter.

She pays with a £ 20 note.

Her change is £14.96



What is the cost of posting **one** letter?



Autumn Term

$$\begin{array}{l} 6 - 5.738 = 4,912 - 824 = \\ 7 - 2.25 = 37.8 - 14.671 = 12 - 6.01 = \\ 7,064 - 502 = 122,456 - 11,999 = \end{array}$$

Spring Term

$$\begin{array}{r} T\,Th\,Th\,H\,T\,O \\ 7\,4\,5\,1\,5\,2 \\ - 2\,2\,6\,2\,3 \\ \hline 5\,2\,9\,0\,9 \end{array}$$

Summer Term

$$\begin{array}{r} 0\,11\,11 \\ 12.15 \\ - 3.90 \\ \hline 8.25 \end{array}$$

Count backwards and forwards in steps of 10 and 100 from any given number up to 1,000,000. Recognise and consider place value between millionths and millions. Perform mental calculations involving increasingly high numbers and increasingly complex steps. These may include mixed operational steps. Round numbers to a specific degree of accuracy. Count backwards in positive and negative whole numbers through zero.

The background features a large white hexagonal shape in the center. Surrounding this hexagon are several overlapping, angular shapes in various shades of green and yellow, creating a layered, paper-like effect. The green shapes are primarily at the top and right, while the yellow shapes are at the bottom and left.

Multiplication

Multiplication

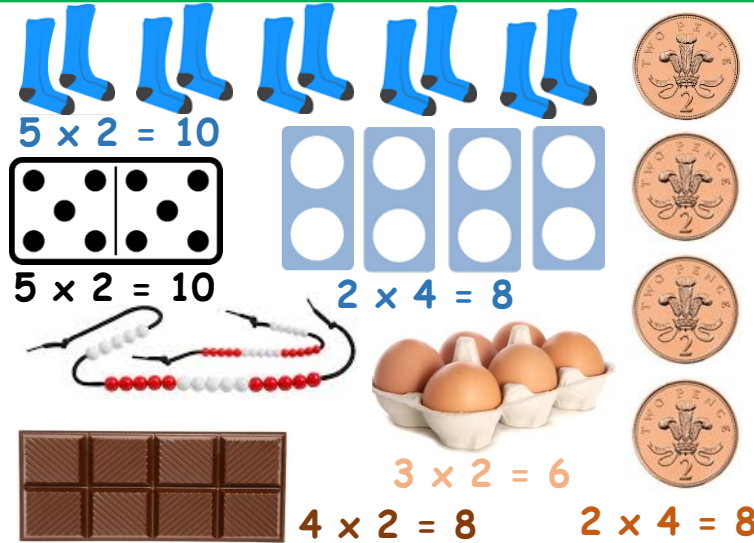
Pupils should be able to multiply effectively, realise that numbers can be multiplied in any order and recognise any related division facts.

End of year expectations

Year 1

- Solve one-step problems involving multiplication.
- Answer questions using concrete objects, pictorial representations and arrays.
- Grouping small quantities.
- Doubling numbers and quantities.
- Make connections between arrays, number patterns and counting in 2s, 5s and 10s.

Concrete and visual representations



Recording and Progression

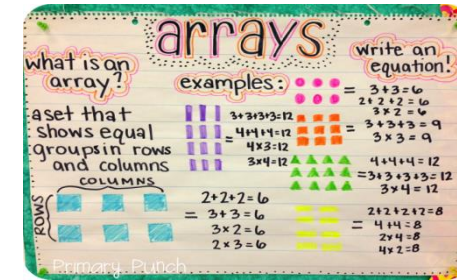
Autumn Term

Photographs of practical materials which have been grouped by the children. This may include whiteboard annotations to label groups and/or quantities. Children should draw pictures of objects to multiply using repeated addition.

Spring Term

Photographs/stickers/illustrations of arrays alongside relevant number fact/s.

Summer Term

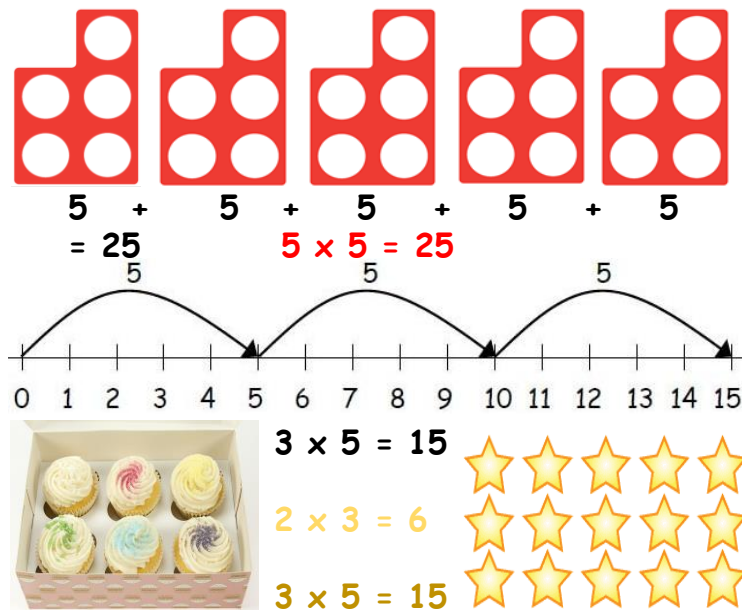


Number Fluency

- Count backwards and forwards in 2s, 5s and 10s. Children should be able to do this from any given multiple.
- Remember and identify number patterns.
- Double numbers and quantities.
- Mastery learners should begin to practise their 2, 5 and 10x tables.

Year 2

- Know 2, 5 and 10x tables.
- Complete arithmetic questions using the given times tables.
- Children should write their number sentences using the correct symbols.
- Know that multiplication is commutative.
- Solve reasoning problems involving multiplication by using materials, arrays, repeated addition, mental methods and known multiplication facts.



Autumn Term



$$2 + 2 + 2 + 2 + 2 = 10$$

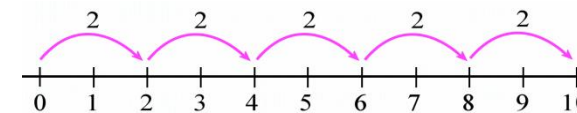
$$2 \times 5 = 10$$

$$5 \times 2 = 10$$

Children should record arrays in their books which demonstrate repeated addition, multiplication and commutativity.

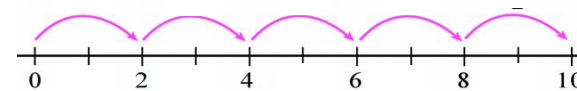
Spring Term

$$2 \times 5 = 10$$



Summer Term

$$2 \times 5 = 10$$



- Know the 2, 5 and 10 multiplication tables and connect them with each other.
- Know a variety of ways to describe the x symbol (multiply, times, product).
- Use the knowledge of commutativity to support fluency and rapid recall.
- Perform written and mental calculations independently.
- Develop multiplicative reasoning.
- Count from 0 in multiples of 2, 5, 10, 20 and 100.

Multiplication

Pupils should be able to multiply effectively, realise that numbers can be multiplied in any order and recognise any related division facts.

End of year expectations

Concrete and visual representations

Recording and Progression

Number Fluency

Year 3

Solve two-step problems involving multiplication.

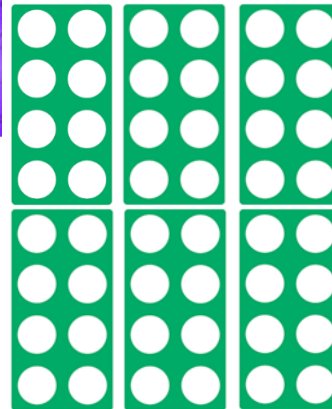
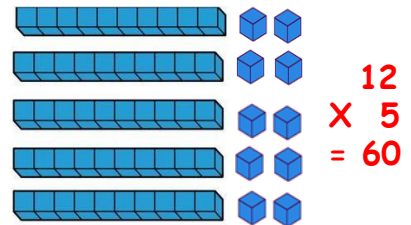
Calculate mathematical statements involving one- and two-digit numbers.

Develop reliable mental and formal written methods to solve problems.

Solve problems involving: missing numbers, scaling and simple algebra.



How could I make a cake big enough for four?
(x ingredients for 2 by 2)



$$3 \times 4 = 12$$

$$4 \times 3 = 12$$

I am 4m tall;
my older
brother is 8x
my height - how
tall is he?
($4 \times 8 = 32\text{m}$)



Autumn Term

Start with digits below 5 until method is retained

Spring Term

One opportunity to carry.

Summer Term

Two or more opportunities to carry.

		3	5
x			8
	2	8	0
		4	
	6	5	
x			3
	3	1	5
		1	

		8	5	3
x				6
	5	1	1	8
		3	1	

Step 1.
Step 2.
Step 3.

Autumn Term

Spring Term

	3	2	1
x			3
	9	6	3

	5	6	1
x			3
	1	6	8
		1	

x		
9	63	54
	56	48

Step 1.
Step 2.
Step 3.

Summer Term

Lauren buys 4 ice creams. Each ice cream cost 85p. How much do they cost altogether in £s?



	8	2	3
x			6
	4	9	3
		1	1

Count in multiples of 3, 4, 8, 50 and 100 (from 0, forwards and backwards).

Know and rapidly recall the 1, 2, 3, 4, 5, 8 and 10x tables in any order.

Connect the 2, 4 and 8x tables through doubling.

Use the knowledge of commutativity to support fluency and rapid recall.

Multiply three integers successfully e.g. $3 \times 3 \times 4 = 36$

Year 4

Rapidly and randomly recall all multiplication tables up to 12×12 .
Solve two-step problems involving multiplication.

Using a formal written method, solve number sentences involving one- two- and three-digit numbers.
Multiply three numbers including $\times 0$ and $\times 1$.

Recognise factor pairs.
Solve problems involving: the distributive law, scaling and simple algebra.

Count in multiples of 6, 7, 9, 25 and 1000 (from 0, forwards and backwards).

Rapidly and randomly recall all multiplication tables up to 12×12 .

Derive multiplication facts with up to three digits e.g. $2 \times 3 = 6$ so $200 \times 3 = 600$.

Recognise factor pairs and use commutativity effectively.

Use the distributive law e.g. $39 \times 7 = 30 \times 7 + 9 \times 7$

Simplify using known number facts e.g. $2 \times 6 \times 5 = 10 \times 6$

Multiplication

Pupils should be able to multiply effectively, realise that numbers can be multiplied in any order and recognise any related division facts.

End of year expectations

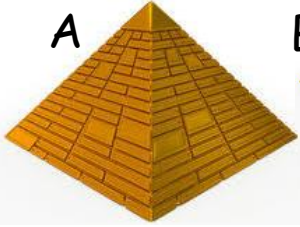
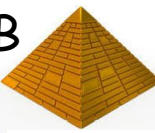
Concrete and visual representations

Recording expectations

Number Fluency

Year 5

Solve two- and three-step problems involving multiplication.
Identify multiples, factors, factor pairs, common factors, prime numbers, prime factors, composite numbers, square numbers and cube numbers.
Solve problems involving all of the above.
Using a formal written method, solve number sentences involving one- two-three- and four- digit numbers.
Multiply numbers by 10, 100 and 1000.
Using a formal written method, multiply decimals with up to two decimal places.
Solve missing number problems and balance equations.
Scale numbers by fractions e.g. $5/8 \times 64$.

A  **B** 

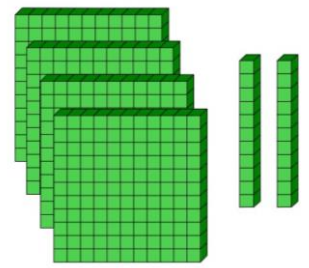

The volume of pyramid B is exactly 3 times less than the volume of pyramid A. What is the volume of pyramid A?

26cm^3

$(4 \times 100) + (2 \times 10) + 1 =$

421

$9 \times 3 = 27$
 $3 \times 3 \times 3 = 27$
 3^3

Autumn Term

Rosa buys 9 bananas. Each banana cost 79p. How much do they cost altogether in £s?



Spring Term

2-digit Multiplication

$$\begin{array}{r} 67 \\ \times 23 \\ \hline 201 \end{array}$$

1. Multiply by the one's place

$$\begin{array}{r} 67 \\ \times 23 \\ \hline 201 \\ 0 \end{array}$$

2. Put a zero to hold the one's place

$$\begin{array}{r} 67 \\ \times 23 \\ \hline 201 \\ 1340 \end{array}$$

3. Multiply by the ten's place

$$\begin{array}{r} 67 \\ \times 23 \\ \hline 201 \\ 1340 \\ \hline 1541 \end{array}$$

4. Add the numbers

Summer Term

$$\begin{array}{r} 154 \\ \times 926 \\ \hline 924 \\ 1098 \\ 1396 \\ \hline 142824 \end{array}$$

Count forwards and backwards in steps of 10 from any given number up to 1,000,000.
Having memorised all times tables to 12×12 , successfully complete long and short multiplication without error.
Use knowledge of the inverse to complete multiplication and division problems effectively.
Multiply numbers mentally by drawing on known facts.

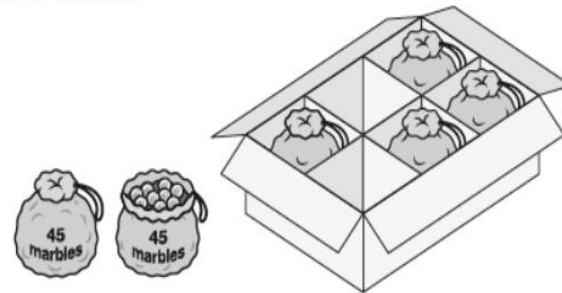
Year 6

Using a formal written method, multiply one- two- three- and four-digit numbers by a two-digit number.
Using a formal written method, multiply decimals with up to three decimal places.
Using a formal written method, multiply one- and two-digit numbers by a number with up to three decimal places.
Solve two- and three-step problems involving multiplication.

A toy shop orders 11 boxes of marbles.

Each box contains 6 bags of marbles.

Each bag contains 45 marbles.



How many marbles does the shop order in total?

Autumn Term

A machine pours 250 millilitres of juice every 4 seconds.

How many litres of juice does the machine pour every minute?



$$\begin{array}{r} 163 \\ \times 32 \\ \hline 326 \\ 4890 \\ \hline 5216 \end{array}$$

Spring Term

$$\begin{array}{r} 3243 \\ \times 16 \\ \hline 19458 \\ 32430 \\ \hline 51888 \end{array}$$

Summer Term

Write the two missing digits to make this long multiplication correct.

$$\begin{array}{r} 4 \square \\ \times \square 6 \\ \hline 246 \\ 820 \\ \hline 1066 \end{array}$$

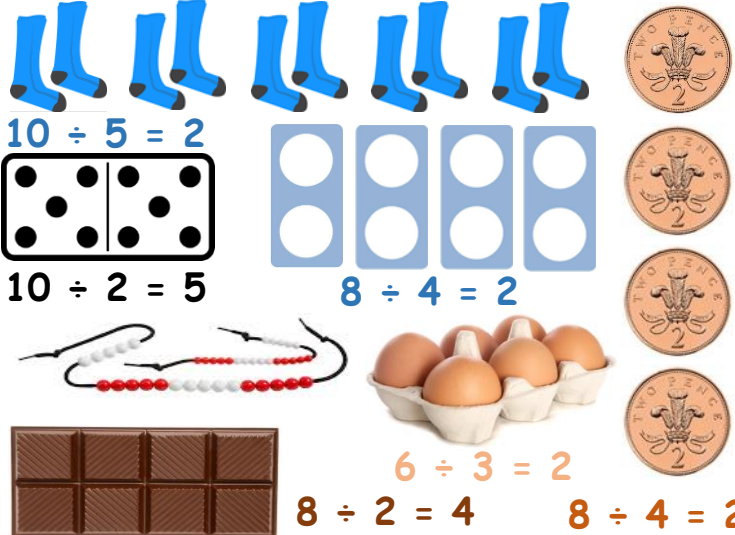
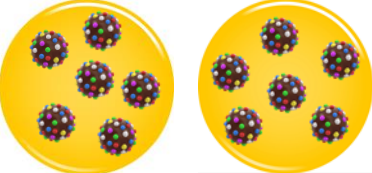

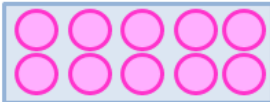
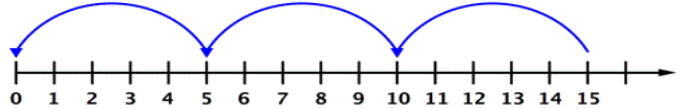
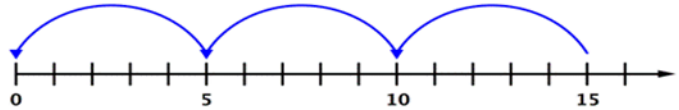
Undertake mental calculations with increasingly large numbers.
Continue to use all multiplication tables up to 12×12 to calculate mathematical statements in order to maintain fluency.
Use estimation to predict or check answers to evidence number fluency and contextual awareness.

The background features a large white hexagonal shape in the center. This hexagon is framed by several overlapping, semi-transparent geometric shapes. The top and right sides of the hexagon are bordered by green shapes, while the bottom and left sides are bordered by yellow and orange shapes. The overall effect is a layered, paper-like composition.

Division

Division

Pupils should be able to divide effectively and recognise any related multiplication facts.

End of year expectations	Concrete and visual representations	Recording and Progression	Number Fluency
<p>Year 1</p> <p>Solve one-step problems involving division.</p> <p>Answer questions using concrete objects and pictorial representations.</p> <p>Understand division as grouping and sharing.</p>		<p>Autumn Term</p> <p>Photographs of practical materials which have been grouped and shared by the children. This may include whiteboard annotations to label groups and/or quantities. Children should draw sharing circles to share quantities equally.</p> <p>Spring Term</p> <p>Photographs/stickers/illustrations grouping and sharing alongside relevant number fact/s.</p> <p>Summer Term</p> <p>$12 \div 2 = 6$</p> 	<p>Count backwards and forwards in 2s, 5s and 10s. Children should be able to do this from any given multiple.</p> <p>Remember and identify number patterns.</p> <p>Find simple fractions of objects, number and quantities e.g. a half and a quarter.</p> <p>Mastery learners should begin to relate division facts to their 2, 5 and 10x tables.</p>
<p>Year 2</p> <p>Solve one-step practical problems involving division.</p> <p>Use concrete objects and pictorial representations to divide.</p> <p>Understand division as grouping.</p> <p>Find halves and then quarters.</p> <p>Use arrays to support grouping and sharing.</p> <p>Learn using a range of materials and contexts within which grouping and sharing can be used to divide.</p>		<p>Autumn Term</p>  <p>$10 - 2 - 2 - 2 - 2 - 2 = 0$ (2 goes into 10, 5 times) $10 \div 5 = 2$ $10 \div 2 = 5$</p> <p>Spring Term</p> <p>$15 \div 5 = 3$</p>  <p>Summer Term</p> <p>$15 \div 5 = 3$</p> 	<p>Children should record arrays in their books which demonstrate repeated subtraction and division.</p> <p>Count backwards and forwards in 2s, 3s, 5s and 10s from any given number. Know a variety of ways to describe the ÷ symbol (divide, share, goes into, how many times).</p> <p>Connect 10x and 5x tables to the divisions on a clock face. Become fluent using division facts which relate to the 2, 5 and 10x tables.</p> <p>Count backwards and forwards in 10s from any given number. Develop reasoning skills to solve division word problems.</p>

Division

Pupils should be able to divide effectively and recognise any related multiplication facts.

End of year expectations

Concrete and visual representations

Recording and Progression

Number Fluency

Year 3

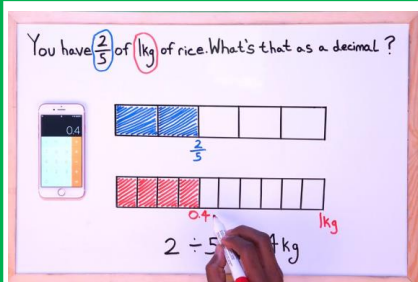
Solve two-step problems involving division.

Recognise, find and name $\frac{1}{4}$ and $\frac{1}{2}$ of an object, shape or quantity.

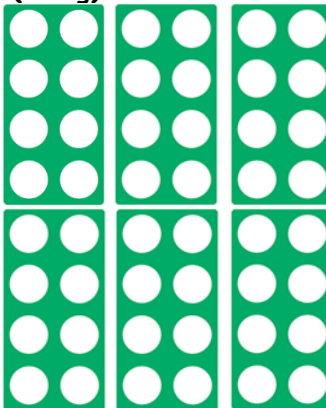
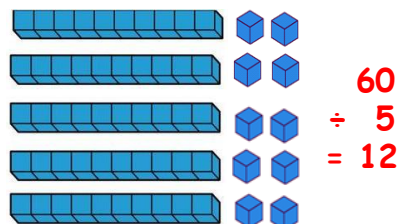
Develop reliable mental and formal written methods to solve division problems.

Solve problems involving: missing numbers, scaling and simple algebra.

Understand the link between fractions and division.



$$\begin{aligned} 1\text{ kg} \div 5 &= 0.2\text{ kg} \\ 1000\text{ g} \div 5 &= 200\text{ g} \text{ (0.2 kg)} \\ 200\text{ g} \times 2 &= 400\text{ g} \\ 2/5 \text{ of a kg} &= 400\text{ g} \text{ (0.4 kg)} \end{aligned}$$



$$\begin{aligned} 12 \div 3 &= 4 \\ 12 \div 4 &= 3 \end{aligned}$$

I am 56m tall;
my younger
brother is 8x
smaller than me
- how tall is he?
($56 \div 8 = 7\text{m}$)



Autumn Term

Division as the inverse of times tables.

$$28 \div 7 = 4 \quad 4 \times 7 = 28$$

$$28 \div 4 = 7 \quad 7 \times 4 = 28$$

Spring Term

$$78 \div 6 =$$

$$\begin{array}{r} 13 \text{ r. } 1 \\ 6 \overline{) 78} \\ \underline{6} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

1 remainder left over

$$3 \times 6 = 18 \quad 362 \div 7 = 51 \text{ r } 5$$

Summer Term

$$362 \div 7 =$$

$$\begin{array}{r} 51 \text{ r } 5 \\ 7 \overline{) 362} \\ \underline{35} \\ 12 \\ \underline{7} \\ 5 \end{array}$$

Autumn Term

$$186 \div 6 =$$

$$\begin{array}{r} 31 \\ 6 \overline{) 186} \\ \underline{18} \\ 6 \\ \underline{6} \\ 0 \end{array}$$

no groups of 6 can be made

$$1 \times 6 = 6 \quad 3 \times 6 = 18$$

Spring Term

$$\begin{array}{r} 23 \text{ r } 2 \\ 8 \overline{) 186} \\ \underline{16} \\ 26 \\ \underline{24} \\ 2 \end{array}$$

Summer Term

As a fraction: $\frac{2}{3}$

$$\begin{array}{r} 0.666 \\ 3 \overline{) 2.000} \\ \underline{18} \\ 20 \\ \underline{18} \\ 20 \\ \underline{18} \\ 20 \end{array}$$

As a decimal: 0.6

Count in multiples of 3, 4, 8, 50 and 100 (from 0, forwards and backwards).
Know and recall the division facts that relate to the 1, 2, 3, 4, 5, 8 and 10x tables in any order.

Use division facts to derive related division facts e.g. $6 \div 3 = 2$ so $60 \div 30 = 20$.
Complete division statements using known values.
Connect $1/10$ to dividing by 10.
Count in tenths.

Count in multiples of 6, 7, 9, 25 and 1000 (from 0, forwards and backwards).
Rapidly recall all division facts related to multiplication tables up to 12×12 .
Derive division facts with up to three digits e.g. $600 \div 3 = 200$ as $6 \div 3 = 2$.
Recognise factor pairs and use commutativity effectively during mental calculations.
Use place value and known facts to divide mentally, including dividing by 1.

Year 4

Become fluent in the formal written method of short division using a one-digit divisor.
Solve two-step problems involving division in different contexts.

This should include a smaller dividend by a larger divisor for a fraction answer.
Divide one- and two-digit numbers by 10 or 100, identify tenths and hundredths where appropriate.
Solve problems involving: scaling and simple algebra.

Division

Pupils should be able to divide effectively and recognise any related multiplication facts.

End of year expectations

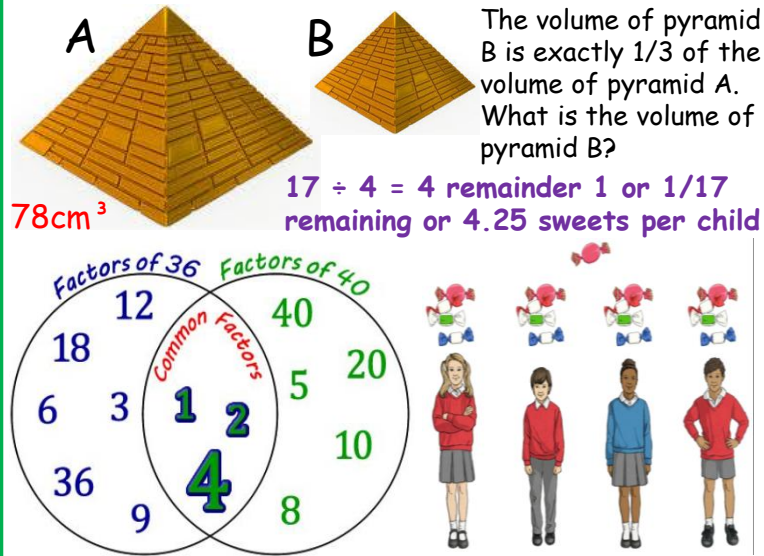
Concrete and visual representations

Recording expectations

Number Fluency

Year 5

Solve two- and three-step problems involving division.
Solve problems involving: multiples, factors, factor pairs, common factors, prime numbers, prime factors, composite numbers, square numbers and cube numbers.
Using the formal short division method, solve number sentences involving one- two- three- and four- digit numbers.
Using a formal written method, divide decimals with up to two decimal places.
Solve problems involving division including scaling down.
Interpret answers that are not whole numbers e.g. identify remainders/fractions or express an answer as a decimal or round to a whole number.



Autumn Term

$$\begin{array}{r} 4 \ 4 \ 0 \\ 12 \overline{) 5 \ 2 \ 4 \ 8} \ 4 \\ \underline{4 \ 8} \\ 4 \end{array}$$

Remainder 4

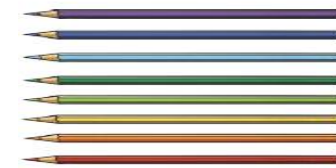
Spring Term

A teacher has 7 packs of 12 pencils and 2 packs of 54 pencils. The teacher shares these pencils out into 8 pencils pots. How many pencils will be in each pot?

Summer Term

$$142 \div 4 = 35.5$$

$$\begin{array}{r} 0 \ 3 \ 5 \ . \ 5 \\ 4 \overline{) 1 \ 4 \ 2 \ . \ 0} \end{array}$$

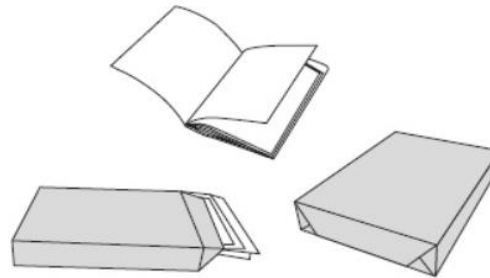


$r2$ 
 $\frac{2}{4} = \frac{1}{2} = 0.5$ 

Year 6

Using a formal written method, divide one- two- three- and four- digit numbers by a two-digit number.
Using a formal written method, divide decimals with up to three decimal places.
Using a formal written method, divide one- and two-digit numbers by a number with up to three decimal places.
Solve two- and three-step problems involving division including the context of money and measures.
Understand the relationship between fractions and division.
Interpret answers that are not whole numbers e.g. identify remainders/fractions or express an answer as a decimal or round to a whole number.

Adam is making booklets.



Each booklet must have 34 sheets of paper.

He has 2 packets of paper.

There are 500 sheets of paper in each packet.

How many complete booklets can Adam make from 2 packets of paper?

Autumn Term

$$\begin{array}{r} 8 \ 6 \ r2 \\ 5 \overline{) 4 \ 3 \ 2} \end{array}$$

Spring Term

$$\begin{array}{r} 1 \ 3 \ 2 \ r9 \\ 1 \ 5 \overline{) 1 \ 9 \ 8 \ 9} \\ \underline{1 \ 5} \\ 4 \ 8 \\ \underline{4 \ 5} \\ 3 \ 9 \\ \underline{3 \ 0} \\ 9 \end{array}$$

Summer Term

$$\begin{array}{r} 4 \ 9 \ . \ 2 \ 5 \\ 12 \overline{) 5 \ 9 \ 1 \ . \ 0 \ 0} \\ \underline{4 \ 8} \\ 1 \ 1 \ 1 \\ \underline{1 \ 0 \ 8} \\ 3 \ . \ 0 \\ \underline{2 \ . \ 4} \\ . \ 6 \ 0 \\ \underline{. \ 6 \ 0} \\ 0 \end{array}$$

Count backwards and forwards in steps of 10 from any given number up to 1,000,000.
Having memorised all times tables to 12×12 , successfully complete more difficult short division without error.
Use knowledge of the inverse to complete division and multiplication problems effectively.
Divide increasingly large numbers mentally by drawing on known multiplication facts.
Count backwards using positive whole numbers through zero.
Divide whole and decimal numbers by 10, 100 and 1000.

Undertake complex mental calculations with increasingly large numbers and mixed operations.
Continue to use all multiplication tables and division facts up to 12×12 to calculate mathematical statements in order to maintain fluency.
Use estimation to predict or check answers to evidence number fluency and contextual awareness.
Successfully complete more difficult short and long division questions without error.