

# Mathematics in Year 6

**By the end of year 6, children are expected to be able to do all of the following:**

By the end of Year 6, children are expected to be confident with the use of all four standard methods for written calculations, and to have secured their knowledge of the key number facts for the four operations. Their work will focus more on fractions, ratio, proportion and the introduction of algebra.

## Calculations

- multiply numbers up to 4 digits by a two-digit whole number using 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 numbers, fractions, or by rounding, as appropriate for the context
- divide numbers up to 4 digits by a two-digit number using short division where appropriate, interpreting remainders
- 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 methods to use and why
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations

## Number and Place Value

- read, write and order numbers up to 10 000 000; 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.



## Fractions (incl. decimals and %)

- use common factors to simplify fractions; use common multiples to express fractions with the same denominators
- compare and order fractions, including fractions bigger than 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 (e.g.  $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$ )
- divide proper fractions by whole numbers (e.g.  $\frac{1}{3} \div 2 = \frac{1}{6}$ )
- associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g.  $\frac{3}{8}$ )
- 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
- 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.

# Maths in Year 6 continued.....

By the end of year 6, children are expected to be able to do all of the following:

## Algebra

- 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
- give possibilities of combinations of two variables.

## Measurements

- solve problems involving the calculation and conversion of units of measure, using decimals up to three decimal places
- 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 decimals to 3 dp
- convert between miles and kilometres
- know 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  $\text{cm}^3$  and  $\text{m}^3$ , and extending to other units (e.g.  $\text{mm}^3$  and  $\text{km}^3$ ).

## Statistics

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

## Geometry

- draw 2-D shapes using 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
- find unknown angles in any triangles, quadrilaterals, and regular polygons
- illustrate and name parts of circles, including radius, diameter and circumference; 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
- 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.

## Ratio and Proportion

- solve problems involving two quantities where missing values can be found by using multiplication and division facts
- solve problems involving the calculation of percentages (e.g. 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.

$y$	$3y$	$3y + 1$
25	?	?
?	?	28

Y stands for a number. What is the largest value of y?

What do children have to demonstrate to achieve the expectations in year 6?

To show that children are able to...

- read, write and order numbers up to 10 000 000; 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.

...they would need to be able to tackle questions such as the examples opposite:

## Supporting learning

The mathematical order of operations requires that where calculations are written out in long statements, first calculations in brackets are completed, then any multiplication or division calculations, and finally any addition or subtraction. So, for example, the calculation  $4 + 3 \times (6 + 1)$  has a solution of 25, not 43 or 49.



Put these numbers in order, from smallest to largest.

- 3-3, 3-03, 3-33, 3-303, 3-033
- 5834, 61-8 multiplied by 100, one tenth of 45813
- 0-034, 3-6 divided by 100, ten times 0-0033
- -4-4, -4-44, -4-04, -4-404

## Decimals and rounding

Two numbers each with two decimal places round to 23.1 (to one decimal place).

The total of the numbers is 46.2.  
What could the numbers be?



Give an example of a six digit number which rounds to the same number when rounded to the nearest 10000 and 100000.

Estimate the answer to  $4243 + 1734$  by rounding the numbers to:

- the nearest 1000
- the nearest 100
- the nearest 50
- the nearest 10.

Object	Depth
Coral reef	-2 m
Shipwreck	-11 m
Pirate treasure	four times as deep as the coral reef
Sleeping shark	3 metres above the shipwreck

Which object is deepest? Explain your choice.

Is the sleeping shark deeper than the pirate treasure? Explain your reasoning.

A seagull is hovering 1 m above the surface of the sea. How far apart are the seagull and the coral reef?

1.235  
↑ ↑ ↑  
tenths hundredths thousandths

**Please remember, by the end of year 4, children should know all times tables up to 12 X 12 fluently, including related division facts.**

# English in Year 6

By the end of year 6, children are expected to be able to do all of the following:

In upper Key Stage 2 your child will increasingly meet a wider range of texts and types of writing, and will be encouraged to use their skills in a broader range of contexts. Their knowledge of grammar will also increase.

## Speaking and Listening

The Spoken Language objectives are set out for the whole of primary school, and teachers will cover many of them every year as children's spoken language skills develop. In Years 5 and 6, these may include:

- speak clearly in a range of contexts, using Standard English where appropriate
- monitor the reactions of listeners and react accordingly
- consider different viewpoints, listening to others and responding with relevant views
- use appropriate language, tone and vocabulary for different purposes including formal presentations

## Grammar Help

Grammatical terminology used in schools may not be familiar to all our families. Here are some useful reminders of some of the terms:

**fronted adverbial:** a word or phrase which describes how, where or when an action is performed and is placed at the start of the sentence, e.g. "Before breakfast,..." or "Carrying a heavy bag, he ..."

**modal verb:** a verb that indicates possibility - these are often used alongside other verbs, e.g. will, may, should, can.

**relative clause:** a clause which adds extra information or detail. Example: The girl, who had brown curly hair, raced down the street.

**passive verb:** a form of verb that implies an action being done to someone or something. Example: The boy was bitten by the dog.

**perfect form:** a form of verb that implies that an action is completed, using either the past or present form of the verb 'to have' before the verb. Example: The boy has walked home.

## Reading Skills

- read and discuss a wide range of fiction, poetry, plays and non-fiction
- learn a range of poetry by heart
- perform plays and poems using tone, volume and intonation to convey meaning
- use knowledge of spelling patterns to read aloud and understand new words
- make comparisons between different books, or parts of the same book
- become familiar with a wide range of books, including legends, modern fiction, classic fiction and books from other cultures
- make book recommendations, giving reasons for choices
- identify and discuss themes and conventions across a wide range of writing
- discuss understanding of texts, including exploring the meaning of words in context
- ask questions to improve understanding of texts
- draw inferences from a text such as characters' feelings, thoughts and motives, justifying with evidence
- distinguish between fact and opinion
- retrieve, record and present information from non-fiction
- summarise ideas drawn from more than one paragraph, identifying key details
- predict future events from details either stated in a text or implied
- identify how language, structure and presentation contribute to meaning
- discuss how authors use language, including figurative, to affect the reader
- participate in discussions about books, building on and challenging ideas
- explain and discuss understanding of reading, including through formal presentations and debates about reading
- provide reasoned justifications for views

# English in Year 6 continued.....

By the end of year 6, children are expected to be able to do all of the following:

## Writing Skills

- Write with increasing speed, maintaining legibility and style
- spell some words with silent letters, such as knight and solemn
- recognise and use spellings for homophones and other often-confused words from the Y5/6 list
- use a dictionary to check spelling and meaning of words and use a thesaurus
- identify the audience and purpose before writing, using other similar writing as models for their own
- make notes to develop initial ideas, drawing on reading and research where necessary
- select appropriate grammar and vocabulary to change or enhance meaning
- develop setting, atmosphere and character, including through dialogue, when writing stories
- write a summary of longer passages of writing
- use a range of cohesive devices within and across paragraphs
- use advanced organisational and presentational devices, such as bullet points, headings, underlining
- use the correct tense consistently throughout a piece of writing
- ensure correct subject and verb agreement
- self-assess their own writing and peer assess others' writing for effectiveness
- suggest changes to vocabulary, grammar and punctuation to enhance effects
- proof-read for spelling and punctuation errors
- perform compositions using appropriate intonation, volume and movement
- recognise vocabulary and structures that are appropriate for formal use including subjunctive forms
- use passive verbs to affect the presentation of information
- use the perfect form of verbs to mark relationships of time and cause
- use expanded noun phrases to convey complicated information concisely
- use modal verbs or adverbs to indicate degrees of possibility
- use relative clauses beginning with who, which, where, when, whose, that or with an implied relative pronoun
- using commas to clarify meaning or avoid ambiguity in writing
- using brackets, dashes or commas to indicate parenthesis
- use grammatical connections and adverbials for cohesion
- use ellipses, commas, brackets and dashes in writing
- use hyphens to avoid ambiguity
- use semi-colons, colons or dashes to mark boundaries between independent clauses
- use a colon to introduce a list
- punctuate bullet points consistently
- use and understand the year 5 and 6 grammatical terminology accurately and appropriately



## Supporting learning – grammar

By the end of year six, children will be expected to be able to tackle questions such as those opposite and below:

Rewrite the sentence below so that it begins with the **adverbial**. Use only the same words, and remember to punctuate your answer correctly.

We turned off the lights before we left.

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verb  
adverb  
noun  
pronoun  
adjective  
vowel  
consonant

In the sentence below, Dad booked the cinema tickets before he collected them.

Complete the sentence with the correct **verb form**.

Although Dad \_\_\_\_\_ booked the tickets, he still had to queue to collect them.

**Fill the gap using the past progressive form of the verbs.**

to play



While I \_\_\_\_\_ in the park, my mum

to push



\_\_\_\_\_ my sister on the swing.

## Supporting learning

At Fcd'Ymwe expect children to use 'Edingly' sentence starters to add information to a sentence. Children might use:

verbs – 'Exhausted, he trudged...'  
verbs – 'Laughing, the girl...'  
adverbs - 'Quietly, he moved...'

Other ways of adding information include:

- Subordinating conjunctions – 'Although it was late..'
- prepositions – 'At about six-thirty...'
- fronted adverbials – 'Before breakfast,...'

Often these techniques allow children to write more complex sentences.

**Spot the mistake and correct the errors:**

- 1 Yesterday, I was played for my local team.
- 2 Our local café makes great cakes. On a Sunday we sat in the cafe and eat them.
- 3 The family was going on holiday tomorrow and they was so excited.
- 4 I am jumped up and down on my trampoline now!

**Complete the sentence below with a contraction that makes sense.**

If you give me the recipe \_\_\_\_\_ buy the ingredients on the way home.

## Spelling list - year 5 & 6

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

## Spelling lists - guidance

As well as lists of words which contain the taught spelling patterns for each year group, children are expected to be able to spell the list of words below by the end of year 6. The lists are a mixture of words pupils frequently use in their writing and those which they often misspell.

**Guidance on the statutory spelling patterns for each year group are available as separate documents**