



Year 6
learning
guide

Maths

What will be covered in year 6

Autumn term	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Spring term	<div>Number</div> <div>Place value</div> <div>FREE TRIAL</div> <div>VIEW</div>	<div>Number</div> <div>Addition, subtraction, multiplication and division</div> <div>VIEW</div>					<div>Number</div> <div>Fractions A</div> <div>VIEW</div>	<div>Number</div> <div>Fractions B</div> <div>VIEW</div>	<div>Measurement</div> <div>Converting units</div> <div>VIEW</div>			
	<div>Number</div> <div>Ratio</div> <div>VIEW</div>	<div>Number</div> <div>Algebra</div> <div>VIEW</div>	<div>Number</div> <div>Decimals</div> <div>VIEW</div>	<div>Number</div> <div>Fractions decimals and percentages</div> <div>VIEW</div>	<div>Measurement</div> <div>Area, perimeter and volume</div> <div>VIEW</div>			<div>Statistics</div> <div>VIEW</div>				
	<div>Themed projects, consolidation and problem solving</div> <div>VIEW</div>											
Summer term	<div>Geometry</div> <div>Shape</div> <div>VIEW</div>	<div>Geometry</div> <div>Position and direction</div> <div>VIEW</div>										

By the end of Year 6, children are expected to have been taught...

Number – number and place value

Statutory requirements

Pupils should be taught to:

- read, write, order and compare numbers up to 10 000 000 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
- solve number and practical problems that involve all of the above.

Number – addition, subtraction, multiplication and division

Statutory requirements

Pupils should be taught to:

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- 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
- divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context
- perform mental calculations, including with mixed operations and large numbers
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Statutory requirements

- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Number – fractions (including decimals and percentages)

Statutory requirements

Pupils should be taught to:

- use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- compare and order fractions, including fractions > 1
- add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$]
- divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$]
- associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$]
- identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places

Statutory requirements

- multiply one-digit numbers with up to two decimal places by whole numbers
- 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
- recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Ratio and proportion

Statutory requirements

Pupils should be taught to:

- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
- solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
- solve problems involving similar shapes where the scale factor is known or can be found
- solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Algebra

Statutory requirements

Pupils should be taught to:

- use simple formulae
- generate and describe linear number sequences
- express missing number problems algebraically
- find pairs of numbers that satisfy an equation with two unknowns
- enumerate possibilities of combinations of two variables.

Measurement

Statutory requirements

Pupils should be taught to:

- solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
- use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
- convert between miles and kilometres
- recognise that shapes with the same areas can have different perimeters and vice versa
- recognise when it is possible to use formulae for area and volume of shapes
- calculate the area of parallelograms and triangles
- calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].

Geometry – properties of shapes

Statutory requirements

Pupils should be taught to:

- draw 2-D shapes using given dimensions and angles
- recognise, describe and build simple 3-D shapes, including making nets
- compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
- illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
- recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

Geometry – position and direction

Statutory requirements

Pupils should be taught to:

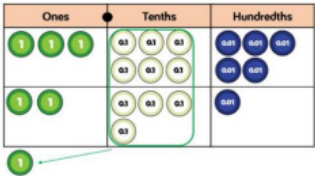
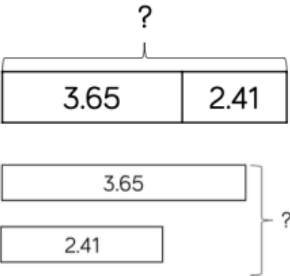
- describe positions on the full coordinate grid (all four quadrants)
- draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

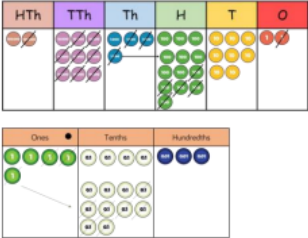
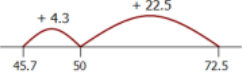

Statistics

Statutory requirements

Pupils should be taught to:

- interpret and construct pie charts and line graphs and use these to solve problems
- calculate and interpret the mean as an average.

<p>Y 6</p>	<p>Solve multi-step problems in contexts, deciding which operations/methods to use and why.</p> <p>Add decimal numbers up to 3dp (Context: Measures)</p>	<p>All children use base 10/place value counters/plain counters and place value charts to introduce/support formal column method with more than five-digit numbers and with decimal numbers up to 3dp.:</p> 	<p>Draw/use part-whole and bar models:</p> 	<p>Column method of addition:</p> $\begin{array}{r} 3.243 \\ + 18.070 \\ \hline 21.313 \\ 1 \quad 1 \end{array}$ <p>Use knowledge of the order of operations to carry out calculations involving subtraction.</p> <p>Solve problems involving the calculation and conversion of units of measure, using decimal notation to 3dp where appropriate. [Measurement]</p> <p><i>Pupils develop skills of rounding/estimating to predict/check order of magnitude of and to add decimal calculations. Includes rounding answers to a degree of accuracy & checking reasonableness</i></p>
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<p>Y r 5 Y r 6</p>	<p>Subtract whole numbers >4 digits, including using formal methods (column subtraction).</p> <p>Decimals up to 2dp (eg 72.5 - 45.7)</p> <p>Decimals up to 3dp</p>	<p>All children place value counters/plain counters and place value charts to introduce column method of subtracting five digit or more and decimal numbers:</p> <p>294,382 - 182,501 = 111,881</p>  <p>Concrete resources should be used alongside charts and mats: place value charts, ten frames, part-whole and bar models.</p>	<p>Draw blank number lines to find the difference between numbers, including decimal numbers, by counting back or on:</p> <p>72.5 - 45.7 =</p>  <p>Draw part-whole and bar models:</p> 	<p>Column method of subtraction:</p> $\begin{array}{r} 72.5 \\ - 45.7 \\ \hline 26.8 \end{array}$ <p><i>Take away decimals mentally or</i></p> <p>with jottings:</p> $\begin{array}{r} 72.5 - 40 = 32.5 \\ 32.5 - 5 = 27.5 \\ 27.5 - 0.7 = 26.8 \end{array}$ <p>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</p> <p>Solve multi-step problems in contexts, deciding which operations/methods to use and why.</p> <p><i>Use knowledge of the order of operations to carry out calculations involving subtraction.</i></p>
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x

Skill:

Concrete:

Pictorial:

Abstract:

TO x TO
HTO x O / HTO
x TO
ThHTO x O

Use a **formal** written method (including long x for TO times TO numbers)

Yr6: Multi-digit numbers (up to 4 digits) x TO whole number using the **formal** method of long multiplication.

Multiply one-digit numbers with up to two decimal places by whole numbers

Use base ten area model to represent TO x TO: e.g. $22 \times 31 =$

Use cuisenaire area model to represent TOxTO:

Use place value counters represent TOxTO:

Represent base ten or the place value counters pictorially in drawn place value charts; remembering to show what has been exchanged.

Children can draw area models using squares in their books:

$17 \times 14 =$

Draw bar models to represent problems:

e.g.:

Grid method:

The grid method matches the area model as an initial written method before moving on to the formal written multiplication method.

x	20	2
30	600	60
1	20	2

Grid Method for decimals:
 $5.65 \times 9 = 50.85$
(estimate $6 \times 9 = 54$)

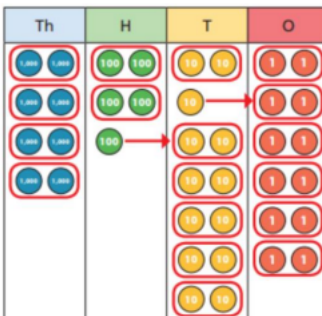
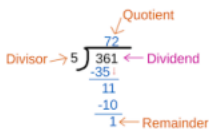
x	5	0.6	0.05
9	45	5.4	0.45
			50.85

Formal long multiplication method:

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

	TTh	Th	H	T	O
		2	7	3	9
x				2	8
2	1	9	1	2	
2	5	3	7		
1	5	4	7	8	0
	7	6	6	9	2

1

+	Skill:	Concrete:	Pictorial:	Abstract:																																																																										
Y R 5 / 6	<p>Use the formal written method of short division (interpret remainders appropriately for the context). HTU ÷ O ThHTO ÷ O</p> <p>Divide numbers (up to 4 digits) by TO whole number using the formal method of short /long division (interpret as appropriate for the context). Use written division methods in cases where the answer has up to 2dp.</p>	<p>Place value counters or plain counters can be used on a place value grid to support children to divide 4- digits by 1-digit:</p> 	<p>Children can also draw their own counters and group them through a more pictorial method.</p> <p>Draw part-whole/bar models to understand and solve problems:</p>	<p>Short division method:</p>  <table border="1" data-bbox="1192 1341 1436 1438"> <tr> <td></td> <td>4</td> <td>2</td> <td>6</td> <td>6</td> </tr> <tr> <td>2</td> <td>8</td> <td>5</td> <td>1</td> <td>2</td> </tr> </table> <p>Long division method:</p> <p>Children can write out multiples to support their calculations with larger remainders. Children solve problems with remainders where the quotient can be rounded as appropriate.</p> <table border="1" data-bbox="1192 1668 1339 1841"> <tr> <td></td> <td>0</td> <td>3</td> <td>6</td> </tr> <tr> <td>1</td> <td>2</td> <td>4</td> <td>3</td> </tr> <tr> <td>-</td> <td>3</td> <td>6</td> <td>0</td> </tr> <tr> <td></td> <td></td> <td>7</td> <td>2</td> </tr> <tr> <td>-</td> <td></td> <td>7</td> <td>2</td> </tr> <tr> <td></td> <td></td> <td></td> <td>0</td> </tr> </table> <p> $12 \times 1 = 12$ $12 \times 2 = 24$ $12 \times 3 = 36$ $12 \times 4 = 48$ $12 \times 5 = 60$ $12 \times 6 = 72$ $12 \times 7 = 84$ $12 \times 8 = 96$ $12 \times 9 = 108$ $12 \times 10 = 120$ </p> <table border="1" data-bbox="1192 1901 1339 2123"> <tr> <td></td> <td>0</td> <td>4</td> <td>8</td> <td>9</td> </tr> <tr> <td>15</td> <td>7</td> <td>3</td> <td>3</td> <td>5</td> </tr> <tr> <td>-</td> <td>6</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>1</td> <td>3</td> <td>3</td> <td>5</td> </tr> <tr> <td>-</td> <td>1</td> <td>2</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td></td> <td>1</td> <td>3</td> <td>5</td> </tr> <tr> <td>-</td> <td></td> <td>1</td> <td>3</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td></td> <td>0</td> <td></td> </tr> </table> <p> $1 \times 15 = 15$ $2 \times 15 = 30$ $3 \times 15 = 45$ $4 \times 15 = 60$ $5 \times 15 = 75$ $6 \times 15 = 90$ $7 \times 15 = 105$ $8 \times 15 = 120$ $9 \times 15 = 135$ $10 \times 15 = 150$ </p>		4	2	6	6	2	8	5	1	2		0	3	6	1	2	4	3	-	3	6	0			7	2	-		7	2				0		0	4	8	9	15	7	3	3	5	-	6	0	0	0		1	3	3	5	-	1	2	0	0			1	3	5	-		1	3	5				0	
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Literacy—writing

By the end of each term, children are expected to...

Autumn Term

Begin to use a wide range of clause structures, varying their position in sentences

Link ideas across paragraphs using a wider range of cohesive devices

Begin to use the semi-colon, colon and dash to mark the boundary between independent clauses

Begin to use a colon to introduce a list and use of semi-colons within lists

Begin to use hyphens to avoid ambiguity

Begin to use ellipsis effectively

Spring Term

Use a wide range of clause structures, varying their position in sentences

Begin to write formal and informal sentences

Link ideas across paragraphs more accurately

Begin to use active and passive voice

Use comma for all its purposes e.g. direct speech, list, parenthesis, separating clauses and avoiding ambiguity

Use a semi-colon, colon and dashes more accurately

Indicate degrees of possibilities using modal verbs and adverbs

Summer Term

Write effectively for a range of purposes and audiences, selecting language that shows good awareness of the reader

Describe settings, characters and atmosphere

Integrate dialogue in narratives to convey character and advance the action

Select vocabulary and grammatical structures that reflect what the writing requires using contracted forms in dialogues, passive verbs to affect how information is presented and modal verbs to suggest degrees of possibility

Use simple devices to structure non-fiction writing

Use a range of devices to build cohesion (e.g. conjunctions, adverbials of time and place, pronouns, synonyms) within and across paragraphs

Use verb tenses consistently and correctly

Literacy — Greater depth writing

- write effectively for a range of purposes and audiences, selecting the appropriate form and drawing independently on what they have read as models for their own writing (e.g. literary language, characterisation, structure)
- distinguish between the language of speech and writing³ and choose the appropriate register
- exercise an assured and conscious control over levels of formality, particularly through manipulating grammar and vocabulary to achieve this
- use the range of punctuation taught at key stage 2 correctly (e.g. semi-colons, dashes, colons, hyphens) and, when necessary, use such punctuation precisely to enhance meaning and avoid ambiguity.

Literacy—reading

By the end of the year children should...

Y6	
Fluency	<p>read age-appropriate texts fluently and with confidence learn and recite a wider range of poetry, sometimes by heart read aloud and perform poems and plays, showing understanding through intonation, tone and volume notice/respond to punctuation/phrasing when reading aloud gain, maintain and monitor the interest of the listener read 150-200+ wpm demonstrate a positive attitude to reading by reading a wide range of high-quality challenging texts</p>
Vocabulary	<p>evaluate how the authors' use of language impacts upon the reader find examples of figurative language and how this impacts the reader and contributes to meaning or mood discuss how presentation and structure contribute to meaning explore the meaning of words in context by 'reading around the word' and independently explore its meaning in the broader context of a section or paragraph use contextual evidence to further explore the text, identify finer detail of words and explore understanding of challenging vocabulary</p>
Inference	<p>draw inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with evidence discuss how characters change and develop through texts by drawing inferences based on indirect clues make inferences about events, feelings, states backing these up with evidence. infer characters' feelings, thoughts and motives, giving more than one piece of evidence to support each point made. draw evidence from different places across the text draw inferences including hidden meanings, explain and justify with evidence</p>
Prediction	<p>predict what might happen from details stated and implied support predictions by using relevant evidence from the text confirm and modify predictions in light of new information</p>
Explain	<p>provide increasingly reasoned justification for views recommend books for peers in detail give reasons for authorial choices begin to challenge points of view begin to distinguish between fact and opinion identify how language, structure and presentation contribute to meaning discuss and evaluate how authors use language, including figurative language, considering the impact on the reader explain and discuss understanding of what has been read, including through formal presentations and debates distinguish between fact, opinion and bias explaining how you know accurately and independently comment on the features, themes and conventions across and a range of writing including more obscure themes</p>
Retrieval	<p>confidently skim and scan, and also use the skill of reading before and after to retrieve information use evidence from across whole chapters or texts read a broader range of texts including myths, legends, stories from other cultures, modern fiction, plays, poetry and archaic texts retrieve, record and present information from a wide variety of non-fiction texts ask own questions and follow a line of enquiry identify language, structural and presentational features in texts explaining how they contribute to meaning distinguish between fact and opinion commenting on ambiguity between the two</p>
Summarise	<p>summarise information from across a text and link information by analysing and evaluating ideas between sections of the text summarise the main ideas drawn from more than one paragraph, identifying key details to support the main ideas make comparisons across different texts and genres summarise entire texts, in addition to chapters or paragraphs, using a limited number of words or paragraphs make accurate and insightful comparison within and across different texts confidently summarise referring to quotations which illustrate viewpoint</p>

Children should be able to read
and write these.....

Year 3 common exception words

Word	R	W	Word	R	W	Word	R	W
accident			consider			group		
accidentally			continue			guard		
actual			decide			guide		
actually			describe			heard		
address			different			heart		
although			difficult			height		
answer			disappear			history		
appear			early			imagine		
arrive			earth			increase		
believe			eight			important		
bicycle			eighth			interest		
breath			enough			island		
build			exercise			knowledge		
busy			experience			learn		
business			extreme			length		
calendar			famous			library		
caught			favourite			material		
centre			February			medicine		
century			forward			mention		
certain			forwards			minute		
circle			fruit			natural		
complete			grammar			naughty		

Children should be able to read
and write these.....

Word	R	W	Word	R	W	Word	R	W
notice			regular					
occasion			reign					
occasionally			remember					
often			sentence					
opposite			separate					
ordinary			special					
particular			straight					
peculiar			strange					
perhaps			strength					
popular			suppose					
position			surprise					
possess			therefore					
possession			though					
possible			thought					
potatoes			through					
pressure			various					
probably			weight					
promise			woman					
purpose			women					
quarter								
question								
recent								




























*Children should be able to read
and write these.....*

Word list – years 5 and 6

accommodate	embarrass	persuade
accompany	environment	physical
according	equip (–ped, –ment)	prejudice
achieve	especially	privilege
aggressive	exaggerate	profession
amateur	excellent	programme
ancient	existence	pronunciation
apparent	explanation	queue
appreciate	familiar	recognise
attached	foreign	recommend
available	forty	relevant
average	frequently	restaurant
awkward	government	rhyme
bargain	guarantee	rhythm
bruise	harass	sacrifice
category	hindrance	secretary
cemetery	identity	shoulder
committee	immediate(ly)	signature
communicate	individual	sincere(ly)
community	interfere	soldier
competition	interrupt	stomach
conscience*	language	sufficient
conscious*	leisure	suggest
controversy	lightning	symbol
convenience	marvellous	system
correspond	mischievous	temperature
criticise (critic + ise)	muscle	thorough
curiosity	necessary	twelfth
definite	neighbour	variety
desperate	nuisance	vegetable
determined	occupy	vehicle
develop	occur	yacht
dictionary	opportunity	
disastrous	parliament	














Grow the code grapheme mat

Phase 2, 3 and 5

 s ss c se ce st sc	 t tt	 p pp	 n nn kn gn	 m mm mb	 d dd	 g gg	 c k ck cc ch	 r rr wr	 h
 b bb	 f ff ph	 l ll le al	 j g dge ge	 v vv ve	 w wh	 x	 y	 z zz s se ze	 qu
 ch tch ture	 sh ch ti ssi si ci	 th	 ng	 nk	 a	 e ea	 i y	 o a	 u o-e ou

Grow the code grapheme mat

Phase 2, 3 and 5

 ai ay a a-e eigh aigh ey ea	 ee ea e e-e ie y ey	 igh ie i i-e y	 oa o o-e ou oe ow	 oo ue u-e ew ou ui	yoo ue u u-e ew	 oo u* oul	 ar a* al*
 or aw au aur oor al a oar ore	 ur er ir or	 ow ou	 oi oy	 ear ere eer	 air are ere ear	zh su si	

*depending on regional accent

How to write capital letters

Use this document to ensure correct letter formation when you are teaching children to form capital letters.

Letter	Capital letter formation phrase
A	From the top, diagonally down to the left, up to the top, diagonally down to the right. Lift up and across.
B	From the top, down, back to the top. Round to the middle, round to the bottom.
C	From the top, curl around to the left to sit on the line.
D	From the top, down, back to the top. Curve right, down to the bottom.
E	From the top, down, back to the top. Across, back. Lift up and across the middle. Lift up and across the bottom line.
F	From the top, down, back to the top. Across, back. Lift up and across the middle.
G	From the top, curl around to the line, carry on up, then straight down. Lift up and across.
H	From the top and down. Space. From the top and down. Lift up and join the lines across the middle.
I	From the top to the bottom and stop.
J	From the top, all the way down, then short curl to the left.
K	From the top, down, up to the middle. Diagonally up, back and diagonally down to the line.
L	From the top, down and across the line.
M	From the top, down, back to the top. Diagonally down, diagonally up. Straight down to the line.
N	From the top, down, back to the top. Diagonally down, then straight up to the top.
O	From the top – all around the o.
P	From the top, down then back up. Curve right to halfway down.
Q	From the top – all around the o. Lift off. Short line diagonally down.
R	From the top, down, then back up. Curve right to halfway down. Diagonally down to the line.
S	From the top, under the snake's chin, slide down and round its tail.
T	From the top, down and stop. Lift up and from the left, make a line across the top.
U	From the top, down and curve right, then straight up to the top.
V	From the top diagonally right to the bottom, then diagonally up to the top.
W	From the top diagonally right to the bottom, diagonally up to the top, diagonally down to the line, then diagonally up again.
X	From the top, diagonally right to the bottom. Space. Start at the top, then diagonally left to the bottom.
Y	From the top diagonally right to the middle. Space. From the top diagonally left to the middle. Straight down to the bottom.
Z	From the top go across, diagonally down to the left and across the bottom.