



Year 5
learning
guide

Maths

What will be covered in year 5

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	
Summer term	Shape	Geometry	VIEW	Position and direction	Geometry	VIEW	Decimals	Number	VIEW	Negative numbers	Number	VIEW	Converting units	Measurement	VIEW	Volume	Measurement	VIEW	Statistics	Measurement	VIEW	Fractions A	Number	VIEW
Spring term	Multiplication and division B	Number	VIEW	Fractions B	Number	VIEW	Decimals and percentages	Number	VIEW	Perimeter and area	Measurement	VIEW	Perimeter and area	Measurement	VIEW	Statistics	Measurement	VIEW	Fractions A	Number	VIEW	Place value FREE TRIAL	Number	VIEW

By the end of Year 5, 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 to at least 1 000 000 and determine the value of each digit
- count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000
- interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero
- round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000
- solve number problems and practical problems that involve all of the above
- read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

Number – addition and subtraction

Statutory requirements

Pupils should be taught to:

- add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- add and subtract numbers mentally with increasingly large numbers
- use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Number – multiplication and division

Statutory requirements

Pupils should be taught to:

- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
- establish whether a number up to 100 is prime and recall prime numbers up to 19
- multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers
- multiply and divide numbers mentally drawing upon known facts
- divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
- multiply and divide whole numbers and those involving decimals by 10, 100 and 1000

Statutory requirements

- recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)
- solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes
- solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
- solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

Statistics

Statutory requirements

Pupils should be taught to:

- solve comparison, sum and difference problems using information presented in a line graph
- complete, read and interpret information in tables, including timetables.

Number – fractions (including decimals and percentages)

Statutory requirements

Pupils should be taught to:

- compare and order fractions whose denominators are all multiples of the same number
- identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$]
- add and subtract fractions with the same denominator and denominators that are multiples of the same number
- multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$]
- recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- round decimals with two decimal places to the nearest whole number and to one decimal place
- read, write, order and compare numbers with up to three decimal places
- solve problems involving number up to three decimal places
- recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal
- solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.

Geometry – position and direction

Statutory requirements

Pupils should be taught to:

- identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.

Measurement

Statutory requirements

Pupils should be taught to:

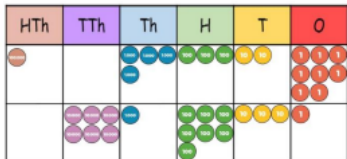
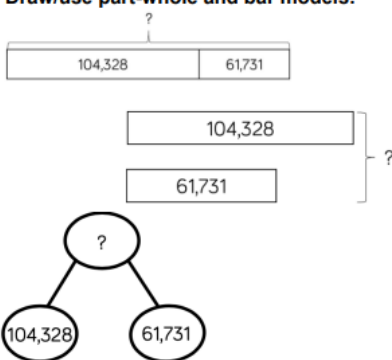
- convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes
- estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]
- solve problems involving converting between units of time
- use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.


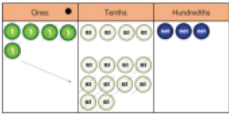
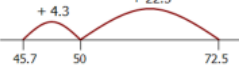

Geometry – properties of shapes

Statutory requirements

Pupils should be taught to:

- identify 3-D shapes, including cubes and other cuboids, from 2-D representations
- know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- draw given angles, and measure them in degrees ($^\circ$)
- identify:
 - angles at a point and one whole turn (total 360°)
 - angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°)
 - other multiples of 90°
- use the properties of rectangles to deduce related facts and find missing lengths and angles
- distinguish between regular and irregular polygons based on reasoning about equal sides and angles.

	<u>Skill:</u>	<u>Concrete:</u>	<u>Pictorial:</u>	<u>Abstract:</u>																		
Y 5	<p>Add whole numbers >4 digits, including using formal written methods (column addition).</p> <p>Add decimal decimals up to 2dp (e.g. 72.51 + 45.72)</p>	<p>All children use base 10/place value counters/plain counters and place value charts to introduce/support formal column method with five-digit or more numbers and with decimal numbers up to 2dp:</p> 	<p>Draw/use part-whole and bar models:</p> 	<p>Add numbers mentally with increasingly large numbers (e.g. 12462 + 2300 = 14762).</p> <p>Column method of addition:</p> <table border="1" data-bbox="1193 470 1492 593"><tr><td>1</td><td>0</td><td>4</td><td>3</td><td>2</td><td>8</td></tr><tr><td>+</td><td>6</td><td>1</td><td>7</td><td>3</td><td>1</td></tr><tr><td>1</td><td>6</td><td>6</td><td>0</td><td>5</td><td>9</td></tr></table> <p>= 166, 059</p> <p>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. Solve addition multi-step problems in contexts, deciding which operations and methods to use and why.</p> <p>Pupils mentally add tenths, and one-digit whole numbers and tenths.</p> <p>They extend their knowledge of fractions to thousandths and connect to decimals and measures.</p>	1	0	4	3	2	8	+	6	1	7	3	1	1	6	6	0	5	9
1	0	4	3	2	8																	
+	6	1	7	3	1																	
1	6	6	0	5	9																	

Y r 5 Y r 6	<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: 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: 72.5 - 45.7=</p>  <p>Draw part-whole and bar models:</p> 	<p>Column method of subtraction: 72.5 - 45.7 = 26.8</p> $\begin{array}{r} 72.5 \\ - 45.7 \\ \hline 26.8 \end{array}$ <p><i>Take away decimals mentally or with jottings:</i> 72.5 - 45.7</p> <p>72.5 - 40 = 32.5 32.5 - 5 = 27.5 27.5 - 0.7 = 26.8</p> <p>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. Solve multi-step problems in contexts, deciding which operations/methods to use and why. Use knowledge of the order of operations to carry out calculations involving subtraction.</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
	7	6	6	9
				2

1

+

Skill:

Use the **formal** written method of **short division** (interpret remainders appropriately for the context).
HTU ÷ O
ThHTO ÷ O

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.

Concrete:

Place value counters or plain counters can be used on a place value grid to support children to divide 4- digits by 1-digit:

Pictorial:

Children can also draw their own counters and group them through a more pictorial method.

Draw part-whole/bar models to understand and solve problems:

Abstract:

Short division method:

	4	2	6	6
2	8	5	13	12

	0	3	6
12	4	3	2

432 ÷ 12 = 36

Long division method:

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.

	0	3	6
1	2	4	3
-	3	6	0
		7	2
-		7	2
			0

$12 \times 1 = 12$
 $12 \times 2 = 24$
 $12 \times 3 = 36$
 $12 \times 4 = 48$
 $12 \times 5 = 60$
 $12 \times 6 = 72$
 $12 \times 7 = 84$
 $12 \times 8 = 96$
 $12 \times 9 = 108$
 $12 \times 10 = 120$

	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	

$1 \times 15 = 15$
 $2 \times 15 = 30$
 $3 \times 15 = 45$
 $4 \times 15 = 60$
 $5 \times 15 = 75$
 $6 \times 15 = 90$
 $7 \times 15 = 105$
 $8 \times 15 = 120$
 $9 \times 15 = 135$
 $10 \times 15 = 150$

Y
R
5
/
6

Literacy—writing

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

Autumn Term

Use expanded noun phrases
Begin to use relative clauses with a comma
Begin to use modal verbs
Use pronouns to avoid repetition
Use commas to separate clauses
Begin to change position of adverbials within a sentence
Write in the 1st and 3rd person
Use commas in a list for singular, regular and irregular plural nouns
Maintain consistency in tense
Maintain form
Using standard English correctly most of the time

Spring Term

Organise writing into paragraphs
Attempt to use devices to build cohesion within a paragraph
Link ideas across paragraphs using adverbials of time
Begin to use parenthesis using pairs of commas, dashes or brackets
Begin to use commas to clarify meaning to avoid ambiguity
Indicate degrees of possibilities using modal verbs and adverbs
Write in the 1st and 3rd person more accurately
Use a range of presentational devices in non-fiction including bullet points
Maintain consistency in tense

Summer Term

Organise writing into cohesive paragraphs
Write sentences with increasing grammatical control in dialogue, narrative and non-fiction
Demarcating sentences more accurately using a comma for a pause in complex sentences and to avoid ambiguity
Build cohesion within and across paragraphs
Often use parenthesis using pairs of commas, dashes or brackets
Often including relative clauses
Often indicate degrees of possibility
Maintain the consistently in tense more accurately
Maintain form
Using standard English correctly most of the time
Spell words with suffixes -ate; -ise; -ify and prefixes dis-, de-, mis-, over- and re-

Literacy — Greater depth writing

- write effectively choosing precise and effective vocabulary, according to the purpose and audience, and adapt his when editing to improve effect
- begin to select the appropriate form and draw on what they have read as models for their own writing (e.g. rhetorical questions; interactions between characters; range of sentence constructions and types)
- sustain and develop ideas within paragraphs
- independently use punctuation and sentence constructions to show the difference
- between formal and informal writing (e.g. contractions in speech)

Literacy—reading

By the end of the year children should...

<u>Y5</u>	
Fluency	<p>read most words effortlessly and work out how to pronounce unfamiliar written words with increasing automaticity</p> <p>prepare readings using appropriate intonation to show their understanding</p> <p>notice more sophisticated punctuation e.g. of parenthesis, and use expression accordingly</p> <p>read silently and then discuss what they have read</p> <p>read 150 wpm</p> <p>read frequently and enjoy a wide range of books</p>
Vocabulary	<p>explore the meaning of words in context, confidently using dictionary</p> <p>discuss how the author's choice of language impacts the reader</p> <p>evaluate the author's use of language</p> <p>investigate alternative word choices that could be made</p> <p>begin to look at the use of figurative language</p> <p>use a thesaurus to find synonyms for a larger variety of words</p> <p>re-write passages using alternative word choices</p> <p>read around the word and explore its meaning in the broader context of a section or paragraph</p> <p>discuss their understanding of challenging vocabulary in context</p>
Inference	<p>draw inferences about characters' feelings/thoughts/motives from their actions, and justifying inferences with evidence</p> <p>make inferences about actions, feelings, events, or states</p> <p>use figurative language to infer meaning</p> <p>give one or two pieces of evidence to support a point (PEE)</p> <p>begin to draw evidence from more than one place across a text</p> <p>draw inferences and justify with evidence explaining why and how character's feelings have changed</p>
Prediction	<p>predict what might happen from details stated and implied</p> <p>support predictions with relevant evidence from the text</p> <p>confirm and modify predictions as you read on</p>
Explain	<p>provide increasingly reasoned justification for my views</p> <p>recommend books for peers in detail</p> <p>give reasons for authorial choices</p> <p>begin to challenge points of view</p> <p>begin to distinguish between fact and opinion</p> <p>identify how language/structure/presentation contribute to meaning</p> <p>discuss and evaluate how authors use language, including figurative language impacts the reader</p> <p>explain and discuss understanding of what has been read, including through formal presentations and debate</p> <p>explain and comment on the purpose of language, structure of text and presentation</p>
Retrieval	<p>confidently skim and scan to retrieve</p> <p>use evidence from across larger sections of text</p> <p>read a broader range of texts including myths, legends, stories from other cultures, modern fiction and archaic texts</p> <p>retrieve, record and present information from non-fiction texts</p> <p>ask my own questions and follow a line of enquiry</p> <p>ask pertinent questions to enhance understanding</p>
Summarise	<p>with support, summarise the main ideas drawn from more than one paragraph/page/chapter or the entire text identifying key details to support the main ideas</p> <p>make connections between information across the text and include this in an answer.</p> <p>discuss the themes or conventions from a chapter or text</p> <p>identify themes across a wide range of writing</p> <p>independently summarise the main ideas drawn from more than one paragraph</p> <p>discuss and comment on theme and convention in a variety of genres</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.