Department for Education

The National Curriculum in England

Framework document for consultation

February 2013

Contents

1. Introduction

1.1 On 20 January 2011 the Secretary of State for Education, the Rt. Hon. Michael Gove MP, confirmed the Government's intention to review the National Curriculum in England.

1.2 This document sets out, for the purposes of public consultation, a revised framework for the National Curriculum that is the product of that review. This framework includes:

- contextual information about both the overall school curriculum and the statutory National Curriculum, including the statutory basis of the latter
- proposed aims for the statutory National Curriculum
- proposed statements on inclusion, and on the development of pupils' competence in language, literacy, and numeracy across the school curriculum
- revised programmes of study for all the National Curriculum subjects other than for Key Stage 4 English, mathematics and science. These are being published separately for information at www.education.gov.uk/nationalcurriculum, but formal consultation will follow once further details about the planned new Key Stage 4 qualifications in these subjects are available.

1.3 The consultation document that accompanies this framework asks a number of questions about the content and implementation of the National Curriculum. The deadline for responses to the consultation is 16 April 2013.

1.4 Subject to Ministers' final decisions, and to the approval of Parliament, it is the Government's intention that the final version of this framework will be published in the autumn of 2013, and that the elements that require statutory force will come into effect from September 2014.

2. The school curriculum in England

2.1 Every state-funded school must offer a curriculum which is balanced and broadly based[1] and which:

- promotes the spiritual, moral, cultural, mental and physical development of pupils at the school and of society, and
- prepares pupils at the school for the opportunities, responsibilities and experiences of later life.

All state schools are also required to make provision for a daily act of collective worship and must teach religious education to pupils at every key stage and sex education to pupils in secondary education.

2.2 Maintained schools in England are legally required to follow the statutory National Curriculum which sets out in programmes of study, on the basis of key stages, subject content for core and other foundation subjects that should be taught to all pupils. All schools must publish their school curriculum by subject and academic year online.[2]

2.3 All schools should make provision for personal, social, health and economic education (PSHE), drawing on good practice. Schools are also free to include other subjects or topics of their choice in planning and designing their own programme of education.

[1] See Section 78 of the 2002 Education Act: http://www.legislation.gov.uk/ukpga/2002/32/section/78 which applies to all maintained schools. Academies are also required to offer a broad and balanced curriculum in accordance with Section 1 of the 2010 Academies Act; http://www.legislation.gov.uk/ukpga/2010/32/section/1

[2] From September 2012, all schools are required to publish information in relation to each academic year, relating to the content of the school's curriculum for each subject and details about how additional information relating to the curriculum may be obtained: http://www.legislation.gov.uk/uksi/2012/1124/made.

3. The National Curriculum in England

Aims

3.1 The National Curriculum provides pupils with an introduction to the core knowledge that they need to be educated citizens. It introduces pupils to the best that has been thought and said; and helps engender an appreciation of human creativity and achievement.

3.2 The National Curriculum is just one element in the education of every child. There is time and space in the school day and in each week, term and year to range beyond the National Curriculum specifications. The National Curriculum provides an outline of core knowledge around which teachers can develop exciting and stimulating lessons.

Structure

3.3 Pupils of compulsory school age in community and foundation schools, including community special schools and foundation special schools, and in voluntary aided and voluntary controlled schools must follow the National Curriculum. It is organised on the basis of four key stages[3] and twelve subjects, classified in legal terms as 'core' and 'other foundation' subjects.

3.4 The Secretary of State for Education is required by legislation to publish programmes of study for each National Curriculum subject, setting out the 'matters, skills and processes' to be taught at each key stage. Schools are free to choose how they organise their school day, as long as the content of National Curriculum programmes of study is taught to all pupils.

[3] The Key Stage 2 programmes of study for English, mathematics and science are presented in this document as 'lower' (Years 3 and 4) and 'upper' (Years 5 and 6). This distinction is made as guidance for teachers and is not reflected in legislation. The legal requirement is to cover the content of the programmes of study for Years 3 to 6 by the end of Key Stage 2.

3.5 The proposed structure of the new National Curriculum, in terms of which subjects are compulsory at each key stage, is set out in the table below:

	Key Stage 1	Key Stage 2	Key Stage 3	Key Stage 4
Age	5 – 7	7 – 11	11 – 14	14 – 16
Year groups	1 – 2	3 – 6	7 – 9	10 – 11
Core subjects				
English	✓	✓	✓	✓
Mathematics	✓	✓	✓	✓
Science	✓	✓	✓	✓
Other foundation subjects				
Art and design	✓	✓	✓	
Citizenship			✓	✓
Computing[4]	✓	✓	✓	✓
Design and technology	✓	✓	✓	
Foreign languages / modern foreign languages[5]		✓	✓	
Geography	✓	✓	✓	
History	✓	✓	✓	
Music	✓	✓	✓	
Physical education	✓	✓	✓	✓

Figure 1 Proposed structure of the new National Curriculum

Key Stage 4 entitlement areas

3.6 The arts (comprising art and design, music, dance, drama and media arts), design and technology, the humanities (comprising geography and history) and modern foreign languages are not compulsory National Curriculum subjects after the age of 14, but all pupils have a statutory entitlement to be able to study a subject in each of those four areas.

[4] Subject to the outcome of consultation on changing the subject from 'information and communication technology' to 'computing'.
[5] At Key Stage 2 the subject title is 'foreign languages'; at Key Stage 3 it is 'modern foreign languages'.

3.7 The statutory requirements of the entitlement areas are:

- schools must provide access to a minimum of one course in each of the four entitlement areas
- schools must provide the opportunity for pupils to take a course in all four areas, should they wish to do so
- a course that meets the entitlement requirements must give pupils the opportunity to obtain an approved qualification.

4. Inclusion

Setting suitable challenges

4.1 Teachers should set high expectations for every pupil. They should plan stretching work for pupils whose attainment is significantly above the expected standard. They have an even greater obligation to plan lessons for pupils who have low levels of prior attainment or come from disadvantaged backgrounds. Teachers should use appropriate assessment to set targets which are deliberately ambitious.

Responding to pupils' needs and overcoming potential barriers for individuals and groups of pupils

4.2 Teachers should take account of their duties under equal opportunities legislation that covers disability, ethnicity, gender, sexual identity, gender identity, and religion or belief.

4.3 A wide range of pupils have special educational needs, many of whom also have disabilities. Lessons should be planned to ensure that there are no barriers to every pupil achieving. In many cases, such planning will mean that these pupils will be able to study the full National Curriculum. The SEN Code of Practice will include advice on approaches to identification of need which can support this. A minority of pupils will need access to specialist equipment and different approaches. The SEN Code of Practice will outline what needs to be done for them.

4.4 Many disabled pupils have little need for additional resources beyond the aids which they use as part of their daily life. Teachers must plan lessons so that these pupils can study every National Curriculum subject. Potential areas of difficulty should be identified and addressed at the outset of work.

4.5 Teachers must also take account of the needs of pupils whose first language is not English. Monitoring of progress should take account of the pupil's age, length of time in this country, previous educational experience and ability in other languages.

4.6 The ability of pupils for whom English is an additional language to take part in the National Curriculum may be in advance of their communication skills in English. Teachers should plan teaching opportunities to help pupils develop their English and should aim to provide the support pupils need to take part in all subjects.

5. Language, literacy and numeracy

5.1 Teachers should develop pupils' spoken language, reading and writing as integral aspects of the teaching of every subject. Fluency in the English language is an essential foundation for success in all subjects.

5.2 Teachers should also use every relevant subject to develop pupils' mathematical fluency. Confidence in numeracy and other mathematical skills is a precondition of success across the National Curriculum.

Spoken language

5.3 Pupils should be taught to speak clearly and convey ideas confidently using Standard English. They should learn to justify ideas with reasons; ask questions to check understanding; develop vocabulary and build knowledge; negotiate; evaluate and build on the ideas of others; and select the appropriate register for effective communication. They should be taught to give well-structured descriptions and explanations and develop their understanding through speculating, hypothesising and exploring ideas. This will enable them to clarify their thinking as well as organise their ideas for writing.

Reading and writing

5.4 Teachers should develop pupils' reading and writing in all subjects to support their acquisition of knowledge. Pupils should be taught to read fluently, understand extended prose, both fiction and non-fiction, and be encouraged to read for pleasure. Schools should do everything to promote wider reading. They should provide library facilities and set ambitious expectations for reading at home. Pupils should develop the stamina and skills to write at length, with accurate spelling and punctuation. They should be taught the correct use of grammar. They should build on what they have been taught to expand the range of their writing and the variety of the grammar they use. The writing they do should include narratives, explanations, descriptions, comparisons, summaries and evaluations: such writing supports them in rehearsing, understanding and consolidating what they have heard or read.

Numeracy and mathematics

5.5 Teachers should develop pupils' numeracy in all subjects so that they understand and appreciate the importance of mathematics. Pupils should be taught to apply arithmetic fluently to problems, understand and use measures, estimate when using calculators and other technologies to produce results, and then interpret them appropriately. Pupils should apply their geometric and algebraic understanding, and relate their understanding of probability to the notions of risk and uncertainty. They should also understand the cyclical process of collecting, presenting and analysing data. They should be taught to apply their mathematics to both routine and non-routine problems, including breaking down more complex problems into a series of simpler steps.

6. The proposed programmes of study and attainment targets for the National Curriculum subjects.

English

Introduction

Purpose of study

English has a pre-eminent place in education and in society. It is a subject in its own right and the medium for teaching; for pupils, understanding language provides access to the whole curriculum. Through being taught to write and speak fluently, pupils learn to communicate their ideas and emotions to others; through their reading and listening, others can communicate with them. Through reading in particular, pupils have a chance to develop culturally, emotionally, spiritually and socially. Literature, especially, plays a key role in such development. Reading also enables pupils both to acquire knowledge and to build on what they already know. All the skills of language are essential to participating fully as a member of society; pupils, therefore, who do not learn to read and write fluently and confidently, are, in every sense, disenfranchised.

Aims

The overarching aim for English in the National Curriculum is to promote high standards of literacy by equipping pupils with a strong command of the written and spoken word, and to develop their love of literature through widespread reading for enjoyment. The National Curriculum for English aims to ensure that all pupils:

- read easily, fluently and with good understanding
- develop the habit of reading widely and often, for both pleasure and information
- acquire a wide vocabulary, an understanding of grammar and knowledge of linguistic conventions for reading, writing and spoken language
- appreciate our rich and varied literary heritage
- write clearly, accurately and coherently, adapting their language and style in and for a range of contexts, purposes and audiences
- use discussion in order to learn; they should be able to elaborate and explain clearly their understanding and ideas
- are competent in the arts of speaking and listening, making formal presentations, demonstrating to others and participating in debate.

Spoken language

The National Curriculum for English reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are vital for developing their vocabulary, grammar and their understanding for reading and writing. Teachers should therefore ensure the continual development of pupils' confidence and competence in

spoken language. Pupils should develop a capacity to explain their understanding of books and other reading, and to prepare their ideas before they write. They must be assisted in making their thinking clear to themselves as well as to others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions. Pupils should also be taught to understand and use the conventions for discussion and debate.

Reading

The programmes of study for reading at Key Stages 1 and 2 consist of two dimensions:

- Word reading
- Comprehension (both listening and reading).

It is essential that teaching focuses on developing pupils' competence in both dimensions; different kinds of teaching are needed for each.

Skilled word reading involves both the speedy working out of the pronunciation of unfamiliar printed words (decoding) and the speedy recognition of familiar printed words. Underpinning both is the understanding that the letters on the page represent the sounds in spoken words. This is why phonics should be emphasised in the early teaching of reading to beginners (i.e. unskilled readers) when they start school.

Good comprehension draws from linguistic knowledge (in particular of vocabulary and grammar) and on knowledge of the world. Comprehension skills develop through pupils' experience of high-quality discussion with the teacher, as well as from reading and discussing a range of stories, poems and non-fiction. All pupils must be encouraged to read widely across both fiction and non-fiction to develop their knowledge of themselves and the world in which they live, to establish an appreciation and love of reading, and to gain knowledge across the curriculum. Reading widely and often increases pupils' vocabulary because they encounter words they would rarely hear or use in everyday speech. Reading also feeds pupils' imagination and opens up a treasure-house of wonder and joy for curious young minds.

It is essential that, by the end of their primary education, all pupils are able to read fluently, and with confidence, in any subject in their forthcoming secondary education.

Writing

The programmes of study for writing at Key Stages 1 and 2 are constructed similarly to those for reading:

- Transcription (spelling and handwriting)
- Composition (articulating ideas and structuring them in speech and writing).

It is essential that teaching develops pupils' competence in these two dimensions. In addition, pupils should be taught how to plan, revise and evaluate their writing. These aspects of writing have been incorporated into the programmes of study for composition.

Writing down ideas fluently depends on effective transcription: that is, on spelling quickly and accurately through knowing the relationship between sounds and letters (phonics) and understanding the morphology (word structure) and orthography (spelling structure) of words. Effective composition involves articulating and communicating ideas, and then organising them coherently for a reader. This requires clarity, awareness of the audience, purpose and context, and an increasingly wide knowledge of vocabulary and grammar. Writing also depends on fluent, legible and, eventually, speedy handwriting.

Spelling, grammar, punctuation and glossary

The two statutory appendices – on spelling and on grammar and punctuation – give an overview of the specific features that should be included in teaching the programmes of study. Pupils should be taught to control their speaking and writing consciously and to use Standard English. They should be taught to use the elements of spelling, grammar, punctuation and 'language about language' listed. This is not intended to constrain or restrict teachers' creativity, but simply to provide the structure on which they can construct exciting lessons. A non-statutory glossary is provided for teachers.

Throughout the programmes of study, teachers should teach pupils the vocabulary they need to discuss their reading, writing and spoken language. It is important that pupils learn the correct grammatical terms in English and that these terms are integrated within teaching.

School curriculum

The programmes of study for English are set out year-by-year for Key Stage 1 and two-yearly for Key Stage 2. The single year blocks at Key Stage 1 reflect the rapid pace of development in word reading during these two years. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage if appropriate. All schools are also required to set out their school curriculum for English on a year-by-year basis and make this information available online.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

Year 1

During Year 1 teachers should build on work from the Foundation Stage, making sure that pupils can sound and blend unfamiliar printed words quickly and accurately using the phonic knowledge and skills that they have already learnt. Teachers should also ensure that pupils continue to learn new grapheme-phoneme correspondences (GPCs) and revise and consolidate those learnt earlier. The understanding that the letter(s) on the page represent the sounds in spoken words should underpin pupils' reading and spelling of all words. This includes common words containing unusual GPCs. The term ‘common exception words’ is used throughout the programmes of study for such words.

Alongside this knowledge of GPCs, pupils need to develop the skill of blending the sounds into words for reading and establish the habit of applying this skill whenever they encounter new words. This will be supported by practising their reading with books consistent with their developing phonic knowledge and skill. At the same time they will need to hear, share and discuss a wide range of high-quality books to develop a love of reading and broaden their vocabulary.

Pupils should be helped to read words without overt sounding and blending after a few encounters. Those who are slow to develop this skill should have extra practice.

Pupils’ writing during Year 1 will generally develop at a slower pace than their reading. This is because they need to encode the sounds they hear in words (spelling skills), develop the physical skill needed for handwriting, and learn how to organise their ideas in writing.

Pupils entering Year 1 who have not yet met the early learning goals for literacy should continue to follow the curriculum for the Early Years Foundation Stage to develop their word reading, spelling and language skills. However, these pupils should follow the Year 1 programme of study in terms of the books they listen to and discuss, so that they develop their vocabulary and understanding of grammar, as well as their knowledge more generally across the curriculum. If they are still struggling to decode and spell, they need to be taught to do this urgently through a rigorous and systematic phonics programme so that they catch up rapidly.

Teachers should ensure that their teaching develops pupils’ oral vocabulary as well as their ability to understand and use a variety of grammatical structures, giving particular support to pupils whose oral language skills are insufficiently developed.

Specific requirements for pupils to discuss what they are learning and to develop their wider skills in spoken language form part of this programme of study.

Year 1 programme of study (statutory requirements)	Notes and guidance (non-statutory)
READING **Word reading** Pupils should be taught to: ▪ apply phonic knowledge and skills as the route to decode words ▪ respond speedily with the correct sound to graphemes (letters or groups of letters) for all 40+ phonemes, including, where applicable, alternative sounds for graphemes ▪ read accurately by blending sounds in unfamiliar words containing GPCs that have been taught ▪ read common exception words, noting unusual correspondences between spelling and sound and where these occur in the word ▪ read words containing taught GPCs and *–s*, *–es*, *–ing*, *–ed*, *–er* and *–est* endings ▪ read other words of more than one syllable that contain taught GPCs ▪ read words with contractions, e.g. *I'm*, *I'll*, *we'll*, and understand that the apostrophe represents the omitted letter(s) ▪ read aloud accurately books that are consistent with their developing phonic knowledge and that do not require them to use other strategies to work out words ▪ re-read these books to build up their fluency and confidence in word reading.	**READING** **Word reading** Pupils should revise and consolidate the grapheme-phoneme correspondences (GPCs) and the common exception words taught in Reception. As soon as they can read words comprising the Year 1 GPCs accurately and speedily, they should move on to the Year 2 programme of study for word reading. Pupils do not need to be taught the terms 'grapheme' and 'phoneme'. The number, order and choice of exception words taught will vary according to the phonics programme being used. Ensuring that pupils are aware of the GPCs they contain, however unusual these are, supports spelling later. Young readers encounter words that they have not seen before much more frequently than experienced readers do, and they may not know the meaning of some of these. Practice at reading such words by sounding and blending can provide opportunities not only for pupils to develop confidence in their decoding skills, but also for teachers to explain the meaning and thus develop pupils' vocabulary. Pupils should be taught how to read words with suffixes by being helped to build on the root words that they can read already. Pupils' reading and re-reading of books that are closely matched to their developing phonic knowledge supports their fluency, as well

Year 1 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	as increasing their confidence in their reading skills. Fluent word reading greatly assists comprehension, especially when pupils come to read longer books.

READING
Comprehension
 	
Pupils should be taught to:
 	
▪ develop pleasure in reading, motivation to read, and understanding by:
  ▪ listening to and discussing a wide range of poems, stories and non-fiction at a level beyond that at which they can read independently
  ▪ being encouraged to link what they read or hear read to their own experiences
  ▪ becoming very familiar with key stories, fairy stories and traditional tales, retelling them and considering their particular characteristics
  ▪ recognising and joining in with predictable phrases
  ▪ learning to appreciate rhymes and poems, and to recite some by heart
▪ understand both the books they can already read accurately and fluently and those they listen to by:
  ▪ drawing on what they already know or on background information and vocabulary provided by the teacher
	READING
	Comprehension
	
	Pupils should have extensive experience of listening to, sharing and discussing a wide range of high-quality books to engender a love of reading at the same time as they are reading independently.
	
	Pupils' vocabulary can be improved when they listen to books read aloud and when they discuss what they have heard. Such vocabulary can also feed into their writing. Knowing the meaning of more words increases pupils' chances of understanding when they read by themselves. The meaning of some new words should be introduced to pupils before they start to read on their own, so that these unknown words do not hold up their comprehension. However, once pupils have already decoded words successfully, the meaning of those that are new to them can be discussed with them, so contributing to developing their early skills of inference.
	
	By listening frequently to stories, poems and non-fiction that they cannot yet read for themselves, pupils begin to understand how written language can be structured, such as how to build surprise in narratives, and the characteristic features of non-fiction. Listening to and discussing information books and other non-fiction establishes the foundations for their learning in other subjects.

Year 1 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ checking that the text makes sense to them as they read and correcting inaccurate reading ▪ discussing the significance of the title and events ▪ making inferences on the basis of what is being said and done ▪ predicting what might happen on the basis of what has been read so far ▪ participate in discussion about what is read to them, taking turns and listening to what others say ▪ explain clearly their understanding of what is read to them.	Pupils should be shown some of the processes for finding out information. Through listening, pupils also start to learn how language sounds and increase their vocabulary and awareness of grammatical structures. In due course, they will be able to draw on such grammar in their own writing. Rules for effective discussions should be agreed with and demonstrated for pupils. They should help to develop and evaluate them, with the expectation that everyone takes part. Pupils should be helped to consider the opinions of others. Role-play can help pupils to identify with and explore characters and to try out the language they have listened to.
WRITING **Transcription** *Spelling* (see Appendix 1) Pupils should be taught to: ▪ spell: ▪ words containing each of the 40+ phonemes already taught ▪ common exception words ▪ the days of the week	**WRITING** **Transcription** *Spelling* Spelling should be taught alongside reading, so that pupils understand that they can read back words they have spelt. Pupils should be shown how to segment words into individual phonemes and then how to represent the phonemes by the appropriate grapheme(s). It is important to recognise that phoneme-grapheme correspondences (which underpin spelling) are more variable than GPCs (which underpin reading). For this

Year 1 programme of study (statutory requirements)	Notes and guidance (non-statutory)

▪ name the letters of the alphabet:
  ▪ naming the letters of the alphabet in order
  ▪ using letter names to distinguish between alternative spellings of the same sound
▪ add prefixes and suffixes:
  ▪ using the spelling rule for adding *–s* or *–es* as the plural marker for nouns and the third person singular marker for verbs
  ▪ using the prefix *un–*
  ▪ using *–ing*, *–ed*, *–er* and *–est* where no change is needed in the spelling of root words (e.g. *helping*, *helped*, *helper*, *eating*, *quicker*, *quickest*)
▪ apply simple spelling rules and guidelines, as listed in Appendix 1
▪ write from memory simple sentences dictated by the teacher that include words taught so far.
	reason, pupils need to do much more word-specific rehearsal for spelling than for reading.
	
	At this stage pupils will be spelling some words in a phonically plausible way. Misspellings of words that pupils have been taught should be corrected; other misspelt words should be used to teach pupils about alternative ways of representing those sounds.
	
	Writing simple dictated sentences that include words taught so far gives pupils opportunities to apply and practise their spelling.

Handwriting Pupils should be taught to: ▪ sit correctly at a table, holding a pencil comfortably and correctly ▪ begin to form lower-case letters in the correct direction, starting and finishing in the right place ▪ form capital letters	*Handwriting* Handwriting requires frequent and discrete, direct teaching. Pupils should be able to form letters correctly and confidently. The size of the writing implement (pencil, pen) should not be too large for a young pupil's hand. Whatever is being used should allow the pupil to hold it easily and correctly so that bad habits are avoided.

Year 1 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ form digits 0-9 ▪ understand which letters belong to which handwriting 'families' (i.e. letters that are formed in similar ways) and to practise these.	Left-handed pupils should receive specific teaching to meet their needs.

Composition
 	
Pupils should be taught to:
 	
▪ write sentences by:
  ▪ saying out loud what they are going to write about
  ▪ composing a sentence orally before writing it
  ▪ sequencing sentences to form short narratives
  ▪ re-reading what they have written to check that it makes sense
▪ discuss what they have written with the teacher or other pupils
▪ read aloud their writing clearly enough to be heard by their peers and the teacher.
	Composition
	
	At the beginning of Year 1, not all pupils will have the spelling and handwriting skills they need to write down everything that they can compose out loud.
	
	Pupils should understand, through demonstration, the skills and processes essential to writing: that is, thinking aloud as they collect ideas, drafting, and re-reading to check their meaning is clear.

Year 1 programme of study (statutory requirements)	Notes and guidance (non-statutory)

Grammar and punctuation
 	
Pupils should be taught to:
 	
▪ develop their understanding of the concepts set out in Appendix 2 by:
  ▪ leaving spaces between words
  ▪ joining words and joining sentences using *and*
  ▪ beginning to punctuate sentences using a capital letter and a full stop, question mark or exclamation mark
  ▪ using a capital letter for names of people, places, the days of the week, and the personal pronoun 'I'
  ▪ learning the grammar of word structure in Appendix 2
  ▪ use the grammatical terminology in Appendix 2 in discussing their writing.
	Grammar and punctuation
	
	Pupils should be taught to recognise sentence boundaries in spoken sentences and to use the vocabulary listed in Appendix 2 when their writing is discussed.
	
	Pupils should begin to use some of the features of Standard English in their writing. Standard English is defined in the glossary.

Year 2

By the beginning of Year 2, pupils should be able to read all common graphemes. They should be able to read unfamiliar words containing these graphemes, accurately and without undue hesitation, by sounding them out in books that are matched closely to each pupil's level of word reading. They should also be able to read many common words containing GPCs taught so far, such as *shout*, *hand*, *stop*, or *dream*, without needing to blend the sounds out loud first. Pupils' reading of common exception words, such as *you*, *could*, *many*, or *people*, should be secure. Pupils will increase their fluency by being able to read these words easily and automatically. Finally, pupils should be able to retell some familiar stories that have been read to and discussed with them or that they have acted out during Year 1.

During Year 2, teachers should continue to focus on establishing pupils' accurate and speedy word reading skills. They should also make sure that pupils listen to and discuss a wide range of stories, poems, plays and information books; this should include whole books. The sooner that pupils can read well and do so frequently, the sooner they will be able to increase their vocabulary, comprehension and their knowledge across the wider curriculum.

In writing, pupils at the beginning of Year 2 should be able to compose individual sentences orally and then write them down. They should be able to spell correctly many of the words covered in Year 1 (see Appendix 1). They should also be able to make phonically-plausible attempts to spell words they have not yet learnt. Finally, they should be able to form individual letters correctly, so establishing good handwriting habits from the beginning.

It is important to recognise that pupils begin to meet extra challenges in terms of spelling during Year 2. Increasingly, they should learn that there is not always an obvious connection between the way a word is said and the way it is spelt. Variations include different ways of spelling the same sound, the use of so-called silent letters and groups of letters in some words and, sometimes, spelling that has become separated from the way that words are now pronounced, such as the 'le' ending in *table*. Pupils' motor skills also need to be sufficiently advanced for them to write down ideas that they may be able to compose orally. In addition, writing is intrinsically harder than reading: pupils are likely to be able to read and understand more complex writing (in terms of its vocabulary and structure) than they are capable of producing themselves.

For pupils who do not have the phonic knowledge and skills they need for Year 2, teachers should use the Year 1 programmes of study for word reading and spelling so that pupils' word reading skills catch up. However, teachers should use the Year 2 programme of study for comprehension so that these pupils hear and talk about new books, poems, other writing, and vocabulary with the rest of the class.

Specific requirements for pupils to discuss what they are learning and to develop their wider skills in spoken language form part of this programme of study.

Year 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)
READING **Word reading** Pupils should be taught to: ▪ continue to apply phonic knowledge and skills as the route to decode words until automatic decoding has become embedded and reading is fluent ▪ read accurately by blending the sounds in words that contain the graphemes taught so far, especially recognising alternative sounds for graphemes ▪ read accurately words of two or more syllables that contain the same GPCs as above ▪ read words containing common suffixes ▪ read further common exception words, noting unusual correspondence between spelling and sound and where these occur in the word ▪ read most words quickly and accurately when they have been frequently encountered without overt sounding and blending ▪ read aloud books closely matched to their improving phonic knowledge, sounding out unfamiliar words accurately, automatically and without undue hesitation ▪ re-read these books to build up their fluency and confidence in word reading.	**READING** **Word reading** Pupils should revise and consolidate the GPCs and the common exception words taught in Year 1. The exception words taught will vary slightly, depending on the phonics programme being used. As soon as pupils can read words comprising the Year 2 GPCs accurately and speedily, they should move on to the Years 3 and 4 programme of study for word reading. Pupils do not need to be taught the terms ‘grapheme’ and ‘phoneme’. When teaching pupils how to read longer words, pupils should be shown syllable boundaries and how to read each syllable separately before they combine them to read the word. Pupils should be taught how to read suffixes by building on the root words that they have already learnt. The whole suffix should be taught as well as the letters that make it up. Pupils who are still at the early stages of learning to read should have ample practice in reading books that are closely matched to their word reading level. As soon as the decoding of most regular words and common exception words is embedded fully, the range of books that pupils can read independently will expand rapidly.

Year 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)

READING
Comprehension
 	
Pupils should be taught to:
 	
▪ develop pleasure in reading, motivation to read and understanding by:
  ▪ listening to, discussing and expressing views about a wide range of poetry (including contemporary and classic), stories and non-fiction at a level beyond that at which they can read independently
  ▪ discussing the sequence of events in books and how items of information are related
  ▪ becoming increasingly familiar with and retelling a wider range of stories, fairy stories and traditional tales
  ▪ being introduced to non-fiction books that are structured in different ways
  ▪ recognising simple recurring literary language in stories and poetry
  ▪ discussing their favourite words and phrases
  ▪ continuing to build up a repertoire of poems learnt by heart, appreciating these and reciting some, with appropriate intonation to make the meaning clear
▪ understand both the books that they can already read accurately and fluently and those that they listen to by:
	READING
	Comprehension
	
	Pupils should be encouraged to read all the words in a sentence and to do this accurately, so that their understanding of what they read is not hindered by imprecise decoding, e.g. by reading ‘place’ instead of ‘palace’.
	
	Pupils should monitor what they read, checking that the word they have decoded fits in with what else they have read and makes sense in the context of what they already know about the topic.
	
	Explain the meaning of new words within the context of what pupils are reading, and encourage them to use morphology (such as prefixes) to work out unknown words.
	
	Pupils should learn about cause and effect in both narrative and non-fiction (e.g. what has prompted a character’s behaviour in a story; why certain dates are commemorated annually). ‘Thinking aloud’ when reading to pupils may help them to understand what skilled readers do.
	
	Deliberate steps should be taken to increase pupils’ vocabulary and their awareness of grammar so that they continue to understand the differences between spoken and written language.
	
	Discussion should be demonstrated to pupils. They should be guided to participate in it and they should be helped to consider the

Year 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ drawing on what they already know or on background information and vocabulary provided by the teacher ▪ checking that the text makes sense to them as they read and correcting inaccurate reading ▪ making inferences on the basis of what is being said and done ▪ answering and asking questions ▪ predicting what might happen on the basis of what has been read so far ▪ participate in discussion about books, poems and other works that are read to them and those that they can read for themselves, taking turns and listening to what others say ▪ explain and discuss their understanding of books, poems and other material, both those that they listen to and those that they read for themselves.	opinions of others. They should receive feedback on their discussions. Role-play and other drama techniques can help pupils to identify with and explore characters. In these ways, they extend their understanding of what they read and have opportunities to try out the language they have listened to.
WRITING **Transcription** *Spelling* (see Appendix 1) Pupils should be taught to: ▪ spell by: ▪ segmenting words into phonemes and representing these by graphemes, spelling many correctly	**WRITING** **Transcription** *Spelling* In Year 2, pupils move towards more word-specific knowledge of spelling, including homophones. The process of spelling should be emphasised: that is, that spelling involves segmenting words into phonemes and then representing all the phonemes by graphemes in the right order. Pupils should do this both for single-syllable and

Year 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ learning new ways of spelling phonemes for which one or more spellings are already known, and learn some words with each spelling, including a few common homophones ▪ learning to spell common exception words ▪ learning to spell more words with contracted forms ▪ distinguishing between homophones and near-homophones ▪ add suffixes to spell longer words, e.g. *–ment*, *–ness*, *–ful* and *–less* ▪ apply spelling rules and guidelines, as listed in Appendix 1 ▪ write from memory simple sentences dictated by the teacher that include words and punctuation taught so far.	multi-syllabic words. At this stage pupils will still be spelling some words in a phonically plausible way. Misspellings of words that pupils have been taught should be corrected; other misspelt words can be used as an opportunity to teach pupils about alternative ways of representing sounds. Pupils should be encouraged to apply their knowledge of suffixes from their word reading to their spelling. They should also draw from and apply their growing knowledge of word and spelling structure, as well as their knowledge of root words.
Handwriting Pupils should be taught to: ▪ form lower-case letters of the correct size relative to one another ▪ start using some of the diagonal and horizontal strokes needed to join letters and understand which letters, when adjacent to one another, are best left unjoined ▪ write capital letters and digits of the correct size, orientation and relationship to one another and to lower case letters ▪ use spacing between words that reflects the size of the letters.	*Handwriting* Pupils should revise and practise correct letter formation frequently. They should be taught to write with a joined style as soon as they can form letters securely with the correct orientation.

Year 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)

Composition
 	
Pupils should be taught to:
 	
▪ develop positive attitudes towards and stamina for writing by:
  ▪ writing narratives about personal experiences and those of others (real and fictional)
  ▪ writing about real events
  ▪ writing poetry
  ▪ writing for different purposes
▪ consider what they are going to write before beginning by:
  ▪ planning or saying out loud what they are going to write about
  ▪ writing down ideas and/or key words, including new vocabulary
  ▪ encapsulating what they want to say, sentence by sentence
▪ make simple additions, revisions and corrections to their own writing by:
  ▪ evaluating their writing with the teacher and other pupils
  ▪ re-reading to check that their writing makes sense and that verbs to indicate time are used correctly and consistently, including verbs in the continuous form
	Composition
	
	Reading and listening to whole books, not simply extracts, helps pupils to increase their vocabulary and grammatical knowledge, including their knowledge of the vocabulary and grammar of Standard English. These activities also help them to understand how different types of writing, including narratives, are structured. All these can be drawn on for their writing.
	
	Pupils should understand, through being shown, the skills and processes essential to writing: that is, thinking aloud as they collect ideas, drafting, and re-reading to check their meaning is clear.
	
	Drama and role-play can contribute to the quality of pupils' writing by providing opportunities for pupils to develop and order their ideas by playing roles and improvising scenes in various settings.
	
	Pupils might draw on and use new vocabulary from their reading, their discussions about it (one-to-one and as a whole class) and from their wider experiences.

Year 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ proof-reading to check for errors in spelling, grammar and punctuation (e.g. ends of sentences punctuated correctly) ▪ read aloud what they have written with appropriate intonation to make the meaning clear.	

Year 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)

Grammar and punctuation
 	
Pupils should be taught to:
 	
▪ develop their understanding of the concepts set out in Appendix 2 by:
  ▪ learning how to use both familiar and new punctuation correctly (see Appendix 2), including full stops, capital letters, exclamation marks, question marks, commas for lists and apostrophes for contracted forms
  ▪ learning how to use:
  ▪ sentences with different forms: statement, question, exclamation, command
  ▪ expanded noun phrases to describe and specify, e.g. *the blue butterfly*
  ▪ subordination (using *when*, *if*, *that*, or *because*) and co-ordination (using *or*, *and*, or *but*)
  ▪ learning the grammar of word structure in Appendix 2
  ▪ using some features of written Standard English
▪ use and understand the grammatical terminology in Appendix 2 in discussing their writing.
	Grammar and punctuation
	
	The terms for discussing language should be embedded for pupils in the course of discussing their writing with them. Their attention should be drawn to the technical terms they need to learn.

Lower Key Stage 2 – Years 3-4

By the beginning of Year 3, pupils should be able to read books written at an age-appropriate *interest* level. They should be able to read them accurately and at a speed that is sufficient for them to focus on understanding what they read rather than on decoding individual words. They should be able to decode most new words outside their spoken vocabulary, making a good approximation to the word's pronunciation. As their decoding skills become increasingly secure, teaching should be directed more towards developing the breadth and depth of their reading, making sure that they become independent, fluent and enthusiastic readers who read widely and frequently. They should be developing their understanding and enjoyment of stories, poetry, plays and non-fiction, and learning to read silently. They should also be developing their knowledge and skills in reading non-fiction about a wide range of subjects. They should be learning to justify their views about what they have read: with support at the start of Year 3 and increasingly independently by the end of Year 4.

Pupils should be able to write down their ideas with a reasonable degree of accuracy and with good sentence punctuation. Teachers should therefore be consolidating pupils' writing skills, their grasp of sentence structure and their knowledge of linguistic terminology. Teaching them to develop as writers involves increasing their competence as well as teaching them to enhance the effectiveness of what they write. Teachers should make sure that pupils build on what they have learnt, particularly in terms of the range of their writing and the more varied grammar from which they can draw to express their ideas. Pupils should be beginning to understand how writing can be different from speech. Joined handwriting should be the norm; pupils should be able to use it fast enough to keep pace with what they want to say.

Pupils' spelling of common words should be correct, including exception words and other words that they have learnt (see Appendix 1). Pupils should spell words as accurately as possible using their phonic knowledge and other knowledge of spelling, such as morphology and etymology.

Most pupils will not need further direct teaching of word reading skills: they are able to decode unfamiliar words accurately, and need very few repeated experiences of this before the word is stored in such a way that they can read it without overt sound-blending.

As in Key Stage 1, however, pupils who are still struggling to decode need to be taught to do this urgently through a rigorous and systematic phonics programme so that they catch up rapidly with their peers. If they cannot decode independently and fluently, they will find it increasingly difficult to understand what they read and to write down what they want to say. As far as possible, however, they should follow the Year 3 and 4 programme of study in terms of listening to new books, hearing and learning new vocabulary and grammatical structures, and discussing these.

Specific requirements for pupils to discuss what they are learning and to develop their wider skills in spoken language form part of this programme of study. In Years 3 and 4, pupils should become more familiar with and confident in using language in a greater variety of situations, for a variety of audiences and purposes, including through drama, formal presentations and debate.

Years 3-4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
READING **Word reading** Pupils should be taught to: ▪ apply their growing knowledge of root words, prefixes and suffixes (etymology and morphology) as listed in Appendix 1, both to read aloud and to understand the meaning of new words they meet ▪ read further exception words, noting the unusual correspondences between spelling and sound, and where these occur in the word.	**READING** **Word reading** At this stage, teaching comprehension should be taking precedence over teaching word reading directly. Any focus on word reading should support the development of vocabulary. When pupils are taught to read longer words, they should be supported to test out different pronunciations. They will attempt to match what they decode to words they may have already heard but may not have seen in print: e.g. in reading *technical*, the pronunciation /tɛtʃnɪkəl/ (“tetchnical”) might not sound familiar, but /tɛknɪkəl/ (“teknical”) should.

READING
Comprehension
 	
Pupils should be taught to:
 	
▪ develop positive attitudes to reading and understanding of what they read by:
  ▪ listening to and discussing a wide range of fiction, poetry, plays, non-fiction and reference books or textbooks
  ▪ reading books that are structured in different ways and reading for a range of purposes
  ▪ using dictionaries to check the meaning of words that
	READING
	Comprehension
	
	The focus should continue to be on pupils’ comprehension as a primary element in reading. The knowledge and skills that pupils need in order to comprehend are very similar at different ages. This is why the programmes of study for comprehension in Years 3 and 4 and Years 5 and 6 are similar: the complexity of the writing increases the level of challenge.
	
	Pupils should be taught to recognise themes in what they read, such as the triumph of good over evil or the use of magical devices in fairy stories and folk tales.

Years 3-4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
they have read ▪ increasing their familiarity with a wide range of books, including fairy stories, myths and legends, and retelling some of these orally ▪ identifying themes and conventions in a wide range of books ▪ preparing poems and play scripts to read aloud and to perform, showing understanding through intonation, tone, volume and action ▪ discussing words and phrases that capture the reader's interest and imagination ▪ recognising some different forms of poetry (e.g. free verse, narrative poetry) ▪ understand what they read, in books they can read independently, by: ▪ checking that the text makes sense to them, discussing their understanding and explaining the meaning of words in context ▪ asking questions to improve their understanding of a text ▪ drawing inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with evidence predicting what might happen from details stated and implied ▪ identifying main ideas drawn from more than one	They should also learn the conventions of different types of writing, such as the greeting in letters, a diary written in the first person or the use of presentational devices such as numbering and headings in instructions. Pupils should be taught to use the skills they have learnt earlier and continue to apply these skills to read for different reasons, including for pleasure, or to find out information and the meaning of new words. Pupils should continue to have opportunities to listen frequently to stories, poems, non-fiction and other writing, including whole books and not just extracts, so that they build on what was taught previously. In this way, they also meet books and authors that they might not choose themselves. Reading, re-reading, and rehearsing poems and plays for presentation and performance give pupils opportunities to discuss language, including vocabulary, extending their interest in the meaning and origin of words. These activities also provide them with an incentive to find out what expression is required, so feeding into comprehension. In using non-fiction, pupils should know what information they need to look for before they begin and be clear about the task. They should be shown how to use contents pages and indexes to locate information.

Years 3-4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
paragraph and summarising these ▪ identifying how language, structure, and presentation contribute to meaning ▪ retrieve and record information from non-fiction ▪ participate in discussion about both books that are read to them and those they can read for themselves, taking turns and listening to what others say.	Pupils should have guidance about the kinds of explanations and questions that are expected from them. They should help to develop, agree on, and evaluate rules for effective discussion. The expectation should be that all pupils take part.
WRITING **Transcription** Spelling (see Appendix 1) Pupils should be taught to: ▪ use further prefixes and suffixes and understand how to add them (Appendix 1) ▪ spell further homophones ▪ spell words that are often misspelt (Appendix 1) ▪ use the first two or three letters of a word to check its spelling in a dictionary ▪ write from memory simple sentences, dictated by the teacher, that include words and punctuation taught so far.	**WRITING** **Transcription** Spelling Pupils should learn to spell new words correctly and have plenty of practice in spelling them They should understand how to place the apostrophe in words with regular plurals (e.g. girls', boys') and in words with irregular plurals (e.g. children's). As in Years 1 and 2, pupils should continue to be supported in understanding and applying the concepts of word structure (see Appendix 2). Dictionaries are not useful for pupils who cannot yet spell, since these pupils do not have sufficient knowledge of spelling to use them efficiently.

Years 3-4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Handwriting Pupils should be taught to: ▪ use the diagonal and horizontal strokes that are needed to join letters and understand which letters, when adjacent to one another, are best left unjoined ▪ increase the legibility, consistency and quality of their handwriting, e.g. by ensuring that the downstrokes of letters are parallel and equidistant; that lines of writing are spaced sufficiently so that the ascenders and descenders of letters do not touch.	*Handwriting* Pupils should be using joined handwriting throughout their independent writing. Handwriting should continue to be taught, with the aim of increasing the fluency with which pupils are able to write down what they want to say. This, in turn, will support their composition and spelling.

Composition
 	
Pupils should be taught to:
 	
▪ plan their writing by:
  ▪ discussing writing similar to that which they are planning to write in order to understand and learn from its structure, grammar and vocabulary
  ▪ discussing and recording ideas
▪ draft and write by:
  ▪ composing and rehearsing sentences orally (including dialogue), progressively building a varied and rich vocabulary and an increasing range of sentence structures (See Appendix 2)
  ▪ organising paragraphs around a theme
	Composition
	
	Pupils should continue to have opportunities to write for a range of real purposes and audiences as part of their work across the curriculum. These purposes and audiences should underpin the decisions about the form the writing should take, such as a narrative, an explanation or a description.
	
	Pupils should understand, through being shown these, the skills and processes that are essential for writing: that is, thinking aloud to explore and collect ideas, drafting, and re-reading to check their meaning is clear, including doing so as the writing develops. Pupils should be taught to monitor whether their own writing makes sense in the same way that they monitor their reading, checking at different levels.

Years 3-4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ in narratives, creating settings, characters and plot ▪ in non-narrative material, using simple organisational devices such as headings and sub-headings ▪ evaluate and edit by: ▪ assessing the effectiveness of their own and others' writing and suggesting improvements ▪ proposing changes to grammar and vocabulary to improve consistency, e.g. the accurate use of pronouns in sentences ▪ proof-read for spelling and punctuation errors ▪ read aloud their own writing, to a group or the whole class, using appropriate intonation and controlling the tone and volume so that the meaning is clear.	
Grammar and punctuation Pupils should be taught to: ▪ develop their understanding of the concepts set out in Appendix 2 by: ▪ extending the range of sentences with more than one clause by using a wider range of conjunctions, e.g. *when*, *if*, *because*, *although* ▪ using the perfect form of verbs to mark relationships of time and cause ▪ choosing nouns or pronouns appropriately for clarity and cohesion	*Grammar and punctuation* Grammar should be taught explicitly: pupils should be taught the terminology and concepts set out in Appendix 2, and be able to apply them correctly to examples of real language, such as their own writing or books that they have read. At this stage, pupils should start to learn about some of the differences between Standard English and non-Standard English and begin to apply what they have learnt, for example, in writing dialogue for characters.

Years 3-4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ choosing nouns or pronouns appropriately within a sentence to avoid ambiguity and repetition ▪ using conjunctions, adverbs and prepositions to express time and cause ▪ using fronted adverbials ▪ learning the grammar of word structure in Appendix 2 ▪ indicate grammatical and other features by: ▪ using commas after fronted adverbials ▪ indicating possession by using the possessive apostrophe with singular and plural nouns ▪ using and punctuating direct speech ▪ use and understand the grammatical terminology in Appendix 2 accurately and appropriately when discussing their writing and reading.	

Upper Key Stage 2 – Years 5-6

By the beginning of Year 5, pupils should be able to read aloud a wider range of poetry and books written at an age-appropriate interest level with accuracy and at a reasonable speaking pace. They should be able to read most words effortlessly and to work out how to pronounce unfamiliar written words with increasing automaticity. If the pronunciation sounds unfamiliar, they should ask for help in determining both the meaning of the word and how to pronounce it correctly. They should be able to prepare readings, with appropriate intonation to show their understanding, and should be able to summarise and present a familiar story in their own words. They should be reading widely and frequently, outside as well as in school, for pleasure and information. They should be able to read silently, and then discuss what they have read.

Pupils should be able to write down their ideas quickly. Their grammar and punctuation should be broadly accurate. Pupils' spelling of most words taught so far should be accurate and they should be able to spell words that they have not yet been taught by using what they have learnt about how spelling works in English.

During Years 5 and 6, teachers should continue to emphasise pupils' enjoyment and understanding of language, especially vocabulary, to support their reading and writing. Pupils' knowledge of language, gained from stories, plays, poetry, non-fiction and textbooks, will support their increasing fluency as readers, their facility as writers, and their comprehension. As in Years 3 and 4, pupils should be taught to enhance the effectiveness of their writing as well as their competence.

It is essential that pupils whose decoding skills are poor are taught through a rigorous and systematic phonics programme so that they catch up rapidly with their peers in terms of their decoding and spelling. However, as far as possible, these pupils should follow the Year 5 and 6 programme of study in terms of listening to books and other writing that they have not come across before, hearing and learning new vocabulary and grammatical structures, and having a chance to talk about all of these.

By the end of Year 6, pupils' reading and writing should be sufficiently fluent and effortless for them to manage the general demands of the curriculum in Year 7, across subjects and not just in English, but there will continue to be a need for pupils to learn subject-specific vocabulary. They should be able to reflect their understanding of the audience for and purpose of their writing by selecting appropriate vocabulary and grammar. Teachers should prepare pupils for secondary education by ensuring that they can consciously control the structure of sentences in their writing and understand why sentences are constructed as they are. This involves consolidation, practice and discussion of language.

Specific requirements for pupils to discuss what they are learning and to develop their wider skills in spoken language form part of this programme of study. In Years 5 and 6,

pupils’ confidence, enjoyment and mastery of language should be extended through public speaking, performance and debate.

Years 5-6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
READING **Word reading** Pupils should be taught to: ▪ apply their growing knowledge of root words, prefixes and suffixes (morphology and etymology), as listed in Appendix 1, both to read aloud and to understand the meaning of new words that they meet.	**READING** **Word reading** At this stage, there should be no need for further direct teaching of word reading skills for almost all pupils. If pupils are struggling or failing in this, the reasons for this should be investigated. It is imperative that pupils are taught to read during their last two years at primary school if they enter Year 5 not being able to do so. Pupils should be encouraged to work out any unfamiliar word. They should focus on all the letters in a word so that they do not, for example, read 'invitation' for 'imitation' simply because they might be more familiar with the first word. Accuracy in reading individual words, which might be key to the meaning of a sentence or paragraph, improves comprehension. When reading with or to pupils, attention should be paid to new vocabulary – both a word's meaning(s) and its correct pronunciation.
READING **Comprehension** Pupils should be taught to: ▪ maintain positive attitudes to reading and understanding of what they read by: ▪ continuing to read and discuss an increasingly wide	**READING** **Comprehension** Even though pupils can now read independently, reading aloud to them should include whole books so that they meet books and authors that they might not choose to read themselves. The knowledge and skills that pupils need in order to comprehend

Years 5-6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
range of fiction, poetry, plays, non-fiction and reference books or textbooks ▪ reading books that are structured in different ways and reading for a range of purposes ▪ increasing their familiarity with a wide range of books, including myths, legends and traditional stories, modern fiction, fiction from our literary heritage, and books from other cultures and traditions ▪ recommending books that they have read to their peers, giving reasons for their choices ▪ identifying and discussing themes and conventions in and across a wide range of writing ▪ making comparisons within and across books ▪ learning a wider range of poetry by heart ▪ preparing poems and plays to read aloud and to perform, showing understanding through intonation, tone and volume so that the meaning is clear to an audience ▪ understand what they read by: ▪ checking that the book makes sense to them, discussing their understanding and exploring the meaning of words in context ▪ asking questions to improve their understanding ▪ drawing inferences and justifying these with evidence	are very similar at different ages. Pupils should continue to apply what they have already learnt to more complex writing. Pupils should be taught to recognise themes in what they read, such as loss or heroism. They should have opportunities to compare characters, consider different accounts of the same event and discuss viewpoints (both of authors and of fictional characters), within a text and across more than one text. They should continue to learn the conventions of different types of writing, such as the use of the first person in writing diaries and autobiographies. Pupils should be taught the technical and other terms needed for discussing what they hear and read, such as *metaphor*, *simile*, *analogy*, *imagery*, *style* and *effect*. In using non-fiction, pupils need to know what information they need to look for before they begin and need to understand the task. They should be shown how to use contents pages and indexes to locate information. The skills of information retrieval that are taught should be applied, e.g. in reading history, geography and science textbooks, and in contexts where pupils are genuinely motivated to find out information, such as reading information leaflets before a gallery or museum visit or reading a theatre programme or review. Pupils should have guidance about and feedback on the quality of

Years 5-6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
from the text ▪ predicting what might happen from details stated and implied ▪ summarising the main ideas drawn from more than one paragraph, identifying key details that support the main ideas ▪ identifying how language, structure and presentation contribute to meaning ▪ discuss and evaluate how authors use language, including figurative language, considering the impact on the reader ▪ distinguish between statements of fact and opinion ▪ retrieve, record and present information from non-fiction ▪ participate in discussions about books that are read to them and those they can read for themselves, building on their own and others' ideas and challenging views courteously ▪ explain and discuss their understanding of what they have read, including through formal presentations and debates, maintaining a focus on the topic and using notes where necessary ▪ ask questions to improve their understanding of what they have read ▪ provide reasoned justifications for their views.	their explanations and contributions to discussions. Pupils should be shown how to compare characters, settings, themes and other aspects of what they read.

Year 5-6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
WRITING **Transcription** *Spelling* (see Appendix 1) Pupils should be taught to: ▪ use further prefixes and suffixes and understand the guidelines for adding them ▪ spell some words with 'silent' letters, e.g. *knight*, *psalm*, *solemn* ▪ continue to distinguish between homophones and other words which are often confused ▪ use knowledge of morphology and etymology in spelling and understand that the spelling of some words needs to be learnt specifically, as listed in Appendix 1 ▪ use dictionaries to check the spelling and meaning of words ▪ use the first three or four letters of a word to check spelling, meaning or both of these in a dictionary ▪ use a thesaurus	**WRITING** **Transcription** *Spelling* As in earlier years, pupils should continue to be taught to understand and apply the concepts of word structure so that they can draw on their knowledge of morphology and etymology to spell correctly.

Year 5-6 programme of study (statutory requirements)	Notes and guidance (non-statutory)

Handwriting and presentation
 	
Pupils should be taught to:
 	
▪ write legibly, fluently, with increasing speed and personal style by:
  ▪ choosing which shape of a letter to use when given choices and deciding, as part of their personal style, whether or not to join specific letters
  ▪ choosing the writing implement that is best suited for a task (e.g. quick notes, letters).
	Handwriting and presentation
	
	Pupils should continue to practise handwriting and be encouraged to increase the speed of it, so that problems with forming letters do not get in the way of their writing down what they want to say. They should be clear about what standard of handwriting is appropriate for a particular task (e.g. quick notes or a final handwritten version). They should also be taught to use an unjoined style (e.g. for labelling a diagram or data, writing an email address, or for algebra) and capital letters (e.g. for filling in a form).

Composition
 	
Pupils should be taught to:
 	
▪ plan their writing by:
  ▪ identifying the audience for and purpose of the writing, selecting the appropriate form and using other similar writing as models for their own
  ▪ noting and developing initial ideas, drawing on reading and research where necessary
  ▪ in writing narratives, considering how authors have developed characters and settings in what they have read, listened to or seen performed
▪ draft and write by:
  ▪ selecting appropriate grammar and vocabulary, understanding how such choices can change and
	Composition
	
	Pupils should understand, through being shown, the skills and processes essential for writing: that is, thinking aloud to generate ideas, drafting, and re-reading to check that the meaning is clear.

Year 5-6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
enhance meaning ▪ in narratives, describing settings, characters and atmosphere and integrating dialogue to convey character and advance the action ▪ précising longer passages ▪ using a wide range of devices to build cohesion within and across paragraphs ▪ using further organisational and presentational devices to structure text and to guide the reader (e.g. headings, bullet points, underlining) ▪ evaluate and edit by: ▪ assessing the effectiveness of their own and others' writing ▪ proposing changes to grammar, vocabulary and punctuation to enhance effects and clarify meaning ▪ ensuring the consistent and correct use of tense throughout a piece of writing ▪ ensuring correct subject and verb agreement when using singular and plural, distinguishing between the language of speech and writing and choosing the appropriate register ▪ proof-read for spelling and punctuation errors ▪ perform their own compositions, using appropriate intonation, volume, and movement so that meaning is clear.	

Year 5-6 programme of study (statutory requirements)	Notes and guidance (non-statutory)

Grammar and punctuation
 	
Pupils should be taught to:
 	
▪ develop their understanding of the concepts set out in Appendix 2 by:
  ▪ recognising vocabulary and structures that are appropriate for formal speech and writing, including the subjunctive
  ▪ using the passive voice to affect the presentation of information in a sentence
  ▪ using expanded noun phrases to convey complicated information concisely
  ▪ using modal verbs or adverbs to indicate degrees of possibility
  ▪ using relative clauses beginning with *who*, *which*, *where*, *why*, *whose*, *that* or with an implied (i.e. omitted) relative pronoun
  ▪ learning the grammar of word structure in Appendix 2
▪ indicate grammatical and other features by:
  ▪ using commas to clarify meaning or avoid ambiguity in writing
  ▪ using hyphens to avoid ambiguity
  ▪ using brackets, dashes or commas to indicate parenthesis
	Grammar and punctuation
	
	Pupils should continue to add to their knowledge of linguistic terms, including those to describe grammar, so that they can discuss their writing and reading.

Year 5-6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ using semi-colons, colons or dashes to mark boundaries between independent clauses ▪ using a colon to introduce a list ▪ punctuating bullet points consistently ▪ use and understand the grammatical terminology in Appendix 2 accurately and appropriately in discussing their writing and reading.	

Key Stage 3

Subject content

Reading

Pupils should be taught to:

- develop an appreciation and love of reading, and read increasingly challenging material independently through:
    - reading a wide range of fiction and non-fiction, including in particular whole books, short stories, poems and plays with a wide coverage of genres, historical periods, forms and authors. The range should include high-quality works from:
        - English literature, both pre-1914 and contemporary, including prose, poetry and drama
        - Shakespeare (at least one play)
        - seminal world literature, written in English
    - choosing and reading books independently for challenge, interest and enjoyment
    - re-reading books encountered earlier to increase familiarity with them and provide a basis for making comparisons.
- understand increasingly challenging texts through:
    - learning new vocabulary and using dictionaries
    - making inferences and referring to evidence in the text
    - knowing the purpose, audience for and context of the writing and drawing on this knowledge to support comprehension
    - checking their understanding to make sure that what they have read makes sense.

- read critically through:
    - knowing how language, including figurative language, grammar, text structure and organisational features present meaning
    - recognising a range of poetic conventions and understanding how these have been used
    - studying setting, plot, and characterisation, and the effects of these
    - understanding the ways that great dramatists make their works effective on stage
    - making critical comparisons across texts
    - studying at least two authors in depth each year.

Writing

Pupils should be taught to:

- write accurately, fluently, effectively and at length through:
    - writing for a wide range of purposes and audiences, including:
        - well-structured formal expository and narrative essays
        - stories, scripts, poetry and other imaginative writing
        - notes and polished scripts for talks and presentations
        - a range of other non-narrative texts
        - personal and formal letters
    - summarising and organising material, and supporting ideas and arguments with any necessary factual detail
    - applying their growing knowledge of vocabulary, grammar and text structure to their writing and selecting the appropriate form
    - drawing on knowledge of literary and rhetorical devices from their reading and listening to enhance the impact of their writing.
- plan, draft, edit and proof-read through:
    - considering how their writing reflects the audiences and purposes for which it was intended
    - amending the grammar and structure of their writing to improve its coherence and overall effectiveness

- paying attention to accurate grammar, punctuation and spelling; applying the spelling patterns and rules set out in Appendix 1 to the Key Stage 1 and 2 programmes of study.

Grammar and vocabulary

Pupils should be taught to:

- consolidate and build on their knowledge of grammar and vocabulary through:
    - extending and applying the grammatical knowledge set out in Appendix 1 to the Key Stage 1 and 2 programmes of study to analyse more challenging texts
    - studying the effectiveness and impact of the grammatical features of the texts they read
    - drawing on new vocabulary and grammatical constructions from their reading and listening, and using these consciously in their writing and speech to achieve particular effects
    - knowing and understanding the differences between spoken and written language, including differences associated with formal and informal registers, and between Standard English and other varieties of English
    - using Standard English confidently in their own writing and speech
    - discussing reading, writing and spoken language with precise and confident use of linguistic and literary terminology.

Spoken English

Pupils should be taught to:

- speak confidently and effectively including through:
    - using Standard English confidently in a range of formal and informal contexts, including classroom discussion
    - giving short speeches and presentations, expressing their own ideas and keeping to the point
    - participating in formal debates and structured discussions, summarising and/or building on what has been said
    - rehearsing and performing play scripts and poetry in order to discuss language use and meaning, using intonation, tone, volume and action to add impact.

Mathematics

Introduction

Purpose of study

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary in most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, and a sense of enjoyment and curiosity about the subject.

Aims

The National Curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

The programmes of study are organised in a distinct sequence and structured into separate domains. Pupils should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

Information and communication technology (ICT)

Calculators should not be used as a substitute for good written and mental arithmetic. They should therefore only be introduced near the end of Key Stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure. In both primary and secondary schools, teachers should use their judgement about when ICT tools should be used.

Spoken language

The National Curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

School curriculum

The programmes of study for mathematics are set out year-by-year for Key Stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage, if appropriate. All schools are also required to set out their school curriculum for mathematics on a year-by-year basis and make this information available online.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources (e.g. concrete objects and measuring tools).

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Year 1

Year 1 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
Number and place value Pupils should be taught to: ▪ count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number ▪ count, read and write numbers to 100 in numerals, count in different multiples including ones, twos, fives and tens ▪ given a number, identify one more and one less ▪ identify and represent numbers using concrete objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least ▪ read and write numbers from 1 to 20 in digits and words.	**Number and place value** Pupils should practise counting (1, 2, 3), ordering (e.g. first, second, third), or to indicate a quantity (e.g. 3 apples, 2 centimetres), including solving simple concrete problems, until they are fluent. They should practise counting as reciting numbers and counting as enumerating objects, and counting in ones, twos, fives and tens from different multiples to develop their recognition of patterns in the number system (e.g. odd and even numbers). They connect these patterns with objects and with shapes, including through varied and frequent practice of increasingly complex questions. Pupils begin to recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by concrete objects and pictorial representations.
Addition and subtraction Pupils should be taught to: ▪ read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs ▪ represent and use number bonds and related subtraction	**Addition and subtraction** Pupils should memorise and reason with number bonds to 10 and 20 in several forms (e.g. 9 + 7 = 16; 16 – 7 = 9; 7 = 16 - 9). They should realise the effect of adding or subtracting zero. Pupils should combine and increase numbers, counting forwards

Year 1 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
facts within 20 ▪ add and subtract one-digit and two-digit numbers to 20 (9 + 9, 18 - 9), including zero ▪ solve simple one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems.	and backwards. They should discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms put together, add, altogether, total, take away, difference between, more than and less than so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly.
Multiplication and division Pupils should be taught to: ▪ solve simple one-step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	**Multiplication and division** Through grouping and sharing small quantities, pupils should begin to understand multiplication and division; doubling numbers and quantities, and finding simple fractions of objects, numbers and quantities. They should make connections between arrays, number patterns, and counting in twos, fives and tens.
Fractions Pupils should be taught to: ▪ recognise, find and name a half as one of two equal parts of an object, shape or quantity ▪ recognise, find and name a quarter as one of four equal	**Fractions** Pupils should be taught $^{1}/_{2}$ and $^{1}/_{4}$ as operators on discrete and continuous quantities by solving problems using shapes, objects and quantities. For example, they could recognise and find half a length, quantity, set of objects or shape. Pupils connect halves and quarters to the equal sharing and grouping of sets of objects and to

Year 1 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
parts of an object, shape or quantity.	measures, as well as recognising and combining halves and quarters as parts of a whole.

Measures
 	
Pupils should be taught to:
 	
▪ compare, describe and solve practical problems for:
  ▪ lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half)
  ▪ mass or weight (e.g. heavy/light, heavier than, lighter than)
  ▪ capacity/volume (full/empty, more than, less than, quarter)
  ▪ time (quicker, slower, earlier, later)
▪ measure and begin to record the following:
  ▪ lengths and heights
  ▪ mass/weight
  ▪ capacity and volume
  ▪ time (hours, minutes, seconds)
▪ recognise and know the value of different denominations of coins and notes
▪ sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening
	Measures
	
	The terms mass and weight, volume and capacity are used interchangeably at this stage
	
	Pupils should move from using and comparing different types of quantities and measures using non-standard units, including discrete (e.g. counting) and continuous (e.g. liquid) measures, to using manageable common standard units. They should understand the difference between non-standard and standard units.
	
	In order to become familiar with standard measures, pupils begin to use measuring tools such as a ruler, weighing scales and containers.
	
	Pupils should use the language of time, including telling the time throughout the day, first using o'clock and then half past.

Year 1 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
▪ recognise and use language relating to dates, including days of the week, weeks, months and years ▪ tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	

Geometry: properties of shapes
 	
Pupils should be taught to:
 	
▪ recognise and name common 2-D and 3-D shapes, including:
  ▪ 2-D shapes (e.g. rectangles (including squares), circles and triangles)
  ▪ 3-D shapes (e.g. cuboids (including cubes), pyramids and spheres).
	Geometry: properties of shapes
	
	Pupils should handle common 2-D and 3-D shapes, naming these and related everyday objects fluently. They should recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids can be different shapes.

Year 1 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
Geometry: position, direction, motion Pupils should be taught to: ▪ order and arrange combinations of objects and shapes in patterns ▪ describe position, directions and movements, including half, quarter and three-quarter turns.	**Geometry: position, direction, motion** Pupils should create, copy, describe and reorganise patterns. They should use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside. Pupils should make turns to show they understand half, quarter and three-quarter turns and routinely make these turns in a clockwise direction.

Year 2

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
Number and place value Pupils should be taught to: ▪ count in steps of 2, 3, and 5 from 0, and count in tens from any number, forward or backward ▪ recognise the place value of each digit in a two-digit number (tens, ones) ▪ identify, represent and estimate numbers using different representations, including the number line ▪ compare and order numbers from 0 up to 100; use <, > and = signs ▪ read and write numbers to at least 100 in numerals and in words ▪ use place value and number facts to solve problems.	**Number and place value** Using materials and a range of representations, pupils should practise counting, reading, writing and comparing numbers to at least 100 and solving a variety of related problems to develop fluency. They should count in multiples of three to support their later understanding of a third. As they become more confident with numbers up to 100, pupils should be introduced to larger numbers to develop further their recognition of patterns within the number system and represent them in different ways, including spatial representations. Pupils should partition numbers in different ways (e.g. 23 = 20 + 3 and 23 = 10 + 13) to support subtraction. They become fluent and apply their knowledge of numbers to reason with, discuss and solve problems that emphasise the value of each digit in two-digit numbers. They begin to understand zero as a place holder.
Addition and subtraction Pupils should be taught to: ▪ solve simple one-step problems with addition and subtraction:	**Addition and subtraction** Pupils should extend their understanding of the language of addition and subtraction to include sum and difference. Pupils should practise addition and subtraction to 20 to become

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
▪ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ▪ applying their increasing knowledge of mental and written methods ▪ recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 ▪ add and subtract numbers using concrete objects, pictorial representations, and mentally, including: ▪ a two-digit number and ones ▪ a two-digit number and tens ▪ two two-digit numbers ▪ adding three one-digit numbers ▪ show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot ▪ recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.	increasingly fluent in deriving facts such as using 3 + 7 = 10, 10 - 7 = 3 and 7 = 10 - 3 to calculate 30 + 70 = 100, 100 - 70 = 30 and 70 = 100 - 30. They should check their calculations, including by adding to check subtraction and adding numbers in a different order to check addition (e.g. 5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5). Recording addition and subtraction in columns supports place value and prepares for efficient written methods with larger numbers.
Multiplication and division Pupils should be taught to: ▪ recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and	**Multiplication and division** Pupils should use a variety of language to describe multiplication and division. They are taught multiplication and division with larger numbers through equal grouping and sharing out quantities, relating multiplication tables to arrays and repeated addition and

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
even numbers ▪ calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs ▪ recognise and use the inverse relationship between multiplication and division in calculations ▪ show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot ▪ solve one-step problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	finding more complex fractions of objects, numbers and quantities. Pupils should be introduced to the multiplication tables. They should practise to become fluent in the 2, 5 and 10 multiplication tables and connect them to each other. They connect the 10 multiplication table to place value, and the 5 multiplication table to the divisions on the clock face. They begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations. Pupils should work with a range of materials and contexts in which multiplication and division relate to grouping and sharing discrete and continuous quantities, relating these to fractions and measures (e.g. 40 ÷ 2 = 20, 20 is a half of 40). They use commutativity and inverse relations to develop multiplicative reasoning (e.g. 4 × 5 = 20 and 20 ÷ 5 = 4).
Fractions Pupils should be taught to: ▪ recognise, find, name and write fractions $^{1}/_{3}$, $^{1}/_{4}$, $^{2}/_{4}$ and $^{3}/_{4}$ of a length, shape, set of objects or quantity ▪ write simple fractions e.g. $^{1}/_{2}$ of 6 = 3 and recognise the equivalence of two quarters and one half.	**Fractions** Pupils should use additional fractions as operators on discrete and continuous quantities by solving problems using shapes, objects and quantities. They connect unit fractions to equal sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantity, a set of objects or shapes. They meet $^{3}/_{4}$ as the first example of a non-unit fraction. Pupils should count in fractions up to 10, starting from any number and using the $^{1}/_{2}$ and $^{2}/_{4}$ equivalence on the number line (e.g. $1^{1}/_{4}$,

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
	$1^{2}/_{4}$, (or $1^{1}/_{2}$), $1^{3}/_{4}$, 2). This reinforces the concept of fractions as numbers and that they can add up to more than one.
Measures Pupils should be taught to: ▪ choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels ▪ compare and order lengths, mass, volume/capacity and record the results using >, < and = ▪ read relevant scales to the nearest numbered unit ▪ recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value and match different combinations of coins to equal the same amounts of money; add and subtract money of the same unit, including giving change ▪ solve simple problems in a practical context involving addition and subtraction of money ▪ compare and sequence intervals of time ▪ tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.	**Measures** Pupils should use standard units of measurement with increasing accuracy, using their knowledge of the number system. They should use the appropriate language and record using standard abbreviations. They should become fluent in telling the time on analogue clocks and recording it. Pupils should also become fluent in counting and recognising coins. They should use the symbols £ and p accurately and say the amounts of money confidently.

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
Geometry: properties of shapes Pupils should be taught to: ▪ identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line ▪ identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces ▪ identify 2-D shapes on the surface of 3-D shapes, for example a circle on a cylinder and a triangle on a pyramid ▪ compare and sort common 2-D and 3-D shapes and everyday objects.	**Geometry: properties of shapes** Pupils should handle and name a wider variety of common 2-D and 3-D shapes including: quadrilaterals and cuboids, prisms, cones and polygons, and identify the properties of each shape (e.g. number of sides, number of faces). Pupils identify, compare and sort shapes on the basis of their properties and use vocabulary precisely, such as sides, edges, vertices and faces. Pupils should read and write names for shapes that are appropriate for their word reading and spelling. Pupils should draw lines and shapes using a straight edge.
Geometry: position, direction, motion Pupils should be taught to: ▪ order and arrange combinations of mathematical objects in patterns ▪ use mathematical vocabulary to describe position, direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise), and movement in a straight line.	**Geometry: position, direction, motion** Pupils should work with patterns of shapes, including those in different orientations. Pupils should use the concept and language of angles to describe ‘turn’ by applying rotations, including in practical contexts (e.g. pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots using instructions given in right angles).

Year 2 programme of study (statutory requirements)	Notes and Guidance (non-statutory)
Data Pupils should be taught to: ▪ interpret and construct simple pictograms, tally charts, block diagrams and simple tables ▪ ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity ▪ ask and answer questions about totalling and compare categorical data.	**Data** At this stage, pupils' recording and interpretation become more sophisticated as they collate, organise and compare information (e.g. using many-to-one correspondence in pictograms and using simple ratios 2, 5, 10).

Lower Key Stage 2 – Years 3-4

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Year 3

Year 3 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Number, place value and rounding Pupils should be taught to: ▪ count from 0 in multiples of 4, 8, 50 and 100; finding 10 or 100 more or less than a given number ▪ recognise the place value of each digit in a three-digit number (hundreds, tens, ones) ▪ compare and order numbers up to 1000 ▪ identify, represent and estimate numbers using different representations ▪ read and write numbers to at least 1000 in numerals and in words ▪ solve number problems and practical problems involving these ideas.	**Number, place value and rounding** Pupils should work with larger numbers, applying partitioning related to place value using varied and increasingly complex problems, building on work in Year 2 (e.g. 46 = 40 and 6, 46 = 30 and 16). Using a variety of representations, including those related to measure, pupils should continue to count in ones, tens and hundreds, so that they become fluent in the order and place value of numbers to 1000.

Addition and subtraction
 	
Pupils should be taught to:
 	
▪ add and subtract numbers mentally, including:
  ▪ a three-digit number and ones
  ▪ a three-digit number and tens
	Addition and subtraction
	
	Pupils should practise solving varied addition and subtraction questions. For mental calculations with two-digit numbers, the answers could exceed 100.
	
	Pupils should use their understanding of place value and partitioning, and practise using columnar addition and subtraction

Year 3 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ a three-digit number and hundreds ▪ add and subtract numbers with up to three digits, using the efficient written methods of columnar addition and subtraction ▪ estimate the answer to a calculation and use inverse operations to check answers ▪ solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	with increasingly large numbers up to three digits to become fluent.
Multiplication and division Pupils should be taught to: ▪ recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables ▪ write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to efficient written methods ▪ solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.	**Multiplication and division** Pupils should continue to practise their mental recall of multiplication tables when they are calculating mathematical statements in order to improve fluency. Through doubling, they connect the 2, 4 and 8 multiplication tables. Pupils should develop efficient mental methods, for example, using commutativity (e.g. 4 × 12 × 5 = 4 × 5 × 12 = 20 × 12 = 240) and multiplication and division facts (e.g. using 3 × 2 = 6, 6 ÷ 3 = 2 and 2 = 6 ÷ 3) to derive related facts (30 × 2 = 60, 60 ÷ 3 = 20 and 20 = 60 ÷ 3). Pupils should develop reliable written methods for multiplication and division, starting with calculations of two-digit numbers by one-digit numbers and progressing to the efficient written methods of

Year 3 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	short multiplication and division. Pupils should solve simple problems in contexts, deciding which of the four operations to use and why, including measuring and scaling contexts, and correspondence problems in which m objects are connected to n objects (e.g. 3 hats and 4 coats, how many different outfits; 12 sweets shared equally between 4 children; 4 cakes shared equally between 8 children).
Fractions Pupils should be taught to: ▪ count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 ▪ recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators ▪ recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators ▪ recognise and show, using diagrams, equivalent fractions with small denominators ▪ add and subtract fractions with the same denominator within one whole (e.g. $^5/_7 + {}^1/_7 = {}^6/_7$) ▪ compare and order unit fractions with the same denominator	**Fractions** Pupils should connect tenths to place value and decimal measures, not restricted to decimals between 0 and 1 inclusive and to division by 10. They should begin to understand unit and non-unit fractions as numbers on the number line, and deduce relations between them, such as size and equivalence. They should go beyond the [0, 1] interval, and $^1/_4 + {}^3/_4 = 1$ for example, relating this to measure. Pupils should understand the relation between unit fractions as operators and division by integers. They should continue to recognise fractions in the context of parts of a whole, numbers, measurements, a shape, or unit fractions as a division of a quantity. Pupils should practise adding and subtracting fractions with the

Year 3 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ solve problems that involve all of the above.	same denominator through a variety of increasingly complex problems to improve fluency.
Measures Pupils should be taught to: ▪ measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) ▪ measure the perimeter of simple 2-D shapes ▪ add and subtract amounts of money to give change, using both £ and p in practical contexts ▪ tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks ▪ estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight ▪ know the number of seconds in a minute and the number of days in each month, year and leap year ▪ compare durations of events, for example to calculate the time taken by particular events or tasks.	**Measures** Pupils should continue to measure using the appropriate tools and units, progressing to using a wider range of measures, including comparing and using mixed units (e.g. 1 kg and 200g) and simple equivalents of mixed units (e.g. 5m = 500cm). The comparison of measures should also include simple scaling (e.g. a given quantity or measure is twice as long or five times as high) and connect this to multiplication. Pupils should continue to become fluent in recognising the value of coins, by adding and subtracting amounts, including mixed units, and giving change using manageable amounts. They should record £ and p separately. The decimal recording of money is introduced formally in Year 4. Pupils should use both analogue and digital 12-hour clocks and record their times. In this way they become fluent in and prepared for using digital 24-hour clocks in Year 4.

Year 3 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Geometry: properties of shapes Pupils should be taught to: ▪ draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations; and describe them with increasing accuracy ▪ recognise angles as a property of shape and associate angles with turning ▪ identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle ▪ identify horizontal, vertical, perpendicular and parallel lines in relation to other lines.	**Geometry: properties of shapes** Pupils' knowledge of the properties of shapes is extended at this stage to symmetrical and non-symmetrical polygons and polyhedra. Pupils extend their use of the properties of shapes. They should be able to describe the properties of 2-D and 3-D shapes using accurate language, including lengths of lines and acute and obtuse for angles greater or lesser than a right angle. Pupils should draw and measure straight lines in centimetres.
Data Pupils should be taught to: ▪ interpret and present data using bar charts, pictograms and tables ▪ solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.	**Data** Pupils should understand and use simple scales (e.g. 2, 5, 10 units per cm) in pictograms and bar charts with increasing accuracy. They should continue to interpret data presented in many contexts.

Year 4

Year 4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Number, place value and rounding Pupils should be taught to ▪ count in multiples of 6, 7, 9, 25 and 1000 ▪ find 1000 more or less than a given number ▪ count backwards through zero to include negative numbers ▪ recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) ▪ order and compare numbers beyond 1000 ▪ identify, represent and estimate numbers using different representations ▪ round any number to the nearest 10, 100 or 1000 ▪ solve number and practical problems that involve all of the above and with increasingly large positive numbers ▪ read Roman numerals to 100 (I to C) and understand how, over time, the numeral system changed to include the concept of zero and place value.	**Number, place value and rounding** Using a variety of representations, including measures, pupils should become fluent in the order and place value of numbers beyond 1000, including counting in tens and hundreds, and maintaining fluency in other multiples through varied and frequent practice. They begin to extend their knowledge of the number system to include the decimal numbers and fractions that they have met so far. Roman numerals should be put in their historical context so pupils understand that there have been different ways to write whole numbers and that the important concepts of zero and place value were introduced over a period of time.

Year 4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Addition and subtraction Pupils should be taught to: ▪ add and subtract numbers with up to 4 digits using the efficient written methods of columnar addition and subtraction where appropriate ▪ estimate and use inverse operations to check answers to a calculation ▪ solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	**Addition and subtraction** Pupils should continue to practise both mental methods and columnar addition and subtraction with increasingly large numbers to aid fluency.
Multiplication and division Pupils should be taught to: ▪ recall multiplication and division facts for multiplication tables up to 12 × 12 ▪ use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers ▪ recognise and use factor pairs and commutativity in mental calculations ▪ multiply two-digit and three-digit numbers by a one-digit number using formal written layout	**Multiplication and division** Pupils should continue to practise recalling and using multiplication tables and related division facts to aid fluency. Pupils should practise mental methods and extend this to three-digit numbers to derive facts, for example 200 × 3 = 600 into 600 ÷ 3 = 200, to become fluent. Pupils should practise to become fluent in the efficient written method of short multiplication for multiplying using multi-digit numbers, and short division with exact answers when dividing by a one-digit number. Pupils should write statements about the equality of expressions

Year 4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects.	(e.g. use the distributive law 39 × 7 = 30 × 7 + 9 × 7 and associative law (2 × 3) × 4 = 2 × (3 × 4)). Pupils should solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions such as three cakes shared equally between 10 children.
Fractions Pupils should be taught to: ▪ count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten ▪ solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number ▪ identify, name and write equivalent fractions of a given fraction, including tenths and hundredths ▪ add and subtract fractions with the same denominator.	**Fractions** Pupils should connect hundredths to tenths and place value and decimal measure. They should extend the use of the number line to connect fractions, numbers and measures. Pupils should understand the relation between non-unit fractions and multiplication and division of quantities, with particular emphasis on tenths and hundredths. Pupils should associate fractions of a length, of a shape and as a representation of one whole or set of quantities. Pupils should use factors and multiples to recognise equivalent fractions and simplify where appropriate (e.g. $^{6}/_{9} = {}^{2}/_{3}$ or $^{1}/_{4} = {}^{2}/_{8}$). Pupils should continue practice in adding and subtracting fractions with the same denominator, to become fluent through a variety of

Year 4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	increasingly complex problems beyond one whole. They should practise counting using simple fractions and decimal fractions, both forwards and backwards.
Decimals and fractions Pupils should be taught to: ▪ recognise and write decimal equivalents of any number of tenths or hundredths ▪ recognise and write decimal equivalents to $^1/_4$; $^1/_2$; $^3/_4$ ▪ find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths ▪ round decimals with one decimal place to the nearest whole number ▪ compare numbers with the same number of decimal places up to two decimal places ▪ solve simple measure and money problems involving fractions and decimals to two decimal places.	**Decimals and fractions** Pupils should be taught throughout that decimals and fractions are different ways of expressing numbers. Pupils' understanding of the number system and decimal place value is extended at this stage to tenths and then hundredths. This includes relating the decimal notation to division of whole numbers by 10 and later 100. Pupils should learn decimal notation and the language associated with it, including in the context of measurements. They make comparisons and order decimal amounts and quantities that are expressed to the same number of decimal places. They should be able to represent numbers with one or two decimal places in multiple ways, such as on number lines.

Year 4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Measures Pupils should be taught to: ▪ convert between different units of measure (e.g. kilometre to metre; hour to minute) ▪ measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres ▪ find the area of rectilinear shapes by counting ▪ estimate, compare and calculate different measures, including money in pounds and pence ▪ read, write and convert time between analogue and digital 12 and 24-hour clocks ▪ solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	**Measures** Pupils should use multiplication and their knowledge of place value to convert from larger to smaller units. They should relate area to arrays and multiplication. Pupils should build on their understanding of decimal notation to record measures.
Geometry: properties of shapes Pupils should be taught to: ▪ compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes ▪ identify acute and obtuse angles and compare and order angles up to two right angles by size ▪ identify lines of symmetry in 2-D shapes presented in	**Geometry: properties of shapes** Pupils should continue to classify shapes using geometrical properties, extending to classifying different triangles (e.g. isosceles, equilateral, scalene) and quadrilaterals (e.g. parallelogram, rhombus, trapezium). Pupils should compare and order angles in preparation for using a protractor and compare lengths and angles to decide if a polygon is regular or irregular.

Year 4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
different orientations ▪ complete a simple symmetric figure with respect to a specific line of symmetry.	Pupils should draw symmetric patterns using a variety of media to become familiar with different orientations of lines of symmetry; and recognise line symmetry in a variety of diagrams.
Geometry: position, direction, motion Pupils should be taught to: ▪ describe positions on a 2-D grid as coordinates in the first quadrant ▪ describe movements between positions as translations of a given unit to the left/right and up/down ▪ plot specified points and draw sides to complete a given polygon.	**Geometry: position, direction, motion** Pupils should draw a pair of axes in one quadrant, with equal scales and integer labels. They should read, write and use pairs of coordinates (2, 5), including using coordinate-plotting ICT tools.
Data Pupils should be taught to: ▪ interpret and present discrete data using bar charts and continuous data using line graphs ▪ solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and simple line graphs.	**Data** Pupils should understand and use a greater range of scales in their representations. Pupils should begin to relate the graphical representation of data to recording change over time.

Upper Key Stage 2 – Years 5-6

The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Year 5

Year 5 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Number, place value, approximation and estimation 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 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, place value, approximation and estimation** Pupils should identify the place value in large whole numbers. They should continue to use number in context, including measurement. Pupils extend and apply their understanding of the number system to the decimal numbers and fractions that they have met so far. They should recognise and describe linear number sequences, including those involving fractions and decimals, and find the term-to-term rule.
Addition and subtraction Pupils should be taught to: ▪ add and subtract whole numbers with more than 4 digits, including using efficient written methods (columnar addition and subtraction)	**Addition and subtraction** Pupils should practise using the efficient written methods of columnar addition and subtraction with increasingly large numbers to aid fluency. They should practise mental calculations with increasingly large

Year 5 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ 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.	numbers to aid fluency (e.g. 12 462 – 2 300 = 10 162).
Multiplication and division Pupils should be taught to: ▪ identify multiples and factors, including finding all factor pairs ▪ solve problems involving multiplication and division where larger numbers are used by decomposing them into their factors ▪ 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 an efficient 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	**Multiplication and division** Pupils should practise and extend their use of the efficient written methods of short multiplication and short division. They apply all the multiplication tables and related division facts frequently, commit them to memory and use them confidently to make larger calculations. They should use and understand the terms factor, multiple and prime, square and cube numbers. Pupils should interpret non-integer answers to division by expressing results in different ways according to the context, including with remainders, as fractions, as decimals or by rounding (e.g. 98 ÷ 4 = 24 r 2 = $24^{1}/_{2}$ = 24.5 ≈ 25). Pupils use multiplication and division as inverses to support the introduction of ratio in Year 6, for example, by multiplying and dividing by powers of 10 in scale drawings or by multiplying and dividing by powers of a 1000 in converting between units such as

Year 5 programme of study (statutory requirements)	Notes and guidance (non-statutory)
the efficient 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 ▪ recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) ▪ 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.	kilometres and metres.
Fractions Pupils should be taught to: ▪ compare and order fractions whose denominators are all multiples of the same number ▪ recognise mixed numbers and improper fractions and convert from one form to the other ▪ add and subtract fractions with the same denominator and related fractions; write mathematical statements >1 as a mixed number (e.g. $^2/_5 + {}^4/_5 = {}^6/_5 = 1{}^1/_5$) ▪ multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	**Fractions** Pupils should connect equivalent fractions >1 that simplify to integers with division and fractions >1 to division with remainders, using the number line and other models, and hence move from these to improper and mixed fractions. Pupils should connect multiplication by a fraction to using fractions as operators, and to division, building on work from previous years. This relates to scaling by simple fractions. They should extend their knowledge of fractions to thousandths and connect to decimals and measures. Pupils continue to develop their understanding of fractions as numbers, measures and

Year 5 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	operators by finding fractions of numbers and quantities, writing remainders as a fraction. Pupils should practise adding and subtracting fractions to become fluent through a variety of increasingly complex problems. They should extend their understanding of adding and subtracting fractions to calculations that exceed 1 as a mixed number. Pupils should read and write proper fractions and mixed numbers accurately and continue to practise counting forwards and backwards with mixed fractions.
Decimals and fractions Pupils should be taught to: ▪ read and write decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$) ▪ 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.	**Decimals and fractions** Pupils extend counting from Year 4, using decimals and fractions including bridging zero, for example on a number line. They should add and subtract decimals including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1 (e.g. 0.83 + 0.17 = 1). They should mentally add and subtract tenths, and one-digit whole numbers and tenths. Pupils should say, read and write decimal fractions and related tenths, hundredths and thousandths accurately and be confident in checking the reasonableness of their answers to problems.

Year 5 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	Pupils should go beyond the measurement and money models of decimals, for example by solving puzzles involving decimals.
Percentages, decimals and fractions Pupils should be taught to: ▪ 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 hundred, and as a decimal fraction ▪ solve problems which require knowing percentage and decimal equivalents of $^{1}/_{2}$, $^{1}/_{4}$, $^{1}/_{5}$, $^{2}/_{5}$, $^{4}/_{5}$ and those with a denominator of a multiple of 10 or 25.	**Percentages, decimals and fractions** Pupils should be taught throughout that percentages, decimals and fractions are different ways of expressing numbers. Pupils should make connections between percentages, fractions and decimals (e.g. 100% represents a whole quantity and 1% is 1/100, 50% is 50/100, 25% is 25/100) and relate this to finding 'fractions of'. They recognise that percentages are proportions of quantities as well as operators on quantities.
Measures Pupils should be taught to: ▪ convert between different units of measure (e.g. kilometre and metre; metre and centimetre; centimetre and millimetre; kilogram and gram; litre and millilitre) ▪ understand and use basic equivalences between metric and common imperial units and express them in approximate terms ▪ measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	**Measures** Pupils should use their knowledge of place value and multiplication and division to convert between standard units. Pupils should calculate the perimeter of rectangles and related composite shapes, including using the relations of perimeter or area to find unknown lengths. Missing number questions such as these are the beginning of algebraic understanding. They should also calculate the area of scale drawings using given measurements. Pupils should use all four operations in problems involving time and

Year 5 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes ▪ recognise and estimate volume (e.g. using 1 cm^3 blocks to build cubes and cuboids) and capacity (e.g. using water) ▪ solve problems involving converting between units of time ▪ solve problems involving addition and subtraction of units of measure (e.g. length, mass, volume, money) using decimal notation.	money, including conversions (e.g. days to weeks, leaving the answer as weeks and days).

Geometry: properties of shapes
 	
Pupils should be taught to:
 	
▪ identify 3-D shapes, including cubes and cuboids, from 2-D representations
▪ know angles are measured in degrees; estimate and measure them and draw a given angle, writing its size in degrees (^{o})
▪ identify:
  ▪ multiples of 90^o
  ▪ angles at a point on a straight line and ½ a turn (total 180^o)
  ▪ angles at a point and one whole turn (total 360^o)
  ▪ reflex angles, and
	Geometry: properties of shapes
	
	Pupils should become accurate in drawing lines with a ruler to the nearest millimetre, and measuring with a protractor. They use conventional markings for parallel lines and right angles.
	
	Pupils should use the term diagonal and make conjectures about the angles formed by diagonals and sides, and other properties of quadrilaterals, for example using dynamic geometry ICT tools. Pupils should use angle sum facts and other properties to make deductions about missing angles and relate these to missing number problems.

Year 5 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ compare different angles ▪ draw shapes using given dimensions and angles ▪ state and use the properties of a rectangle (including squares) to deduce related facts ▪ distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	
Geometry: position, direction, motion 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.	**Geometry: position, direction, motion** Pupils should recognise and use reflection and translation in a variety of diagrams, including continuing to use a 2-D grid and coordinates in the first quadrant. Reflection should be in lines that are parallel to the axes.
Data Pupils should be taught to: ▪ solve comparison, sum and difference problems using information presented in line graphs ▪ complete, read and interpret information in tables, including timetables.	**Data** Pupils should connect their work on coordinates and scales to their interpretation of time graphs using ICT tools, except where data are easily calculable. They should begin to decide which representations of data are most appropriate and why.

Year 6

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Number, place value and rounding 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 problems and practical problems that involve all of the above.	**Number, place value and rounding** Pupils should use the whole number system, including saying, reading and writing numbers accurately.
Addition, subtraction, multiplication and division Pupils should be taught to: ▪ multiply multi-digit numbers up to 4 digits by a two-digit whole number using the efficient written method of long multiplication ▪ divide numbers up to 4 digits by a two-digit whole number using the efficient written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context ▪ perform mental calculations, including with mixed operations and large numbers	**Addition, subtraction, multiplication and division** Pupils should practise addition, subtraction, multiplication and division for larger numbers, using the efficient written methods of columnar addition and subtraction, short and long multiplication, and short and long division. They should undertake mental calculations with increasingly large numbers and more complex calculations. Pupils should continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency.

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ 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 ▪ solve problems involving addition, subtraction, multiplication and division ▪ use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.	Pupils should round answers to a specified degree of accuracy. Pupils explore the order of operations using brackets; for example, 2 + 1 x 3 = 5 and (2 + 1) x 3 = 9. Common factors can be related to finding equivalent fractions.
Fractions 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 ▪ associate a fraction with division to calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$) ▪ 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. $^1/_4 \times {}^1/_2 = {}^1/_8$) ▪ divide proper fractions by whole numbers (e.g. $^1/_3 \div 2 = {}^1/_6$).	**Fractions** Pupils should use their understanding of the relationship between unit fractions and division to work backwards by multiplying a quantity that represents a unit fraction to find the whole quantity (e.g. if ¼ of a length is 36cm, then the whole length is 36 × 4 = 144cm). They should practise with simple fractions and decimal fraction equivalents to aid fluency, including listing equivalent fractions to identify fractions with common denominators. Denominators of given fractions should not exceed 12, with the exception of 100 and 1000. Pupils can explore and make conjectures about converting a

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	simple fraction to a decimal fraction (e.g. 3 ÷ 8 = 0.375). For simple fractions with recurring decimal equivalents, pupils should learn about rounding the decimal to three decimal places. Pupils should practise, use and understand the addition and subtraction of fractions with different denominators by identifying equivalent fractions with the same denominator. They should start with fractions where the denominator of one fraction is a multiple of the other (e.g. $^1/_2 + {}^1/_8 = {}^5/_8$) and progress to varied and increasingly complex problems. Pupils should use a variety of images to support their understanding of multiplication with fractions. This follows earlier work about fractions as operators, as numbers, and as equal parts of objects, for example as parts of a rectangle.
Decimals and fractions Pupils should be taught to: ▪ identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are 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	**Decimals and fractions** Pupils should begin to multiply and divide numbers with up to two decimal places by one-digit and two-digit whole numbers. Pupils multiply decimals by whole numbers, starting with the simplest cases, such as 0.4 × 2 = 0.8, and in practical contexts, such as measures and money. Pupils should also be introduced to the division of decimal numbers by one-digit whole numbers and, initially, in practical contexts involving measures and money. They should recognise division

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ solve problems which require answers to be rounded to specified degrees of accuracy.	calculations as the inverse of multiplication. Pupils should also develop their skills of rounding and estimating as a means of predicting and checking the order of magnitude of their answers to decimal calculations. This includes rounding answers to a specified degree of accuracy and checking the reasonableness of their answers.
Percentages, decimals and fractions Pupils should be taught to: ▪ solve problems involving the calculation of percentages of whole numbers or measures such as 15% of 360 and the use of percentages for comparison ▪ recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	**Percentages, decimals and fractions** Pupils should understand that calculating a percentage of a quantity is the same as calculating a fraction of a quantity.
Ratio and proportion Pupils should be taught to: ▪ solve problems involving the relative sizes of two quantities, including similarity ▪ solve problems involving unequal sharing and grouping.	**Ratio and proportion** Pupils should consolidate their understanding of ratio when comparing quantities, sizes and scale drawings by solving a variety of problems. They may use the notation a:b to record their work. Pupils should recognise proportionality in contexts when the relations between quantities are in the same ratio (e.g. similar shapes, recipes).

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Algebra Pupils should be taught to: ▪ express missing number problems algebraically ▪ use simple formulae expressed in words ▪ generate and describe linear number sequences ▪ find pairs of numbers that satisfy number sentences involving two unknowns.	**Algebra** Pupils should be introduced to the use of symbols and letters to represent variables and unknowns in mathematical situations that they already understand, such as: ▪ missing numbers, lengths, coordinates and angles ▪ formulae in mathematics and science ▪ arithmetical rules (e.g. a + b = b + a) ▪ generalisations of number patterns ▪ number puzzles (e.g. what two numbers can add up to).
Measures Pupils should be taught to: ▪ solve problems involving the calculation and conversion of units of measure, using decimal notation 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 three decimal places ▪ convert between miles and kilometres ▪ recognise that shapes with the same areas can have different perimeters and vice versa	**Measures** Using the number line, pupils should use, add and subtract positive and negative integers for measures such as temperature. They should know approximate conversions and be able to tell if an answer is sensible. They should relate the area of rectangles to parallelograms and triangles, and be able to calculate their areas, understanding and using the formula to do this. Pupils could be introduced to other compound units for speed, such as miles per hour, and apply their knowledge in science or other subjects as appropriate.

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
▪ calculate the area of parallelograms and triangles ▪ recognise when it is necessary to use the formulae for area and volume of shapes ▪ calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3) and extending to other units, such as mm^3 and km^3.	
Geometry: properties of shapes Pupils should be taught to: ▪ 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 ▪ find unknown angles where they meet at a point, are on a straight line, and are vertically opposite.	**Geometry: properties of shapes** Pupils should draw shapes and nets accurately, using measuring tools and conventional markings and labels for lines and angles. Pupils should describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements.

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Geometry: position, direction, motion 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.	**Geometry: position, direction, motion** Pupils should draw and label a pair of axes in all four quadrants with equal scaling. This extends their knowledge of one quadrant to all four quadrants, including the use of negative numbers. Pupils should draw and label rectangles (including squares), parallelograms and rhombuses, specified by coordinates in the four quadrants, predicting missing coordinates using the properties of shapes.
Data 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.	**Data** Pupils should connect their work on angles, fractions and percentages to the interpretation of pie charts. Pupils should both encounter and draw graphs relating two variables, arising from their own enquiry and in other subjects. They should connect conversion from kilometres to miles in measure to its graphical representation. Pupils should know when it is appropriate to find the mean of a data set.

Key Stage 3

Introduction

Through the mathematics content, pupils should be taught to:

Develop fluency

- consolidate their numerical understanding from Key Stage 2
- apply appropriate calculation strategies and degrees of accuracy to increasingly complex problems
- extend their understanding of the number system to include all fractions and surds
- substitute values in expressions; rearrange and simplify expressions, and solve equations
- calculate with fractions and surds as exact numbers
- begin to develop algebraic and graphical fluency and understand linear and quadratic functions
- interpret relations algebraically and graphically
- begin to use the precise language and properties of 2-D and 3-D shapes
- begin to use the concept, language and representation of probability.

Reason mathematically

- extend their understanding of the number system, make connections between number relationships, and algebraic and graphical representations
- extend and formalise their knowledge of ratio and proportion in working with measures and geometry, and in formulating proportional relations algebraically
- identify variables and express relations between them algebraically and graphically
- establish when to use proportional reasoning from the underlying structure of a problem when working numerically
- begin to reason deductively in geometry
- develop reasoning in different areas of mathematics and begin to express their arguments formally.

Solve problems

- develop their use of formal mathematical knowledge to solve and devise problems within and outside mathematics, including financial mathematics
- begin to model realistic situations mathematically and express the results of their investigations using a range of formal mathematical representations
- apply elementary knowledge to multi-step and increasingly sophisticated problems
- develop their mathematical knowledge, in part through solving problems and evaluating the outcomes.

Subject content

Number: calculation and accuracy

Pupils should be taught to:

- use place value, including for decimals, measures and for any size of integers, the language of larger and smaller numbers, and ordering numbers, including the correct use of =, ≠, <, >, ≤, ≥
- use the four operations, including efficient written methods, applied to integers, decimal fractions, simple fractions (proper and improper) and mixed numbers, all both positive and negative
- understand and use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals
- use mass, length, time, money and other measures, including with decimal quantities
- compare, order and convert between fractions and decimals
- interpret percentages and percentage changes as a fraction or a decimal, and calculate these multiplicatively
- interpret and compare numbers in standard form $A \times 10^n$ where n is positive or negative
- estimate number, measures and approximate answers, including using these to check other calculation methods
- round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures), including simple error intervals, using standard interval and inequality notation
- use a calculator and other technologies to calculate results accurately and then interpret them appropriately.

Number theory

Pupils should be taught to:

- know and use prime numbers, common factors and common multiples for whole numbers with two and three digits, including highest common factor and lowest common multiple, understanding these as the intersection and union of the prime factors, and other classifications of number, including product notation
- know and use integer powers and associated roots (square, cube and higher), including the use of surd notation (e.g. $\sqrt{8}$), and distinguish between exact answers and decimal approximations.

Algebra: expressing relations

Pupils should be taught to:

- read and interpret algebraic notation
- express known relations algebraically within and outside mathematics, using accurate notation, including prioritisation of operations
- manipulate equivalent algebraic expressions, including expanding products of binomials; collect like terms and simplify expressions involving sums of products and powers
- recognise an arithmetic progression, and find the nth term
- make and test conjectures about recursive and long-term behaviour of geometric, quadratic and other sequences that arise within and outside mathematics
- recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the cartesian plane
- interpret mathematical relationships both algebraically and geometrically.

Algebra: using equations and functions

Pupils should be taught to:

- use formulae by substitution to calculate the value of a variable, including for scientific formulae
- begin to model simple contextual and subject-based problems algebraically
- solve linear equations in one variable in a variety of contexts, including subject-based problems, using algebraic methods
- use linear and quadratic graphs to estimate values of y for given values of x and vice versa and approximate solutions of simultaneous equations
- use given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs, to approximate solutions to contextual problems.

Ratio, proportion and rate of change

Pupils should be taught to:

- use ratio and scale factor notation and methods involving conversion, mixing, measuring, scaling, comparing quantities and concentrations
- calculate missing quantities and totals using given ratios, including reduction to simplest form
- solve problems involving percentage change, including: percentage increase and decrease and original value problems, simple interest in financial mathematics and repeated growth
- use multiplicative reasoning where two quantities have a fixed product or fixed ratio represented graphically and algebraically
- solve problems with constant rates of change involving distance and speed.

Geometry and measures

Pupils should be taught to:

- solve problems involving perimeter and area of triangles, circles and composite shapes; and cross-sectional areas, surface area and volume of cubes, cuboids, prisms, cylinders and composite solids
- use compound units such as speed, unit pricing and density to solve problems
- use concrete and digital instruments to measure line segments and angles in geometric figures, including interpreting scale drawings
- illustrate by sketching, constructing and drawing on coordinate axes: point, line, vertex, parallel, perpendicular, right angle, regular, symmetric and irregular polygons, using conventional terms and notations
- identify properties, e.g. equal lengths, circles, triangles, quadrilaterals and other plane figures, using appropriate language
- identify and construct congruent triangles, and construct similar shapes by enlargement
- know and use angle relations in parallel lines to deduce unknown angles
- apply angle facts, triangle congruence, similarity and properties of named quadrilaterals to derive results about angles and sides, using transformational, axiomatic and property-based logical reasoning
- use Pythagoras' Theorem and side ratios in similar triangles to solve problems in right-angled triangles
- identify face, edge and vertex properties of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres
- interpret mathematical relationships both algebraically and geometrically.

Probability

Pupils should be taught to:

- record and describe the outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes using appropriate language and the 0-1 scale
- enumerate sets and combinations of sets systematically, using tabular, grid and Venn diagrams
- generate theoretical possibility spaces for single and combined events with equally likely, mutually exclusive outcomes; use these to calculate theoretical probabilities and know that the probabilities of an exhaustive set of mutually exclusive outcomes sum to one.

Statistics

Pupils should be taught to:

- describe and compare univariate empirical distributions through: appropriate graphical representation involving discrete, continuous and grouped data and appropriate measures of central tendency and spread
- describe simple mathematical relationships between two variables in observational and experimental contexts
- identify appropriate questions, data collection, presentation, analysis and interpretation to conduct exploratory data analysis, including in science and geography.

Science

Introduction

Purpose of study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how key foundational knowledge and concepts can be used to explain what is occurring, predict how things will behave, and analyse causes. This foundational understanding should be consolidated through their appreciation of the specific applications of science in society and the economy.

Aims

The National Curriculum for science aims to ensure that all pupils:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

Scientific knowledge and conceptual understanding

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Insecure, superficial understanding will not allow genuine progression: pupils may struggle at key points of transition (such as between primary and secondary school), build up serious misconceptions, and/or have significant difficulties in understanding higher-order content.

Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of science,

including collecting, presenting and analysing data. The social and economic implications of science are important but, generally, they are taught most appropriately within the wider school curriculum: teachers will wish to use different contexts to maximise their pupils' engagement and motivation in science.

The nature, processes and methods of science

'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how 'working scientifically' might be embedded within the content of biology, chemistry and physics, focusing on the key features of science enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. Science enquiry should include using the statistical cycle to seek answers to questions through collecting, analysing and presenting data. 'Working scientifically' will be developed further at Key Stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control.

Spoken language

The National Curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. They must be assisted in making their thinking clear, both to themselves and others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

School curriculum

The programmes of study for science are set out year-by-year for Key Stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage if appropriate. All schools are also required to set out their school curriculum for science on a year-by-year basis and make this information available online.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

The principal focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

'Working scientifically' is described separately in the programme of study, but must **always** be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Working scientifically

Key Stage 1 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Working scientifically During Years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ▪ asking simple questions ▪ observing closely, using simple equipment ▪ performing simple tests ▪ identifying and classifying ▪ using their observations and ideas to suggest answers to questions ▪ gathering and recording data to help in answering questions (Year 2 only).	**Working scientifically** Pupils in Years 1 and 2 should use their science experiences to explore the world around them and use practical science to raise their own questions about how things are similar or different, how they change and how they happen; experience different ways of answering scientific questions; begin to work with different types of science enquiries, and begin to choose ways in which they might answer scientific questions. They should make comparisons between simple features of objects, materials and living things and, with help, decide how to sort and group them; observe changes over different periods of time and talk about what has happened. With guidance, they should begin to notice patterns and relationships. They should use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data (Year 2 only); carry out simple tests; record simple data (Year 2 only) and talk about what they have found out. They should ask people questions and use simple secondary sources to find answers. With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language. These opportunities for working scientifically should be provided across Years 1 and 2 so that the expectations in the programme of study can be met by the end of Year 2. Pupils are not

	expected to cover each aspect for every area of study.

Year 1

Year 1 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Plants Pupils should be taught to: ▪ identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen ▪ identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers.	**Plants** Pupils should use the local environment throughout the year to study plants growing in their habitat. Where possible, they should observe the growth of flowers and vegetables that they have planted. They should become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures (trees: trunk, roots, branches, leaves, fruit; garden and wild plants: flower, petals, stem, leaves, roots, fruit, bulb and seed). Pupils might work scientifically by: observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants and trees. Pupils might keep records of how plants have changed over time, for example the leaves falling off trees and buds opening; and compare and contrast how different plants change.
Animals, including humans Pupils should be taught to: ▪ identify and name a variety of common animals that are	**Animals, including humans** Pupils should use the local environment throughout the year to study animals in their habitat. They should understand how to take care of animals taken from their local environment and the need to

Year 1 programme of study (statutory requirements)	Notes and guidance (non-statutory)
birds, fish, amphibians, reptiles, mammals and invertebrates ▪ identify and name a variety of common animals that are carnivores, herbivores and omnivores ▪ describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, and including pets) ▪ identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	return them safely after study. Pupils should become familiar with the common names of birds, fish, amphibians, reptiles, mammals and invertebrates, including pets. Pupils should have plenty of opportunities to learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes. Pupils might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat, and using their senses to compare different textures, sounds and smells.
Everyday materials Pupils should be taught to: ▪ distinguish between an object and the material from which it is made ▪ identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock ▪ describe the simple physical properties of a variety of everyday materials ▪ compare and group together a variety of everyday materials	**Everyday materials** Pupils should explore, name and discuss everyday materials so that they become familiar with the names of materials and properties such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent. Pupils should explore and experiment with a wide variety of materials, not only those listed in the programme of study, but including for example: brick, paper, fabrics, elastic, foil.

Year 1 programme of study (statutory requirements)	Notes and guidance (non-statutory)
on the basis of their simple physical properties ▪ find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Pupils might find out about people who have developed useful new materials; for example, Dunlop, Macintosh or McAdam. Pupils might work scientifically by: performing simple tests to explore questions such as: 'What is the best material for an umbrella? ... for lining a dog basket? ... for curtains? ... for a bookshelf? ... for a gymnast's leotard?'
Seasonal changes Pupils should be taught to: ▪ observe the apparent movement of the Sun during the day ▪ observe changes across the four seasons ▪ observe and describe weather associated with the seasons and how day length varies.	**Seasonal changes** Pupils should observe and talk about the weather, the seasons and how the Sun seems to move during the day. Pupils might work scientifically by: observing and recording the apparent movement of the Sun during the day, for example in a sequence of photographs or moving Teddy so he stays in the sunshine; making tables and charts about the weather and displays of what happens in the world around them, including day length, as the seasons change.

Year 2

Year 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)
All living things Pupils should be taught to: ▪ explore and compare the differences between things that are living, dead, and things that have never been alive.	**All living things** Pupils should be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy. They should become familiar with the life processes that are common to all living things. Pupils might work scientifically by: sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts. They should describe how they knew where to place things, exploring questions such as: 'Is a flame alive? Is a deciduous tree dead in winter?' and talk about ways of answering their questions.
Plants Pupils should be taught to: ▪ observe and describe how seeds and bulbs grow into mature plants ▪ find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	**Plants** Pupils should use the local environment throughout the year to observe how plants grow (including seeds, bulbs, fruit and vegetables, deciduous and evergreen bushes and trees). Pupils should be introduced to the requirements of plants for growth and survival, as well as the process of reproduction and growth in plants. **Note:** Seeds and bulbs need water to grow but do not need light;

Year 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	seeds and bulbs have a store of food inside them. Pupils might work scientifically by: observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.
Animals, including humans Pupils should be taught to: ▪ notice that animals, including humans, have offspring which grow into adults ▪ find out about and describe the basic needs of animals, including humans, for survival (water, food and air) ▪ describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	**Animals, including humans** Pupils should be introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans. They should also be introduced to the process of reproduction and growth in animals. The focus at this stage should be on helping pupils to recognise growth; they should not be expected to understand how reproduction occurs. The following examples might be used: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult. Pupils might work scientifically by: observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions.

Year 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Habitats Pupils should be taught to: ▪ identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other ▪ identify and name a variety of plants and animals in their habitats, including micro-habitats ▪ describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	**Habitats** Pupils should be introduced to the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'micro-habitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter). They should use the local environment to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other, for example plants serving as a source of food and shelter for animals. Pupils should compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest. Pupils might work scientifically by: constructing a simple food chain that includes humans (e.g. grass, cow, human); describing the conditions in different habitats and micro-habitats (under log, on stony path, under bushes); finding out how the conditions affect the number and type(s) of plants and animals that live there.
Uses of everyday materials Pupils should be taught to: ▪ identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard. ▪	**Uses of everyday materials** Pupils should identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles) or different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not glass;

Year 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	tables can be made from plastic, wood, metal, but not paper). Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations. Pupils should be encouraged to think about unusual and creative uses for everyday materials.
Movement Pupils should be taught to: ▪ notice and describe how things are moving, using simple comparisons such as faster and slower ▪ compare how different things move.	**Movement** Pupils should observe closely some things moving. Pupils should discuss, describe and compare the movement of a variety of objects and, where appropriate, themselves, through actions such as sliding, rolling, falling, flying, walking and running. They can explore the movements through games, songs and rhymes, including work in physical education. Pupils might work scientifically by: asking questions about the movement of objects such as parachutes, toy cars and balloon rockets; comparing them, by measuring how far they go; ordering their findings and recording their observations and measurements, for example by constructing tables and charts, and drawing on their results to answer their questions.

Lower Key Stage 2 – Years 3-4

The principal focus of science teaching in lower Key Stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

‘Working scientifically’ is described separately at the beginning of the programme of study, but must **always** be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

Working scientifically

Lower Key Stage 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Working scientifically During Years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ▪ asking relevant questions ▪ setting up simple practical enquiries, comparative and fair tests ▪ making accurate measurements using standard units, using a range of equipment, for example thermometers and data loggers ▪ gathering, recording, classifying and presenting data in a variety of ways to help in answering questions ▪ recording findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables ▪ reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions ▪ using results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests	**Working scientifically** Pupils in Years 3 and 4 should use practical science to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of science enquiry they might use to answer scientific questions; recognise when a simple fair test is necessary and help to decide about how to set it up; talk about criteria for grouping, sorting and classifying, and use simple keys. They should begin to identify where patterns might be found and what data to collect to identify them. They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. They should learn how to use new equipment, such as data loggers. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse these data. With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, they should identify new questions arising from the data and find ways of improving what they have already done. They should also recognise when and how secondary sources might help

▪ identifying differences, similarities or changes related to simple scientific ideas and processes ▪ using straightforward scientific evidence to answer questions or to support their findings.	them to answer questions that cannot be answered through practical investigations. Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences. These opportunities for working scientifically should be provided across Years 3 and 4 so that the expectations in the programme of study can be met by the end of Year 4. Pupils are not expected to cover each aspect for every area of study.

Year 3

Year 3 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Plants Pupils should be taught to: ▪ identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers ▪ explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant ▪ investigate the way in which water is transported within plants ▪ explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	**Plants** Pupils should be introduced to the relationship between structure and function: the idea that every part has a job to do. This teaching should focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction. **Note:** Pupils can be introduced to the idea that plants can make their own food, but at this stage they do not need to understand how this happens. Pupils might work scientifically by: comparing the effect of different factors on plant growth, for example the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant cycles over a period of time; looking for patterns in the structure of seeds that relate to how they are dispersed. They might observe how water is transported in plants, for example by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.

Year 3 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Animals, including humans Pupils should be taught to: ▪ identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat ▪ describe the ways in which nutrients and water are transported within animals, including humans ▪ identify that humans and some animals have skeletons and muscles for support, protection and movement.	**Animals, including humans** Pupils should continue to learn about the importance of nutrition (including a balanced diet) and should be introduced to the main body parts associated with the skeletal and muscular system, finding out how different parts of the body have special functions. Pupils might work scientifically by: identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy and design meals based on what they find out.
Rocks Pupils should be taught to: ▪ compare and group together different kinds of rocks on the basis of their simple physical properties ▪ relate the simple physical properties of some rocks to their formation (igneous or sedimentary) ▪ describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock.	**Rocks** Linked with work in geography, pupils should explore different kinds of rocks and soils, including those in the local environment. **Note:** Pupils are not expected to be taught about the formation of metamorphic rocks, such as marble and slate. Pupils might work scientifically by: observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; using a hand lens or

Year 3 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Pupils might research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed.
Light Pupils should be taught to: ▪ observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes ▪ notice that light is reflected from surfaces ▪ associate shadows with a light source being blocked by something; find patterns that determine the size of shadows.	**Light** Pupils should explore materials to help them to understand the differences between the meaning of transparent, translucent and opaque. They should observe shadows being formed in everyday contexts, such as when they play outside or shine torches indoors. **Note:** Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses. Pupils might work scientifically by: looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes; investigating the suitability of materials for different purposes, such as blackout curtains; exploring whether shiny things shine in the dark.

Year 3 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Forces and magnets Pupils should be taught to: ▪ notice that some forces need contact between two objects and some forces act at a distance ▪ observe how magnets attract or repel each other and attract some materials and not others ▪ compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.	**Forces and magnets** Pupils should observe that magnetic forces can be transmitted without direct contact, unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing). **Note:** Pupils do not need to be introduced to ‘like’ and ‘unlike’ magnetic poles until Year 5. Pupils might work scientifically by: investigating the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and those that are not.

Year 4

Year 4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
All living things Pupils should be taught to: ▪ identify and name a variety of living things (plants and animals) in the local and wider environment, using classification keys to assign them to groups ▪ give reasons for classifying plants and animals based on specific characteristics ▪ recognise that environments are constantly changing and that this can sometimes pose dangers to specific habitats.	**All living things** Pupils should use the local environment throughout the year to identify and study plants and animals in their habitat; and how the habitat changes throughout the year. Pupils should classify animals into the major groups such as: vertebrates (animals with backbones) into fish, amphibians, reptiles, birds, and mammals; invertebrates into snails and slugs, worms, spiders, and insects. Pupils should explore examples of human impact (both positive and negative) on environments such as the effect of population and development, litter or deforestation. **Note:** Plants are more difficult to classify, but can be grouped into categories such as trees, grasses, flowers, and non-flowering plants such as ferns and mosses. Pupils might find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification. Pupils might work scientifically by: exploring local small invertebrates and using guides or keys to identify them; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.

Year 4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Animals, including humans Pupils should be taught to: ▪ describe the simple functions of the basic parts of the digestive system in humans ▪ identify the different types of teeth in humans and their simple functions.	**Animals, including humans** Pupils should be introduced to the main body parts associated with the digestive system, such as mouth, tongue, teeth, oesophagus, stomach and intestine and their special functions. Pupils might work scientifically by: comparing the teeth of carnivores and herbivores, and suggesting reasons for differences; finding out what damages teeth and how to look after them. They might draw and discuss their ideas about the digestive system and compare them with models or images.
Evolution and inheritance Pupils should be taught to: ▪ identify how plants and animals, including humans, resemble their parents in many features ▪ recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago ▪ identify how animals and plants are suited to and adapt to their environment in different ways.	**Evolution and inheritance** Pupils should be introduced to the idea that characteristics are passed from parents to their offspring, for instance by exploring the family trees and family resemblances of historical personalities such as the Tudors or the Hapsburgs. **Note:** At this stage, pupils are not expected to understand how genes and chromosomes work. Building on the topic on rocks in Year 3, pupils should be reintroduced to fossils and find out, for example by studying dinosaurs, how things living on the Earth have changed over time. Pupils might find out about the work of palaeontologists such as Mary Anning.

Year 4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	Pupils might work scientifically by identifying, comparing and recording similarities and differences among themselves and other animals and looking for patterns; observing and raising questions about local animals and how they are adapted to their environment; finding out about how some other animals and plants, beyond their own locality, adapt to their environments.
States of matter Pupils should be taught to: ▪ compare and group materials together, according to whether they are solids, liquids or gases ▪ observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C), building on their teaching in mathematics ▪ identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	**States of matter** Pupils should explore a variety of everyday materials and develop simple descriptions of the states of matter (solids can be held in your hands; liquids form a pool not a pile; gases escape from an unsealed container). Pupils should observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled. **Note:** Teachers should avoid using materials where heating is associated with chemical change, for example, through baking or burning. Pupils might work scientifically by: grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as biscuits and ice-cream for a party). They might observe and record evaporation over a period of time, such as a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting.

Year 4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Sound Pupils should be taught to: ▪ observe and name a variety of sources of sound, noticing that we hear with our ears ▪ identify how sounds are made, associating some of them with something vibrating ▪ recognise that sounds get fainter as the distance from the sound source increases ▪ find patterns between the pitch of a sound and features of the object that produced it ▪ find patterns between the volume of a sound and the strength of the vibrations that produced it.	**Sound** Linked with work in music, pupils should explore various ways of making sounds, for example using a range of musical instruments to make louder and softer, and higher and lower sounds. Pupils might work scientifically by: exploring how the pitch and volume of sounds can be changed in a variety of ways, and finding patterns in the data (for example, blowing across the top of bottles, changing the length and thickness of elastic bands). They might make ear muffs from a variety of different materials to investigate which provides the best insulation against sound.

Year 4 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Electricity Pupils should be taught to: ▪ identify common appliances that run on electricity ▪ construct a simple series electrical circuit ▪ identify whether or not a lamp will light in a simple series circuit based on whether or not the lamp is part of a complete loop with a battery ▪ recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit ▪ recognise some common conductors and insulators, and associate metals with being good conductors.	**Electricity** Pupils should construct simple series circuits, trying different components, such as bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices. Pupils should draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage; these will be introduced in Year 6. **Note:** Pupils might use the terms current and voltage, but these should not be introduced or defined formally at this stage. Pupils should be taught about precautions for working safely with electricity. Pupils might work scientifically by: observing patterns, for example that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.

Upper Key Stage 2 – Years 5-6

The principal focus of science teaching in upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper Key Stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

'Working and thinking scientifically' is described separately at the beginning of the programme of study, but must **always** be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read, spell and pronounce scientific vocabulary correctly.

Working scientifically

Upper Key Stage 2 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Working scientifically During Years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ▪ planning enquiries, including recognising and controlling variables where necessary ▪ taking measurements, using a range of scientific equipment, with increasing accuracy and precision ▪ recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models ▪ reporting findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions ▪ presenting findings in written form, displays and other presentations ▪ using test results to make predictions to set up further comparative and fair tests ▪ using simple models to describe scientific ideas ▪ identifying scientific evidence that has been used to support	**Working scientifically** Pupils in Years 5 and 6 should use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of science enquiry to use to answer scientific questions; recognise when and how to set up fair tests and explain which variables need to be controlled and why. They should use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. They should make their own decisions about what observations to make, what measurements to use and how long to make them for; choose the most appropriate equipment to make measurements and explain how to use it accurately. They should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas. They should use their results to identify when further comparative tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.

or refute ideas or arguments.	These opportunities for working scientifically should be provided across Years 5 and 6 so that the expectations in the programme of study can be met by the end of Year 6. Pupils are not expected to cover each aspect for every area of study.

Year 5

Year 5 programme of study (statutory requirements)	Notes and guidance (non-statutory)
All living things Pupils should be taught to: ▪ describe the life cycles common to a variety of animals, including humans (birth, growth, development, reproduction, death), and to a variety of plants (growth, reproduction and death).	**All living things** Pupils should study their local environment throughout the year and observe life-cycle changes in a variety of living things, for example plants in the vegetable garden or flower border, and animals in the local environment. They should find out about the work of naturalists and animal behaviourists such as David Attenborough and Jane Goodall. Pupils might work scientifically by: observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (the rainforest, under the oceans, desert areas and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences.
Animals, including humans Pupils should be taught to: ▪ identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood (including the pulse and clotting).	**Animals, including humans** Pupils should build on their learning from Years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system) to explore how the circulatory system enables the body to function. Pupils should find out how ideas about the circulatory system have changed through studying the work of scientists in the past, such as William Harvey, who described the circulatory system in the

Year 5 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	seventeenth century, and Galen, the Roman physician of the second century. Pupils might work scientifically by: discussing and drawing what they think the circulatory system looks like and comparing this with images from other sources; discussing, drawing or creating models of how the main organs of the body fit together and function; comparing the effect of different types of activity on pulse rate and breathing rate. They might find out about the effects of things that might damage the body's systems. They might compare the organ systems of the human body with the organ systems of a variety of animals, asking pertinent questions and suggesting reasons for similarities and differences.
Properties of everyday materials and reversible change Pupils should be taught to: ▪ compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal), and response to magnets ▪ understand how some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution ▪ use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering,	**Properties of everyday materials and reversible change** Pupils should build a more systematic understanding of materials by exploring and comparing the properties of a broad range of materials and relating these to what they learnt about magnetism in Year 3 and about electricity in Year 4. They should experiment with reversible changes, including melting, dissolving, evaporating, filtering and sieving. **Note:** Pupils are not required to make quantitative measurements about conductivity and insulation at this stage. It is sufficient for them to observe that some conductors will produce a brighter bulb in a circuit than others and that some materials will feel hotter than

Year 5 programme of study (statutory requirements)	Notes and guidance (non-statutory)
sieving and evaporating ▪ give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic ▪ demonstrate that dissolving, mixing and changes of state are reversible changes.	others when a heat source is placed against them. Pupils might work scientifically by: investigating questions such as 'Which materials would be the most effective for making a warm jacket, or for wrapping ice cream to stop it melting?' They might compare materials in order to make a switch in a circuit.
Earth and space Pupils should be taught to: ▪ describe the movement of the Earth relative to the Sun in the solar system ▪ describe the movement of the Moon relative to the Earth ▪ describe the Sun, Earth and Moon as approximately spherical bodies ▪ use the idea of the Earth's rotation to explain day and night.	**Earth and space** Pupils should be introduced to a model of the Sun and Earth that allows the explanation of day and night. Pupils should learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006). They should understand that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones). **Note:** Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses. Pupils should find out about the way that ideas about the solar system have developed by studying the work of scientists such as Ptolemy, Alhazen and Copernicus, understanding how the geocentric model of the solar system gave way to the heliocentric model. Pupils might work scientifically by: comparing the time of day at

Year 5 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	different places on the Earth through internet links and direct communication; creating simple models of the solar system; constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day; working out how places such as Stonehenge were used as astronomical clocks.
Magnetism Pupils should be taught to: ▪ describe magnets as having two poles ▪ predict whether two magnets will attract or repel each other, depending on which poles are facing.	**Magnetism** Pupils should be introduced to a predictive model for the way magnets behave. They should explore the behaviour and everyday uses of different magnets (for example, bar, ring, button and horseshoe) and find out about how the Earth acts as a magnet. Pupils might work scientifically by: looking for patterns in the way that magnets behave in relation to each other and what might affect this, such as the strength of the magnet or which pole faces another; identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets. They might explore what happens if magnets are hung from threads or floated on water and relate this to the development and use of compasses for navigation.

Year 6

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
All living things Pupils should be taught to: ▪ explain the classification of living things into broad groups according to common observable characteristics and based on similarities and differences, including plants, animals and micro-organisms ▪ describe the life process of reproduction in some plants and animals ▪ describe the changes as humans develop from birth to old age ▪ recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.	**All living things** Pupils should build on their learning about the classification of all living things in Year 4 by looking at the classification system in more detail. They should be introduced to the term 'kingdom' and learn that most scientists classify things into 'five kingdoms' (bacteria, protists, animals, plants and fungi). Through direct observations where possible, they should classify animals into vertebrates (reptiles, fish, amphibians, birds and mammals) and invertebrates. They should find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals. Pupils should build on what they have learnt in previous years about how the various body systems function. Pupils should learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body. Pupils might work scientifically by: devising classification systems and keys to identify some animals and plants in the immediate environment. Pupils might try to grow new plants from different parts of the parent plant, for example seeds, stem and root cuttings, tubers, bulbs. They might observe changes in an animal over a period of time (for example, by hatching and rearing chicks); comparing how different animals reproduce and grow; and

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
	exploring the work of scientists and scientific research (including historical sources, e.g. the work of John Boyd Orr) about the relationship between diet, exercise, drugs, lifestyle and health. They might collect data by interviewing health professionals and create guidance for younger children about how bodies work and how to keep them healthy.
Evolution and inheritance Pupils should be taught to: ▪ recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents ▪ describe how adaptation leads to evolution ▪ recognise how and why the human skeleton has changed over time, since we separated from other primates.	**Evolution and inheritance** Building on what they have learnt about evolution and inheritance in Year 4, pupils should look in more detail at how living things evolve. They should be introduced to the idea that variation in offspring over time can make animals more or less able to survive in particular environments and lead to evolutionary change. Pupils might find out about Charles Darwin's work on evolution. Pupils might work scientifically by: comparing how some living things are adapted to survive in extreme conditions, for example cacti, penguins and camels. They might analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Changes that form new materials Pupils should be taught to: ▪ explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning, oxidisation, and the action of acid on bicarbonate of soda.	**Changes that form new materials** Building on their work in Year 5 about changes that are easily reversible, pupils should explore changes that are difficult to reverse, such as burning, rusting (oxidisation) and reactions, for example vinegar with bicarbonate of soda. They should find out about how chemists create new materials, for example Spencer Silver, who invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton. **Note:** Safety guidelines should be followed when burning materials. Pupils might work scientifically by: observing and comparing the changes that take place, for example when burning different materials or baking bread or cakes. They might research and discuss how chemical changes have an impact on our lives, for example cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials.
Light Pupils should be taught to: ▪ understand that light appears to travel in straight lines ▪ use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into	**Light** Pupils should explore the way that light behaves, including light sources, reflection and refraction. They should talk about what happens and make predictions. They should experience a range of examples of interesting aspects of light such as rainbows, colours on soap bubbles, objects looking bent in water and white light

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
the eye ▪ use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes.	being split by prisms. Pupils might work scientifically by: deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. They might investigate the relationship between light sources, objects and shadows by using shadow puppets.
Forces Pupils should be taught to: ▪ explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object ▪ identify the effect of drag forces, such as air resistance, water resistance and friction, that act between moving surfaces ▪ describe, in terms of drag forces, why moving objects that are not driven tend to slow down ▪ understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs.	**Forces** Pupils should explore falling objects and the effects of air resistance. They should experience forces that make things begin to move, get faster or slow down. Pupils should explore the effects of friction on movement and find out how it slows or stops moving objects, for example by observing the effects of a brake on a bicycle wheel. They should explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall. Pupils should explore the effects of levers, pulleys and simple machines on movement. Pupils might find out how scientists such as Galileo and Isaac Newton helped to develop the theory of gravitation. Pupils might work scientifically by: designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective. They might explore resistance in water by making and testing boats of different shapes. They might design and make a simple lever and explore its effects.

Year 6 programme of study (statutory requirements)	Notes and guidance (non-statutory)
Electricity Pupils should be taught to: ▪ identify and name the basic parts of a simple electrical circuit, including cells, wires, bulbs, switches and buzzers ▪ associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit ▪ compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.	**Electricity** Building on their work in Year 4, pupils should construct simple series circuits, trying different components, such as switches, bulbs, buzzers and motors. They should learn how to represent a simple circuit in a diagram using recognised symbols. **Note:** Pupils are expected to learn only about series circuits, not parallel circuits. Pupils should be taught to take the necessary precautions for working safely with electricity. Pupils might work scientifically by: systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.

Key Stage 3

Working scientifically

Through the content across all three disciplines, pupils should be taught to:

Experimental skills and investigations

- ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience
- make predictions using scientific knowledge and understanding
- plan and design investigations and experiments to make observations and to test predictions, including identifying independent, dependent and control variables and their intrinsic nature and other factors to be taken into account when collecting evidence and data
- use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety
- make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements

Handling information and problem solving

- present observations and data using appropriate methods, including tables and graphs
- interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions
- present reasoned explanations, including explaining data in relation to predictions and hypotheses
- evaluate data, showing awareness of potential sources of random and systematic error
- identify further questions arising from their results

Scientific attitudes

- pay attention to objectivity and concern for validity, accuracy, precision and measurement of uncertainty
- understand that scientific methods and theories develop as scientists modify earlier explanations to take account of new evidence and ideas, together with the importance of publishing results and peer review
- evaluate risks

Measurement

- understand and use SI units and IUPAC (International Union of Pure and Applied Chemistry) chemical nomenclature
- use and derive simple equations
- undertake basic data analysis.

Subject content

Biology

Structure and function of living organisms

Pupils should be taught about:

Cells and organisation

- cells as the fundamental unit of living organisms, including how to observe and record cell structure using a light microscope
- the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts
- the similarities and differences between plant and animal cells
- the role of diffusion in the movement of materials in and between cells
- the structure of Amoeba and Euglena
- the hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms

The skeletal and muscular systems

- the structure and functions of the human skeleton, to include support, protection, movement and making blood cells
- biomechanics – the interaction between skeleton and muscles, including the measurement of force exerted by different muscles
- the function and antagonistic actions of major muscle groups

Human nutrition and digestion

- content in a healthy human diet: carbohydrates, fats, proteins, vitamins, minerals, dietary fibre and water, and why each is needed
- simple food tests for starch, simple (reducing) sugars, protein, fat
- calculations of energy requirements in a healthy daily diet
- the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases
- the tissues and organs of the digestive system, including adaptations to function and how the digestive system digests food (enzymes simply as biological catalysts)
- the importance of bacteria in the digestive system

The breathing (gas exchange) system

- the structure and functions of the gas exchange system in humans, including adaptations to function
- the mechanism of breathing to move air in and out of the lungs, using a pressure model to explain the movement of gases, including simple measurements of lung volume
- the impact of exercise, asthma and smoking on the breathing system

Health

- the effects of drugs (including as medicines as well as substance misuse) on behaviour, health and life processes such as conception, growth and development.

Energy flow and material cycles

Pupils should be taught about:

Photosynthesis

- the dependence of almost all life on Earth on the transfer of solar energy to plants and algae in photosynthesis
- the relationship between the structures and functions of leaves, including chloroplasts and stomata
- reactants in, and products of, photosynthesis, and the word equation for photosynthesis
- mineral nutrition in plants, to explain the role of nitrates
- chemosynthesis in bacteria and other organisms

Cellular respiration

- aerobic and anaerobic respiration in living organisms, including the breakdown of organic molecules to enable all the other chemical processes necessary for life
- the word equation for aerobic respiration
- the process of anaerobic respiration in humans and micro-organisms, including fermentation, and the word equation for anaerobic respiration
- the differences between aerobic and anaerobic respiration.

Interactions and interdependencies

Pupils should be taught about:

Relationships in an ecosystem

- the interdependence of organisms, including food webs and the accumulation of toxic materials

- how organisms affect, and are affected by, their environment
- niches and the role of variation in enabling closely-related living things to survive in the same ecosystem.

Genetics and evolution

Pupils should be taught about:

Reproduction

- reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta
- reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms
- the importance of plant reproduction through insect pollination in human food security

Inheritance, chromosomes, DNA and genes

- heredity as the process by which genetic information is transmitted from one generation to the next
- a simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model
- the variation between individuals of different species
- the variation between individuals within a species being continuous or discontinuous, to include measurement and graphical representation of variation
- the variation between species and between individuals of the same species leading to competition which can drive adaptation
- changes in the environment that leave some species less well adapted to compete successfully and reproduce, which might lead to extinction
- the use of gene banks to preserve hereditary material before a species becomes extinct.

Chemistry

Pupils should be taught about:

Pure and impure substances

- mixtures, including dissolving
- techniques for separating mixtures: chromatography, filtering, evaporation and distillation
- the identification of pure substances

The particulate nature of matter

- the properties of the different states of matter (solid, liquid and gas) in terms of particle kinetics, including gas pressure and diffusion
- changes of state in terms of particle kinetics and energy changes

Atoms, elements and compounds

- the nature of atoms, elements and compounds
- chemical symbols and formulae for elements and compounds
- conservation of mass in chemical and physical change

Chemical reactions

- chemical reactions as the rearrangement of atoms
- representing chemical reactions using formulae and using equations, including state symbols
- combustion, thermal decomposition, oxidation and displacement reactions

Energetics

- exothermic and endothermic chemical reactions (qualitative)

Acids, alkalis and neutralisation

- defining acids, bases and alkalis in terms of neutralisation reactions
- the pH scale for measuring acidity/alkalinity; and indicators
- reactions of acids with bases and metals to produce a salt, plus water

The Periodic Table

- the Periodic Table: periods and groups; metals and non-metals
- how patterns in reactions can be explained and predicted with reference to the Periodic Table
- the varying physical and chemical properties of different elements
- the chemical properties of metals and non-metals and metal and non-metal oxides with respect to acidity

Materials

- the order of metals and carbon in the reactivity series
- the use of carbon in obtaining metals from metal oxides
- ceramics, polymers and composites

Earth science

- the composition of the Earth and the atmosphere
- changes to the Earth's atmosphere since its formation
- the production of carbon dioxide by human activity and the impact on climate
- the efficacy of recycling.

Physics

Energy

Pupils should be taught about:

Changes and transfers

- examples of processes that cause change, with forces (work = force x distance; levers and gears reducing force by increasing distance, changing motion, dropping an object, turning a dynamo to produce light); with matter (releasing a compressed spring, igniting fuel, putting hot and cool objects in contact, metabolism of food); with vibrations and waves (warming by radiation); and with electricity (completing an electrical circuit)

Energy and fuel

- calculations comparing ratings of appliances in kilowatts (kW) and amounts of energy from different foods (from labels)
- fuel, fuel sources and heating

Auditing change

- audit calculations using measures of change in the energy associated with elastic deformation, moving and/or vibrating objects, heating materials, and chemical changes involving fuels
- rates of change measured in kW.

Motion and forces

Pupils should be taught about:

Describing motion

- speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time)
- the representation of a journey on a distance-time graph
- relative motion: trains and cars passing one another; the movement of the sun, moon and Earth

Forces

- forces as pushes or pulls, arising from the interaction between two objects
- moment as the turning effect of a force: torque and rotational effects
- forces: associated with deforming objects; stretching and squashing – springs; with rubbing and friction between surfaces, with pushing things out of the way; resistance to motion of air and water
- forces measured in newtons, measurements of stretch or compression as force is changed
- Hooke's Law as a special case
- work done and energy changes on deformation
- gravity forces acting at a distance on Earth and in space

Pressure forces

- atmospheric pressure, decreases with increase of height as weight of air above decreases with height
- pressure in liquids, increasing with depth; upthrust effects, floating and sinking
- pressure measured by ratio of force over area – acting in all directions

Balanced forces

- opposing forces and equilibrium: weight held by stretched spring or supported on a compressed surface

Forces and motion

- forces being needed to cause objects to stop or start moving, or to change their speed or direction of motion
- change depending on direction of force and its size.

Waves

Pupils should be taught about:

Observed waves

- waves on water as undulations which travel through water with transverse motion; these waves can be reflected, and add or cancel – superposition

Sound waves

- frequencies of sound waves, measured in hertz (Hz); echoes, reflection and absorption of sound
- the speed of sound in air
- sound produced by vibrations of objects, in loud speakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal
- auditory range

Energy and waves

- sound waves carrying energy: for cleaning and physiotherapy by ultra-sound; for carrying energy and information for conversion to electrical signals by microphone

Light waves

- the similarities and differences between light and waves in matter
- light waves travelling through a vacuum; speed of light
- the transmission of light through materials: absorption, diffuse scattering and specular reflection
- the refraction of light, action of convex lens in focusing (qualitative) and the human eye
- light transferring energy, leading to chemical and electrical effects; photo-sensitive material in the retina and in cameras
- colour and the different frequencies of light, white light and prisms (qualitative only); differential colour effects in absorption and diffuse reflection.

Electricity and electromagnetism

Pupils should be taught about:

Current electricity

- electric current, measured in amperes, in circuits, series and parallel circuits and the domestic ring main
- current as flow of charge
- potential difference, measured in volts, battery and bulb ratings; resistance as the ratio of potential difference (p.d.) to current measured in ohms
- differences in resistance between conducting and insulating components

Static electricity

- separation of positive or negative charges when objects are rubbed together: transfer of electrons, forces between charged objects
- the idea of electric field, forces acting across the space between objects not in contact

Magnetism

- magnetic poles, attraction and repulsion
- magnetic fields by plotting with compass, representation by field lines
- Earth’s magnetism, compass and navigation
- the magnetic effect of a current, electromagnets, D.C. motors.

Matter

Pupils should be taught about:

Physical changes

- conservation of material and of mass, and reversibility, in melting, freezing, evaporation, sublimation, condensation, dissolving
- similarities and differences between solids, liquids and gases
- brownian motion in gases
- diffusion in liquids and gases driven by differences in concentration
- the difference between chemical and physical changes

Particle model

- the differences in arrangements, in motion and in closeness of particles explaining changes of state, shape and density
- atoms and molecules as particles
- the anomaly of ice-water transition in terms of unique structure change

Energy in matter

- changes with temperature in motion and spacing of particles
- internal energy stored in materials.

Art and design

Purpose of study

Art and design embody the highest form of human creativity. Art and design teaching should instil in pupils an appreciation of beauty and an awareness of how creativity depends on technical mastery. They should learn to draw, paint and sculpt as well as design and create aesthetically pleasing objects in two and three dimensions. Pupils should learn about the achievements of great artists and designers.

Aims

The National Curriculum for art and design aims to ensure that all pupils:

- produce creative work, exploring their ideas and recording their experiences
- become proficient in using drawing, painting, sculpture and other creative expressions
- evaluate and analyse artistic works using the language of art, craft and design
- know about the great artists, craftsmen and designers, and understand the historical development of their art forms.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject content

Key Stage 1

Pupils should be taught creativity in art, craft and design by:

- using a range of materials to design and make products
- using drawing, painting and sculpture to share their ideas, experiences and imagination
- developing techniques in using colour, pattern, texture, line, shape, form and space using clay and printing to a large scale and in 3D
- being taught about the work of a range of artists, craftsmen and designers, describing the differences and similarities between different practices and disciplines, and making links to their own work.

Key Stage 2

Pupils should be taught to develop their techniques, including their control and their use of materials, with experimentation and an increasing awareness of different kinds of art, craft and design.

Pupils should be taught:

- to create sketch books to record their observations and use them to review and revisit ideas, and collect visual material to help them to develop their ideas
- to improve their mastery of techniques, such as drawing, painting and sculpture with materials (e.g. pencil, charcoal, paint, clay)
- about the greatest artists, architects and designers in history.

Key Stage 3

Pupils should be taught to develop their ideas and increase proficiency in their execution. They should develop a critical understanding of artists, architects and designers, expressing reasoned judgements that can inform their own work.

Pupils should be taught:

- to use a range of drawing techniques to record their observations in sketchbooks and journals as a basis for exploring their ideas using a range of media, such as painting with oils and watercolours, videos and installations
- to increase their proficiency in the handling of different materials
- to analyse and evaluate their own work, and that of others, in order to strengthen the visual impact or applications of their work
- about the history of art, craft and design, including major movements from ancient to the modernist periods (e.g. Art Nouveau, Impressionism, Dadaism).

Citizenship

Purpose of study

A high-quality citizenship education helps to provide pupils with knowledge, skills and understanding to prepare them to play a full and active part in society. In particular, citizenship education should foster pupils' keen awareness of how the United Kingdom is governed and how its laws are made and upheld. It should also prepare pupils to take their place in society as responsible citizens by providing them with the skills and knowledge to manage their money well and make sound financial decisions.

Aims

The National Curriculum for citizenship aims to ensure that all pupils:

- acquire a sound knowledge and understanding of how the United Kingdom is governed, its political system and how citizens participate actively in its democratic systems of government
- develop a sound knowledge and understanding of the role of law in our society and how laws are shaped and enforced
- develop an interest in, and commitment to, volunteering that they will take with them into adulthood
- are equipped with the financial skills to enable them to manage their money on a day-to-day basis as well as to plan for future financial needs.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject content

Key Stage 3

Citizenship education should develop pupils' understanding of how the United Kingdom is governed and the rights and responsibilities of its citizens.

Pupils should be taught about:

- how the political system of the United Kingdom has developed as a democracy, including the role of the monarchy, the development of our constitution and Parliament, and how democracy is different from other forms of government
- the operation of Parliament, including voting and elections, and the role of political parties
- the precious liberties enjoyed by the citizens of the United Kingdom
- the nature of rules and laws, and the difference between criminal and civil law
- the justice system, including the role of the police, and how courts and tribunals work
- the functions and uses of money, the importance of personal budgeting, money management and a range of financial products and services.

Key Stage 4

Teaching should build on the Key Stage 3 programme of study to deepen pupils' understanding of how the United Kingdom is governed, as well as other forms and systems of government.

Pupils should be taught about:

- parliamentary democracy, including the role of Parliament in holding governments to account, and the different roles of the executive, legislature and judiciary
- the different electoral systems used in and beyond the United Kingdom and actions citizens can take in democratic and electoral processes to influence decisions locally, nationally and beyond
- other systems and forms of government, both democratic and non-democratic, beyond the United Kingdom
- local, regional and international governance and the United Kingdom's relations with the rest of Europe, the Commonwealth and the wider world
- diverse national, regional, religious and ethnic identities in the United Kingdom and the need for mutual respect and understanding
- the different ways in which a citizen can contribute to the improvement of their community, to include the opportunity to participate actively in community volunteering

- wages, taxes, credit, debt, financial risk and a range of more sophisticated financial products and services.

Computing

Purpose of study

A high-quality computing education equips pupils to understand and change the world through computational thinking. It develops and requires logical thinking and precision. It combines creativity with rigour: pupils apply underlying principles to understand real-world systems, and to create purposeful and usable artefacts. More broadly, it provides a lens through which to understand both natural and artificial systems, and has substantial links with the teaching of mathematics, science, and design and technology.

At the core of computing is the science and engineering discipline of computer science, in which pupils are taught how digital systems work, how they are designed and programmed, and the fundamental principles of information and computation. Building on this core, computing equips pupils to apply information technology to create products and solutions. A computing education also ensures that pupils become digitally literate – able to use, and express themselves through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims

The National Curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles of computer science, including logic, algorithms, data representation, and communication
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

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Subject content

Key Stage 1

Pupils should be taught to:

- understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions
- write and test simple programs
- use logical reasoning to predict the behaviour of simple programs
- organise, store, manipulate and retrieve data in a range of digital formats
- communicate safely and respectfully online, keeping personal information private, and recognise common uses of information technology beyond school.

Key Stage 2

Pupils should be taught to:

- design and write programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output; generate appropriate inputs and predicted outputs to test programs
- use logical reasoning to explain how a simple algorithm works and to detect and correct errors in algorithms and programs
- understand computer networks including the internet; how they can provide multiple services, such as the world-wide web; and the opportunities they offer for communication and collaboration
- describe how internet search engines find and store data; use search engines effectively; be discerning in evaluating digital content; respect individuals and intellectual property; use technology responsibly, securely and safely
- select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

Key Stage 3

Pupils should be taught to:

- design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
- understand at least two key algorithms for each of sorting and searching; use logical reasoning to evaluate the performance trade-offs of using alternative algorithms to solve the same problem
- use two or more programming languages, one of which is textual, each used to solve a variety of computational problems; use data structures such as tables or arrays; use procedures to write modular programs; for each procedure, be able to explain how it works and how to test it
- understand simple Boolean logic (such as AND, OR and NOT) and its use in determining which parts of a program are executed; use Boolean logic and wild-cards in search or database queries; appreciate how search engine results are selected and ranked
- understand the hardware and software components that make up networked computer systems, how they interact, and how they affect cost and performance; explain how networks such as the internet work; understand how computers can monitor and control physical systems
- explain how instructions are stored and executed within a computer system
- explain how data of various types can be represented and manipulated in the form of binary digits including numbers, text, sounds and pictures, and be able to carry out some such manipulations by hand
- undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users
- create, reuse, revise and repurpose digital information and content with attention to design, intellectual property and audience.

Key Stage 4

All pupils must have the opportunity to study aspects of information technology and computer science at sufficient depth to allow them to progress to higher levels of study or to a professional career.

All pupils should be taught to:

- develop their capability, creativity and knowledge in computer science, digital media and information technology
- develop and apply their analytic, problem-solving, design, and computational thinking skills.

Design and technology

Purpose of study

Through creativity and innovation, design and technology continue to shape our lives. Using an activity-focused approach, a high-quality design and technology education should give pupils opportunities to create, innovate, design, make and evaluate a variety of well-crafted products. Pupils should be taught the technical skills and craftsmanship to execute practical tasks, thereby developing confidence in using these skills.

Aims

The National Curriculum for design and technology aims to ensure that all pupils:

- understand food and nutrition and have opportunities to learn to cook. In meeting this aim schools without access to a teaching kitchen, nearby kitchen or mobile kitchen may have to adapt what they teach accordingly to the facilities available.

It also aims to ensure that, working in fields such as materials (including textiles), horticulture, electricals and electronics, construction, and mechanics, they:

- develop valuable practical skills and use these safely with a range of resistant and non-resistant materials, drawing media, tools and equipment, in both 2-D and 3-D
- design and make well-crafted products that are fit for purpose
- develop and use a range of common practical skills, in contexts such as mechanical, diagnostic and repair tasks
- understand and, where appropriate, use the design cycle of planning, developing prototypes, modifying, making and evaluating
- know about good design, everyday products and use correct technical terminology
- investigate the rich history of design and technological innovation in Britain and further afield, from the Industrial Revolution onwards, as well as current innovations.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject content

Introduction

In Key Stages 1 to 3 pupils should be taught progressively more demanding practical knowledge, skills and crafts, working in fields such as:

- food and cookery: to learn about food and plan and prepare healthy, wholesome dishes, following straightforward recipes and using a range of common ingredients and techniques. In meeting this requirement schools without access to a teaching kitchen, nearby kitchen or mobile kitchen may have to adapt the recipes and techniques they teach accordingly to the facilities available
- materials: to plan, design, make and evaluate decorative and/or practical objects, using a range of common materials such as wood, metal, plastic and card (see also *textiles*, below)
- textiles: to plan, design, make, repair and evaluate decorative and/or practical objects, using a range of textiles and employing common techniques such as sewing, embroidery and knitting
- horticulture: to cultivate plants for practical purposes, such as for food or for decorative displays
- electricals and electronics: to carry out common diagnostic, maintenance and repair tasks on electrical and electronic appliances, and plan, design, make and evaluate simple electrical or electronic devices
- construction: to carry out common diagnostic, maintenance and repair tasks and use simple techniques in building and construction
- mechanics: to undertake common diagnostic and maintenance tasks on mechanical objects such as bicycles and motor vehicles.

Pupils should always be taught to work safely, using common tools and techniques that are appropriate for the task.

Key Stage 1

Pupils should explore and develop purposeful, practical skills in design and technology, taking advantage of local opportunities and the expertise of teachers.

Pupils should be taught the basic principles of balanced eating and where food comes from, and should be encouraged to develop an interest in cooking.

Through working in fields selected from those listed in the introduction (materials (including textiles), horticulture, electricals and electronics, construction, and mechanics), pupils should be taught to:

- perform simple, useful, practical tasks (for instance, making products for a purpose using a basic range of tools and materials, and techniques such as cutting, forming and joining)
- explore different materials, and become familiar with their properties and uses
- communicate ideas simply, such as through drawing, jottings, modelling in 2-D and 3-D and, where appropriate, using information and communication technology to record the development of their designs
- appreciate the need for good design by evaluating a range of design and designers.

Key Stage 2

Pupils should develop their skills and the safe use of tools and equipment by undertaking a range of practical tasks, such as making products, maintenance or cooking. They should increase their experience in different areas of design and technology, including through learning about local crafts or industries. They should understand how to use constructive feedback to improve what they design and make. Pupils should be taught about key historical developments in design and technology.

Pupils should be taught about the major components of a balanced diet and how ingredients can be combined to prepare healthy meals. They should be taught basic cooking techniques and how to cook a variety of savoury dishes. In meeting these requirements, schools without access to a teaching kitchen, nearby kitchen or mobile kitchen may have to adapt the dishes and techniques they teach accordingly to the facilities available.

Through working in fields selected from those listed in the introduction (materials (including textiles), horticulture, electricals and electronics, construction, and mechanics), pupils should be taught to:

- use safely and increasingly effectively a wider range of tools, equipment and materials with increasing skill to make products that are fit for purpose
- develop and use straightforward practical, maintenance and repair skills
- extend their skills to communicate their ideas visually in 2-D and 3-D, including through using information and communication technology
- use constructive comments from others to improve their work
- understand key events and turning points in design and technology, such as the Industrial Revolution, and how they have shaped the world we live in.

Key Stage 3

Pupils should be able to select and use complex tools, equipment, machinery and techniques skilfully to develop well-conceived and well-executed practical solutions. They should explore materials and technological developments, and experiment with using them. They should develop sophisticated practical skills and carry out diagnostic, repair and maintenance tasks in a range of contexts. Pupils should be given the opportunity to work in emerging areas of design and technology, such as food design, design for disability, and age-related design. They should be taught how to use historical and contextual references to influence and improve their work.

Pupils should be taught about the importance of nutrition, a balanced diet, and about the characteristics of a broad range of ingredients in choosing and preparing food. They should be encouraged to develop a love of cooking. They should be taught to cook a repertoire of savoury meals and become confident in a range of cooking techniques. In meeting these requirements, schools without access to a teaching kitchen, nearby kitchen or mobile kitchen may have to adapt the repertoire and techniques they teach accordingly to the facilities available.

Through working in fields selected from those listed in the introduction (materials (including textiles), horticulture, electricals and electronics, construction, and mechanics), pupils should be taught to:

- increase their skills, knowledge and competence in using materials, machinery, techniques and processes
- plan, design, make and evaluate a range of quality products, in a variety of materials, that are fit for purpose
- complete common practical, diagnostic, repair and maintenance tasks and multi-stage processes
- communicate their ideas and designs skilfully and accurately in 2-D and 3-D, using a variety of techniques, including information and communication technology
- analyse the work of others, including iconic designs, to inform their own work
- understand developments in design and technology and the responsibilities of designers, including environmental responsibilities.

Geography

Purpose of study

A high-quality geography education should inspire in pupils a curiosity and fascination about the world and its people that will remain with them for the rest of their lives. Teaching should equip pupils with knowledge about diverse places, people, resources and environments, together with a deep understanding of the Earth's key physical and human processes. As pupils progress, their growing knowledge about the world helps them to deepen their understanding of the interaction between physical and human processes, and of the formation of landscapes and environments. Geographical knowledge provides the tools and approaches that explain how the Earth's features at different scales are shaped, interconnected and change over time.

Aims

The National Curriculum for geography aims to ensure that all pupils:

- develop knowledge of the location of places of global significance, their defining physical and human characteristics and how they relate to one another; this place knowledge should provide a sound context for understanding geographical processes
- understand the processes that give rise to key physical and human geographical features of the world, how these are interdependent and how they bring about spatial variation and change over time
- are competent in the geographical skills needed to:
    - collect, analyse and communicate with a range of data gathered through experiences of fieldwork that deepen their understanding of geographical processes
    - interpret a range of sources of geographical information, including maps, globes, aerial photographs and Geographical Information Systems (GIS)
    - communicate geographical information in a variety of ways, including through maps and writing at length.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject content

Key Stage 1

Pupils should develop knowledge about the world, the United Kingdom and their locality. They should understand basic subject-specific vocabulary relating to human and physical geography and begin to use geographical skills, including first-hand observation, to enhance their locational awareness.

Pupils should be taught to:

- name and locate the world's continents and oceans
- name, locate and identify characteristics of the four countries and capital cities of the United Kingdom and its surrounding seas
- understand geographical similarities and differences through studying the human and physical geography of a small area of the United Kingdom, and of a contrasting non-European country
- identify seasonal and daily weather patterns in the United Kingdom and the location of hot and cold areas of the world in relation to the Equator and the North and South Poles
- use basic geographical vocabulary to refer to:
    - key physical features, including: beach, coast, forest, hill, mountain, ocean, river, soil, valley, vegetation, and weather
    - key human features, including: city, town, village, factory, farm, house, office, and shop
- use world maps, atlases and globes to identify the United Kingdom and its countries, as well as the countries, continents and oceans studied at this key stage
- use simple compass directions (North, South, East and West) and locational language (e.g. near and far) to describe the location of features and routes on a map
- use aerial photographs and plan perspectives to recognise landmarks and basic physical features; devise a simple map; and use and construct basic symbols in a key
- use simple fieldwork and observational skills to study the geography of their school and the key human and physical features of its surrounding environment.

Key Stage 2

Pupils should extend their knowledge and understanding beyond the local area and the United Kingdom to include Europe, North and South America. This will include the location and characteristics of a range of the world's most significant human and physical features. They should develop their use of geographical tools and skills to enhance their locational and place knowledge.

Pupils should be taught to:

- locate the world's countries, using maps to focus on Europe and North and South America and concentrating on their environmental regions, key physical and human characteristics, countries, and major cities
- name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, including hills, mountains, cities, rivers, key topographical features and land-use patterns; and understand how some of these aspects have changed over time
- identify the position and significance of latitude, longitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, and time zones (including day and night)
- understand geographical similarities and differences through the study of human and physical geography of a region or area of the United Kingdom (different from that taught at Key Stage 1), a region or area in a European country, and a region or area within North or South America
- describe and understand key aspects of:
    - physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle
    - human geography, including: settlements, land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals, and water supplies
- use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied
- use the eight points of a compass, four-figure grid references, symbols and key (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider world
- use fieldwork to observe, measure and record the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.

Key Stage 3

Pupils should consolidate and extend their knowledge of the world's major countries and their physical and human features. They should understand how geographical processes interact to create distinctive human and physical landscapes that change over time. In doing so, they should become aware of increasingly complex geographical systems in the world around them. They should develop greater competence in using geographical tools and skills, including analysing and interpreting different data sources, and so continue to enrich their locational knowledge and spatial awareness.

Pupils should be taught to:

- extend their locational knowledge and deepen their spatial awareness of the world's countries using maps of the world to focus on Africa, South and East Asia (including China and India), the Middle East and Russia, focusing on their environmental regions, including polar and hot deserts, key physical and human characteristics, countries and major cities
- understand geographical similarities and differences through the study of human and physical geography of a region or area within Africa and a region or area within Asia
- understand, through the use of detailed place-based exemplars at a variety of scales, the key processes in:
    - physical geography relating to: glaciation, plate tectonics, rocks, soils, weathering, geological timescales, weather and climate, rivers and coasts
    - human geography relating to: population, international development, economic activity in the primary, secondary, tertiary and quaternary sectors, urbanisation, and the use of natural resources
- understand how human and physical processes interact to have an impact on and form distinctive landscapes
- build on their knowledge of globes, maps and atlases and use these geographical tools routinely in the classroom and in the field
- interpret Ordnance Survey maps in the classroom and the field, including using six-figure coordinates and scale, topographical and other thematic mapping, and aerial and satellite photographs
- use Geographical Information Systems (GIS) to view, analyse and interpret places and data
- use fieldwork to collect, analyse and draw conclusions from geographical data, using multiple sources of increasingly complex information.

History

Purpose of study

A high-quality history education equips pupils to think critically, weigh evidence, sift arguments, and develop perspective and judgement. A knowledge of Britain's past, and our place in the world, helps us understand the challenges of our own time.

Aims

The National Curriculum for history aims to ensure that all pupils:

- know and understand the story of these islands: how the British people shaped this nation and how Britain influenced the world
- know and understand British history as a coherent, chronological narrative, from the story of the first settlers in these islands to the development of the institutions which govern our lives today
- know and understand the broad outlines of European and world history: the growth and decline of ancient civilisations; the expansion and dissolution of empires; the achievements and follies of mankind
- gain and deploy a historically-grounded understanding of abstract terms such as ‘empire’, ‘civilisation’, ‘parliament’ and ‘peasantry’
- understand historical concepts such as continuity and change, cause and consequence, similarity, difference and significance, and use them to make connections, draw contrasts, analyse trends, frame historically-valid questions and create their own structured accounts, including written narratives and analyses
- understand how evidence is used rigorously to make historical claims, and discern how and why contrasting arguments and interpretations of the past have been constructed
- gain historical perspective by placing their growing knowledge into different contexts, understanding the connections between local, regional, national and international history; between cultural, economic, military, political, religious and social history; and between short- and long-term timescales.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject content

Key Stage 1

Pupils should begin to develop an awareness of the past and the ways in which it is similar to and different from the present. They should understand simple subject-specific vocabulary relating to the passing of time and begin to develop an understanding of the key features of a range of different events and historical periods.

Pupils should be taught about**:**

- simple vocabulary relating to the passing of time such as ‘before’, ‘after’, ‘past’, ‘present’, ‘then’ and ‘now’
- the concept of nation and of a nation’s history
- concepts such as civilisation, monarchy, parliament, democracy, and war and peace that are essential to understanding history
- the lives of significant individuals in Britain's past who have contributed to our nation's achievements – scientists such as Isaac Newton or Michael Faraday, reformers such as Elizabeth Fry or William Wilberforce, medical pioneers such as William Harvey or Florence Nightingale, or creative geniuses such as Isambard Kingdom Brunel or Christina Rossetti
- key events in the past that are significant nationally and globally, particularly those that coincide with festivals or other events that are commemorated throughout the year
- significant historical events, people and places in their own locality.

Key Stage 2

Pupils should be taught about the ancient civilisations of Greece and Rome.

In addition, across Key Stages 2 and 3, pupils should be taught the essential chronology of Britain's history. This will serve as an essential frame of reference for more in-depth study. Pupils should be made aware that history takes many forms, including cultural, economic, military, political, religious and social history. Pupils should be taught about key dates, events and significant individuals. They should also be given the opportunity to study local history.

Pupils should be taught the following chronology of British history sequentially:

- early Britons and settlers, including:
  - the Stone, Bronze and Iron Ages
  - Celtic culture and patterns of settlement
- Roman conquest and rule, including:
  - Caesar, Augustus, and Claudius
  - Britain as part of the Roman Empire
  - the decline and fall of the Western Roman Empire
- Anglo-Saxon and Viking settlement, including:
  - the Heptarchy
  - the spread of Christianity
  - key developments in the reigns of Alfred, Athelstan, Cnut and Edward the Confessor
- the Norman Conquest and Norman rule, including:
  - the Domesday Book
  - feudalism
  - Norman culture
- the Crusades
- Plantagenet rule in the 12th and 13th centuries, including:
  - key developments in the reign of Henry II, including the murder of Thomas Becket
  - Magna Carta
  - de Montfort's Parliament
- relations between England, Wales, Scotland and France, including:
  - William Wallace
  - Robert the Bruce
  - Llywelyn and Dafydd ap Gruffydd
  - the Hundred Years War

- life in 14th-century England, including:
  - chivalry
  - the Black Death
  - the Peasants' Revolt
- the later Middle Ages and the early modern period, including:
  - Chaucer and the revival of learning
  - Wycliffe's Bible
  - Caxton and the introduction of the printing press
  - the Wars of the Roses
  - Warwick the Kingmaker
- the Tudor period, including religious strife and Reformation in the reigns of Henry VIII, Edward VI, and Mary
- Elizabeth I's reign and English expansion, including:
  - colonisation of the New World
  - plantation of Ireland
  - conflict with Spain
- the Renaissance in England, including the lives and works of individuals such as Shakespeare and Marlowe
- the Stuart period, including:
  - the Union of the Crowns
  - King versus Parliament
  - Cromwell's commonwealth, the Levellers and the Diggers
  - the restoration of the monarchy
  - the Great Plague and the Great Fire of London
  - Samuel Pepys and the establishment of the Royal Navy
- the Glorious Revolution, constitutional monarchy and the Union of the Parliaments.

Key Stage 3

Building on the study of the chronology of the history of Britain in Key Stage 2, teaching of the periods specified below should ensure that pupils understand and use historical concepts in increasingly sophisticated ways to make connections, draw contrasts, analyse trends, frame historically-valid questions and create their own structured accounts. They should develop an awareness and understanding of the role and use of different types of sources, as well as their strengths, weaknesses and reliability. They should also examine cultural, economic, military, political, religious and social aspects and be given the opportunity to study local history. The teaching of the content should be approached as a combination of overview and in-depth studies.

Pupils should be taught about:

The development of the modern nation

- Britain and her Empire, including:
    - Wolfe and the conquest of Canada
    - Clive of India
    - competition with France and the Jacobite rebellion
    - the American Revolution
- the Enlightenment in England, including Francis Bacon, John Locke, Christopher Wren, Isaac Newton, the Royal Society, Adam Smith and the impact of European thinkers
- the struggle for power in Europe, including:
    - the French Revolution and the Rights of Man
    - the Napoleonic Wars, Nelson, Wellington and Pitt
    - the Congress of Vienna
- the struggle for power in Britain, including:
    - the Six Acts and Peterloo through to Catholic Emancipation
    - the slave trade and the abolition of slavery, the role of Olaudah Equiano and free slaves
    - the Great Reform Act and the Chartists
- the High Victorian era, including:
    - Gladstone and Disraeli
    - the Second and Third Reform Acts
    - the battle for Home Rule
    - Chamberlain and Salisbury

- the development of a modern economy, including:
    - iron, coal and steam
    - the growth of the railways
    - great innovators such as Watt, Stephenson and Brunel
    - the abolition of the Corn Laws
    - the growth and industrialisation of cities
    - the Factory Acts
    - the Great Exhibition and global trade
    - social conditions
    - the Tolpuddle Martyrs and the birth of trade unionism
- Britain's global impact in the 19th century, including:
    - war in the Crimea and the Eastern Question
    - gunboat diplomacy and the growth of Empire
    - the Indian Mutiny and the Great Game
    - the scramble for Africa
    - the Boer Wars
- Britain's social and cultural development during the Victorian era, including:
    - the changing role of women, including figures such as Florence Nightingale, Mary Seacole, George Eliot and Annie Besant
    - the impact of mass literacy and the Elementary Education Act.

The twentieth century

- Britain transformed, including:
    - the Rowntree Report and the birth of the modern welfare state
    - ‘Peers versus the People’
    - Home Rule for Ireland
    - the suffragette movement and women's emancipation
- the First World War, including:
    - causes such as colonial rivalry, naval expansion and European alliances
    - key events
    - conscription
    - trench warfare
    - Lloyd George's coalition
    - the Russian Revolution
    - The Armistice
    - the peace of Versailles
- the 1920s and 1930s, including:
    - the first Labour Government

    - universal suffrage
    - the Great Depression
    - the abdication of Edward VIII and constitutional crisis
- the Second World War, including:
    - causes such as appeasement, the failure of the League of Nations and the rise of the Dictators
    - the global reach of the war – from Arctic Convoys to the Pacific Campaign
    - the roles of Churchill, Roosevelt and Stalin
    - Nazi atrocities in occupied Europe and the unique evil of the Holocaust
- Britain's retreat from Empire, including:
    - independence for India and the Wind of Change in Africa
    - the independence generation – Gandhi, Nehru, Jinnah, Kenyatta, Nkrumah
- the Cold War and the impact of Communism on Europe
- the Attlee Government and the growth of the welfare state
- the Windrush generation, wider new Commonwealth immigration, and the arrival of East African Asians
- society and social reform, including the abolition of capital punishment, the legalisation of abortion and homosexuality, and the Race Relations Act
- economic change and crisis, the end of the post-war consensus, and governments up to and including the election of Margaret Thatcher
- Britain's relations with Europe, the Commonwealth, and the wider world
- the end of the Cold War and the fall of the Berlin Wall.

Languages

Purpose of study

Learning a foreign language is a liberation from insularity and provides an opening to other cultures. A high-quality languages education should foster pupils' curiosity and deepen their understanding of the world. The teaching should enable pupils to express their ideas and thoughts in another language and to understand and respond to its speakers, both in speech and in writing. It should also provide opportunities for them to communicate for practical purposes, learn new ways of thinking and read great literature in the original language. Language teaching should provide the foundation for learning further languages, equipping pupils to study and work in other countries.

Aims

The National Curriculum for languages aims to ensure that all pupils:

- understand and respond to spoken and written language from a variety of authentic sources
- speak with increasing confidence, fluency and spontaneity, finding ways of communicating what they want to say, including through discussion and asking questions, and continually improving the accuracy of their pronunciation and intonation
- can write at varying length, for different purposes and audiences, using the variety of grammatical structures that they have learnt
- discover and develop an appreciation of a range of writing in the language studied.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject content

Key Stage 2: Foreign languages

Teaching should focus on enabling pupils to make substantial progress in one of the following languages: French, German, Italian, Mandarin, Spanish, Latin or Ancient Greek. The teaching should provide an appropriate balance of spoken and written language and should lay the foundations for further foreign language teaching at Key Stage 3. It should enable pupils to understand and communicate ideas, facts and feelings in speech and writing, focused on familiar and routine matters, using their knowledge of phonology, grammatical structures and vocabulary.

The focus of study in modern languages will be on practical communication, while the focus in Latin or Ancient Greek will be to provide a linguistic foundation for learning modern languages and for reading comprehension. Pupils studying ancient languages may take part in simple oral exchanges, while discussion of what they read will be conducted in English.

Pupils should be taught to:

- listen attentively to spoken language and show understanding by joining in and responding
- explore the patterns and sounds of language through songs and rhymes and link the spelling, sound and meaning of words
- engage in conversations; ask and answer questions; express opinions and respond to those of others; seek clarification and help*
- speak in sentences, using familiar vocabulary, phrases and basic language structures
- develop accurate pronunciation and intonation so that others understand when they are reading aloud or using familiar words and phrases*
- present ideas and information orally to a range of audiences*
- read carefully and show understanding of words, phrases and simple writing
- appreciate stories, songs, poems and rhymes in the language
- broaden their vocabulary and develop their ability to understand new words that are introduced into familiar written material, including through using a dictionary
- write phrases from memory, and adapt these to create new sentences, to express ideas clearly
- describe people, places, things and actions orally* and in writing

- understand basic grammar appropriate to the language being studied, such as (where relevant): feminine, masculine and neuter forms and the conjugation of high-frequency verbs; key features and patterns of the language; how to apply these, for instance, to build sentences; and how these differ from or are similar to English.

The starred (*) content above will not be applicable to ancient languages.

Key Stage 3: Modern foreign languages

Teaching may be of any modern foreign language and should build on the foundations laid at Key Stage 2. It should focus on developing the breadth and depth of pupils' competence in listening, speaking, reading and writing, based on the sound foundation of core grammar and vocabulary. It should enable pupils to understand and communicate personal and factual information that goes beyond their immediate needs and interests, developing and justifying points of view in speech and writing, with increased spontaneity, independence and accuracy. It should provide suitable preparation for further study.

Grammar and vocabulary

Pupils should be taught to:

- identify and use tenses or other structures which convey the present, past, and future as appropriate to the language being studied
- use and manipulate a variety of key grammatical structures and patterns, including voices and moods, as appropriate
- develop and use a wide-ranging and deepening vocabulary that goes beyond their immediate needs and interests, allowing them to give and justify opinions and take part in discussion about wider issues
- use accurate grammar, spelling and punctuation.

Linguistic competence

Pupils should be taught to:

- listen to a variety of forms of spoken language to obtain information and respond appropriately
- transcribe words and short sentences that they hear with increasing accuracy
- initiate and develop conversations, coping with unfamiliar language and unexpected responses, making use of important social conventions such as formal modes of address
- express and develop ideas clearly and with increasing accuracy, both orally and in writing
- speak coherently and confidently, with increasingly accurate pronunciation and intonation
- read and show comprehension of original and adapted materials from a range of different sources, understanding the purpose, important ideas and details, and provide an accurate English translation of short, suitable material
- read literary texts in the language, such as stories, songs, poems and letters, to stimulate ideas, develop creative expression and expand understanding of the language and culture
- write prose using an increasingly wide range of grammar and vocabulary, write creatively to express their own ideas and opinions, and translate short written text accurately into the foreign language.

Music

Purpose of study

Music is a universal language and every pupil should have the opportunity to become fluent. A high-quality music education should provide all pupils with the opportunity to sing and to learn a musical instrument. Pupils should leave school with an appreciation of how music is composed and performed, allowing them to listen with discrimination and judgement to the best in the musical canon.

Aims

The National Curriculum for music aims to ensure that all pupils:

- perform, listen to, review and evaluate music across a range of historical periods, genres, styles and traditions, including the works of great musicians and composers
- learn to sing and to use their voices, to compose and make music with others, have the opportunity to learn a musical instrument, and have the opportunity to progress to the next level of musical excellence
- understand musical notations and how music is constructed, produced and communicated through its inter-related dimensions: pitch, duration, dynamics, tempo, timbre, texture and structure.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject content

Key Stage 1

Pupils should be taught to:

- use their voices expressively by singing songs and speaking chants and rhymes
- play tuned and untuned instruments musically
- listen with concentration and understanding to a range of high-quality live and recorded music
- make and combine sounds using the inter-related dimensions of music.

Key Stage 2

Pupils should be taught to sing and play musically with increasing confidence and control. They should develop an understanding of musical composition, organising and manipulating ideas within musical structures and reproducing sounds as part of an aural memory.

Pupils should be taught to:

- play and perform in solo and ensemble contexts, using their voice and playing musical instruments with increasing accuracy, control and expression
- improvise and compose music using the inter-related dimensions of music separately and in combination
- listen with attention to detail and recall sounds with increasing aural memory
- use and understand the basics of staff and other musical notations
- appreciate and understand a wide range of high-quality live and recorded music from different traditions and from great musicians and composers
- develop an understanding of the history of music.

Key Stage 3

Pupils should build on their previous knowledge through performing, composing and listening. They should develop their vocal and/or instrumental fluency, accuracy and expressiveness; understand musical structures, styles, genres and traditions and identify the expressive use of musical elements. They should listen with increasing discrimination, and appreciate and understand a wide range of musical contexts and styles to inform judgements.

Pupils should be taught to:

- play and perform confidently in solo or ensemble contexts using their voice and playing instruments musically and fluently with accuracy and expression
- compose, extend and develop musical ideas by drawing on a range of musical structures, styles, genres and traditions
- use staff and other relevant notations appropriately and accurately in a range of musical styles, genres and traditions
- identify and use expressively the inter-related dimensions of music with increasing sophistication, including through extended use of tonalities, different types of scales and other musical devices
- listen with increasing discrimination to a wide range of music from great composers
- develop a deep understanding of the music that they perform and listen to, and its history.

Physical Education

Purpose of study

A high-quality physical education curriculum inspires all pupils to succeed and excel in competitive sport and other physically-demanding activities. It should provide opportunities for pupils to become physically confident in a way which supports their health and fitness. Opportunities to compete in sport and other activities build character and help to embed values such as fairness and respect.

Aims

The National Curriculum for physical education aims to ensure that all pupils:

- develop competence to excel in a broad range of physical activities
- are physically active for sustained periods of time
- engage in competitive sports and activities
- lead healthy, active lives.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject content

Key Stage 1

Pupils should develop core movement, become increasingly competent and confident and access a broad range of opportunities to extend their agility, balance and co-ordination, individually and with others. They should be able to engage in competitive (both against self and against others) and co-operative physical activities, in a range of increasingly challenging situations.

Pupils should be taught to:

- master basic movements such as running, jumping, throwing, catching, as well as developing balance, agility and co-ordination, and begin to apply these in a range of activities
- participate in team games, developing simple tactics for attacking and defending
- perform dances using simple movement patterns.

Key Stage 2

Pupils should continue to implement and develop a broader range of skills, learning how to use them in different ways and to link them to make actions and sequences of movement. They should enjoy communicating, collaborating and competing with each other. They should develop an understanding of how to succeed in different activities and sports and learn how to evaluate and recognise their own success.

Pupils should be taught to:

- use running, jumping, catching and throwing in isolation and in combination
- play competitive games, modified where appropriate, such as football, netball, rounders, cricket, hockey, basketball, badminton and tennis, and apply basic principles suitable for attacking and defending
- develop flexibility, strength, technique, control and balance, for example through gymnastics and athletics
- perform dances using a range of movement patterns
- take part in outdoor and adventurous activity challenges both individually and within a team
- compare their performances with previous ones to achieve their personal best.

Swimming and water safety

All schools must provide swimming instruction either in Key Stage 1 or Key Stage 2.

In particular, pupils should be taught to:

- swim competently, confidently and proficiently over a distance of at least 25 metres
- use a range of strokes effectively such as front crawl, backstroke and breaststroke
- perform safe self-rescue in different water-based situations.

Key Stage 3

Pupils should build on and embed the physical development and skills learnt in Key Stages 1 and 2, become more competent, confident and expert in their techniques, and apply them across different sports and activities. They should understand what makes a performance effective and how to apply these principles to their own and others' work. They should develop the confidence and interest to get involved in exercise and sports and activities out of school and in later life.

Pupils should be taught to:

- use a range of tactics and strategies to overcome opponents in face-to face competition through team and individual games such as football, netball, rounders, cricket, hockey, basketball, badminton, tennis and rugby
- develop their technique and improve their performance in other competitive sports such as athletics and gymnastics
- perform dances using advanced movement patterns
- take part in outdoor and adventurous activities which present mental and physical challenges and be encouraged to work in a team, building on trust and developing skills to solve problems, either individually or as a group
- compare their performances with previous ones to achieve their personal best
- take part in competitive sports and activities outside school through community links or sports clubs.

Key Stage 4

Pupils should tackle complex and demanding activities. They should get involved in physical activity that is mainly focused on performing, promoting healthy and active lives, or developing personal fitness. This could include becoming a specialist or elite performer.

Pupils should be taught to:

- use and develop a variety of tactics and strategies to overcome opponents in team and individual games such as football, netball, rounders, cricket, hockey, basketball, badminton, tennis and rugby
- develop their technique and improve their performance in other competitive sports such as athletics and gymnastics, or other physical activities such as dance
- take part in further outdoor and adventurous activities in a range of environments which present mental and physical challenges and which encourage pupils to work in a team, building on trust and developing skills to solve problems, either individually or as a group
- compare their performances with previous ones to achieve their personal best
- continue to take part in competitive sports and activities outside school through community links or sports clubs.

Appendices to the English programmes of study

Appendix 1: Spelling

Appendix 2: Grammar and punctuation

Appendix 1: Spelling

Most people read words more accurately than they spell them. The younger pupils are, the truer this is.

By the end of Year 1, pupils should be able to read a large number of different words containing the grapheme-phoneme correspondences (GPCs) that they have learnt, whether or not they have seen these words before. Spelling, however, is a very different matter. Once pupils have learnt more than one way of spelling particular sounds, choosing the right letter or letters depends on their either having made a conscious effort to learn the words or having absorbed them less consciously through their reading. Younger pupils have not had enough time to learn or absorb the accurate spelling of all the words that they may want to write.

This appendix provides examples of words embodying each pattern which is taught. Many of the words listed as 'example words' for Years 1 and 2, including almost all those listed as 'exception words', are used frequently in pupils' writing, and therefore it is worth pupils learning the correct spelling. The 'exception words' contain GPCs which have not yet been taught as widely applicable, but this may be because they are applicable in very few age-appropriate words rather than because they are rare in English words in general.

The statutory word-lists for Years 3 and 4 and Years 5 and 6 contain a mixture of words frequently used in pupils' writing and words which are often misspelt. Some of the words in these lists may be thought of as quite challenging, but the 100 words in each list can be covered in fewer than two school years if teachers simply add words each week to the words they choose for their pupils to learn.

The rules and guidelines are intended to support the teaching of spelling. Phonic knowledge should continue to underpin spelling after Key Stage 1 but, increasingly, pupils also need to understand the role of morphology and etymology. Although many root words simply have to be learnt, teachers can help pupils to understand relationships between meaning and spelling where these are relevant. For example, understanding the relationship between *medical* and *medicine* may help pupils to spell the /s/ sound in *medicine* with the letter 'c'. Pupils can also be helped to spell words with prefixes and suffixes correctly if they understand some general principles for adding them.

The spelling appendix is structured in the same way as the programmes of study: the left-hand column is statutory; the middle and right-hand columns are non-statutory guidance.

Year 1

Work for Year 1		
Statutory requirements	**Rules and guidelines (non-statutory)**	**Example words (non-statutory)**
Revision of Reception work The boundary between revision of work covered in Reception and the introduction of new work may vary according to the programme used, but basic revision should include: • all grapheme-phoneme correspondences which have been taught • the process of segmenting spoken words into sounds before choosing graphemes to represent the sounds • words with adjacent consonants; • rules and guidelines which have been taught • vowel digraphs which have been taught		No example words are suggested because the selection will vary according to the programme used, particularly where vowel digraphs are concerned.
The sounds /f/, /l/, /s/, /z/ and /k/ spelt ff, ll, ss, zz and ck	The /f/, /l/, /s/, /z/ and /k/ sounds are usually spelt as **ff**, **ll**, **ss**, **zz** and **ck** if they come straight after a single vowel letter in short words. **Exceptions**: if, pal, us, bus, yes.	off, well, miss, buzz, back
The /ŋ/ sound spelt n before k		bank, think, honk, sunk
Division of words into syllables	Each syllable is like a 'beat' in the spoken word. Words of more than one syllable often have an unstressed syllable in which the vowel is unclear so the spelling of this vowel may need to be learnt.	pocket, rabbit, carrot, thunder, sunset
-tch	The /tʃ/ sound is usually spelt as **tch** if it comes straight after a single vowel letter. **Exceptions**: rich, which, much, such.	catch, fetch, kitchen, notch, hutch
The /v/ sound at the end of words	English words hardly ever end with the letter **v**, so if a word ends with a /v/ sound, the letter **e** usually needs to be added after the 'v'.	have, live, give
Adding s and es to words (plural of nouns and the third person singular of verbs)	If the ending sounds like /s/ or /z/, it is spelt as **–s**. If the ending sounds like /ɪz/ and forms an extra syllable or 'beat' in the word, it is spelt as **–es**.	cats, dogs, spends, rocks, thanks, catches

Adding the endings –ing, –ed and –er to verbs where no change is needed to the root word	**–ing** and **–er** always add an extra syllable to the word and **–ed** sometimes does. The past tense of some verbs may sound as if it ends in /ɪd/ (extra syllable), /d/ or /t/ (no extra syllable), but all these endings are spelt **–ed**. If the verb ends in two consonant letters (the same or different), the ending is simply added on.	hunting, hunted, hunter, buzzing, buzzed, buzzer, jumping, jumped, jumper
Adding –er and –est to adjectives where no change is needed to the root word	As with verbs (see above), if the adjective ends in two consonant letters (the same or different), the ending is simply added on.	grander, grandest, fresher, freshest, quicker, quickest
Vowel digraphs and trigraphs	Some may already be known, depending on the programmes used in reception, but some will be new. The endings **–ing**, **–ed**, **–er** and **–est**, if relevant, can be added straight on to all the words which can function as verbs or adjectives, except for those in italics.	
ai **oi**	The digraphs **ai** and **oi** are never used at the end of English words.	rain, wait, train, paid, afraid oil, join, coin, point, soil
ay **oy**	**ay** and **oy** are used for those sounds at the end of words and at the end of syllables.	day, play, say, way, stay boy, toy, enjoy, annoy
a–e		made, came, same, take, safe
e–e		these, theme, complete
i–e		five, ride, like, time, side
o–e		home, those, woke, hope, hole
u–e	Both the /u:/ and /ju:/ sounds can be spelt **u–e**	June, rule, rude, use, tube, tune
ar		car, start, park, arm, garden
ee		see, tree, green, meet, week
ea (/iː/)		sea, dream, meat, each, read (present tense)
ea (/ɛ/)		head, bread, meant, instead, read (past tense)
er (/ɜː/)		(stressed sound): her, term, verb, person
er (/ə/)		(unstressed *schwa* sound): better, under, summer, winter, sister
ir		girl, bird, shirt, first, third
ur		turn, hurt, church, burst, Thursday
oo	Very few words end with the letters **oo**.	food, pool, moon, zoo, soon
oo		book, took, foot, wood, good
oa	The digraph **oa** is very rare at the end of an English word.	boat, coat, road, coach, goal
oe		toe, goes

ou **ow (/aʊ/)** **ow (/əʊ/)** **ue** **ew** **ie (/aɪ/)** **ie (/iː/)** **igh** **or** **ore** **aw** **au** **air** **ear** **ear (/ɛə/)** **are (/ɛə/)**	The only common English word ending in **ou** is *you*. Both the /u:/ and /ju:/ (“oo” and “yoo”) sounds can be spelt as **u–e**, **ue** and **ew**. If words end in the /oo/ sound, **ue** and **ew** are more common spellings than **oo**.	out, about, mouth, around, sound now, how, brown, down, town own, blow, snow, grow, show blue, clue, true, rescue, Tuesday new, few, grew, flew, drew, threw lie, tie, pie, cried, tried, dried chief, field, thief high, night, light, bright, right for, short, born, horse, morning more, score, before, wore, shore saw, draw, yawn, crawl author, August, dinosaur, astronaut air, fair, pair, hair, chair dear, hear, beard, near, year bear, pear, wear bare, dare, care, share, scared
Words ending –y (/iː/ or /ɪ/ depending on accent)		very, happy, funny, party, family
New consonant spellings ph and wh	The /f/ sound is not usually spelt as **ph** in short everyday words (e.g. *fat*, *fill*, *fun*).	dolphin, alphabet, phonics, elephant when, where, which, wheel, while
Using k for the /k/ sound	The /k/ sound is spelt as **k** rather than as **c** before **e**, **i** and **y**.	Kent, sketch, kit, skin, frisky
Adding the prefix –un	The prefix **un–** is added to the beginning of a word without any change to the spelling of the root word.	unhappy, undo, unload, unfair, unlock
Compound words	Compound words are two words joined together. Each part of the longer word is spelt as it would be if it were on its own.	football, playground, farmyard, bedroom, blackberry
Common exception words		the, a, do, to, today, of, said, says, are, were, was, is, his, has, I, you, your, they, be, he, me, she, we, no, go, so, by, my, here, there, where, love, come, some, one, once, ask, friend, school, put, push, pull, full, house, our, and/or others, according to the programme used

Year 2

Revision of work from Year 1	As words with new GPCs are introduced, many previously-taught GPCs can be revised at the same time as these words will usually contain them.

New work for Year 2		
Statutory requirements	**Rules and guidelines (non-statutory)**	**Example words (non-statutory)**
The /dʒ/ sound spelt as ge and dge at the end of words, and sometimes spelt as g elsewhere in words before e, i and y	The letter **j** is never used for the /dʒ/ (“dge”) sound at the end of English words. At the end of a word, the /dʒ/ sound is spelt **–dge** straight after the /æ/, /ɛ/, /ɪ/, /ɒ/ and /ʌ/ sounds (sometimes called “short” vowels). After all other sounds, whether vowels or consonants, the /dʒ/ sound is spelt as **–ge** at the end of a word. In other positions in words, the /dʒ/ sound is often (but not always) spelt as **g** before **e**, **i**, and **y**. The /dʒ/ sound is always spelt as **j** before **a**, **o** and **u**.	badge, edge, bridge, dodge, fudge age, huge, change, charge, bulge, village gem, giant, magic, giraffe, energy
The /s/ sound spelt c before e, i and y		race, ice, cell, city, fancy
The /n/ sound spelt kn and (less often) gn at the beginning of words	The ‘k’ and ‘g’ at the beginning of these words was sounded hundreds of years ago.	knock, know, knee, gnat, gnaw
The /ɹ/ sound spelt wr at the beginning of words	This spelling probably also reflects an old pronunciation.	write, written, wrote, wrong, wrap
The /l/ or /əl/ sound spelt –le at the end of words	The **–le** spelling is the most common spelling for this sound at the end of words.	table, apple, bottle, little, middle
The /l/ or /əl/ sound spelt –el at the end of words	The **–el** spelling is much less common than **–le**. The **–el** spelling is used after **m**, **n**, **r**, **s**, **v**, **w**.	camel, tunnel, squirrel, tinsel, travel, towel
The /l/ or /əl/ sound spelt –al at the end of words	Not many nouns end in –**al**, but many adjectives do.	metal, pedal, capital, hospital, animal
Words ending –il	There are not many of these words.	pencil, fossil, nostril
The /aɪ/ sound spelt –y at the end of words	This is by far the most common spelling for this sound at the end of words.	cry, fly, dry, try, reply, July
Adding –es to nouns and verbs ending in consonant-letter–y	The **y** is changed to **i** before **–es** is added.	flies, tries, replies, copies, babies, carries
Adding –ed, –ing, –er and –est to root words ending in consonant-letter–y	The **y** is changed to **i** before **–ed**, **–er** and **–est** are added, but not before **–ing** as this would result in **ii**. The only ordinary words with **ii** are *skiing* and *taxiing***.**	copied, copier, happier, happiest, cried, replied …**but** copying, crying, replying
Adding the endings –ing, –ed, –er, –est and –y to words ending in vowel-letter–consonant-letter–e	The **–e** at the end of the root word is dropped before **–ing**, **–ed**, **–er**, **–est**, **–y** or any other suffix beginning with a vowel letter is added.	hiking, hiked, hiker, nicer, nicest, shiny

Adding –ing, –ed, –er, –est and –y to words of one syllable ending in a single consonant letter after a single vowel letter	The last consonant letter of the root word is doubled to keep the /æ/, /ɛ/, /ɪ/, /ɒ/ and /ʌ/ sound (i.e. to keep the vowel 'short'). **Exception**: The letter 'x' is never doubled: *mixing*, *mixed*, *boxer*, *sixes*.	patting, patted, humming, hummed, dropping, dropped, sadder, saddest, fatter, fattest, runner, runny
The /ɔ:/ sound spelt a before l and ll	The ***/***ɔ:***/*** sound ("or") is usually spelt as **a** before **l** and **ll**.	all, ball, call, walk, talk, always
The /ʌ/ sound spelt o		other, mother, brother, nothing, Monday
The /i:/ sound spelt –ey	The plural of these words is formed by the addition of **–s** (*donkeys*, *monkeys* etc.).	key, donkey, monkey, chimney, valley
The /ɒ/ sound spelt a after w and qu	**a** is the most common spelling for the ***/***ɒ***/*** ("hot") sound after **w** and **qu**.	want, watch, wander, quantity, squash
The /ɜ:/ sound spelt or after w	Very few words spell the /ɜ:/ sound ("burn") this way.	word, work, worm, world, worth
The /ɔ:/ sound spelt ar after w	Very few words spell the ***/***ɔ:***/*** sound ("or") this way.	war, warm, towards
The /ʒ/ sound spelt s		television, treasure, usual
The suffixes –ment, –ness, –ful and –less	If a suffix starts with a consonant letter, it is added straight on to most root words without any change to the last letter of those words. **Exceptions**: (1) *argument* (2) root words ending in a consonant letter followed by **y** – see above.	enjoyment, sadness, careful, playful, hopeless, plainness (plain + ness)
Contractions	In contractions, the apostrophe shows where a letter or letters would be if the words were written in full (e.g. *can't – cannot*). *It's* means *it is* (e.g. *It's* raining) or sometimes *it has* (e.g. It's been raining), but *it's* is never used for the possessive.	can't, didn't, hasn't, couldn't, it's, I'll
The possessive apostrophe (singular nouns)		Megan's, Ravi's, the girl's, the child's, the man's
Words ending in –tion		station, fiction, motion, national, section
Homophones and near-homophones	It is important to know the difference in meaning between homophones.	there/their/they're, here/hear, quite/quiet, see/sea, bare/bear, one/won, sun/son, to/too/two, be/bee, blue/blew, night/knight
Common exception words	Some words are exceptions in some accents but not in others – e.g. *past*, *last*, *fast*, *path* and *bath* are not exceptions in accents where the **a** in these words is pronounced /æ/, as in *cat.* *Great*, *break* and *steak* are the only common words where the /eɪ/ sound is spelt **ea**. Note 'children' is not an exception, but is included for convenience with 'child'.	door, floor, poor, because, find, kind, mind, behind, child, children*, wild, climb, most, only, both, old, cold, gold, hold, told, every, everybody, even, great, break, steak, pretty, beautiful, after, fast, last, past, father, class, grass, pass, plant, path, bath, hour, move, prove, improve, sure, sugar, eye, could, should, would, who, whole, any, many, clothes, busy, people, water, again, half, money, Mr, Mrs, parents, Christmas – and/or others according to programme used.

Years 3 and 4

Revision of work from Years 1 and 2	Pay special attention to the rules for adding suffixes.

New work for Years 3 and 4		
Statutory requirements	**Rules and guidelines (non-statutory)**	**Example words (non-statutory)**
Adding suffixes beginning with vowel letters to words of more than one syllable	If the last syllable of a word is stressed and ends with one consonant letter which has just one vowel letter before it, the final consonant letter is doubled before any ending beginning with a vowel letter is added. The consonant letter is not doubled if the syllable is unstressed.	forgetting, forgotten, beginning, beginner, prefer, preferred gardening, gardener, limiting, limited, limitation
The /ɪ/ sound spelt y elsewhere than at the end of words	These words should be learnt as needed.	myth, gym, Egypt, pyramid, mystery
The /ʌ/ sound spelt ou	These words should be learnt as needed.	young, touch, double, trouble, country
More prefixes	Most prefixes are added to the beginning of root words without any changes in spelling, but see **in–** below. Like **un–**, the prefixes **dis–** and **mis–** have negative meanings. The prefix **in–** can mean both 'not' and 'in'/'into'. In the words given here it means 'not'. Before a root word starting with **l**, **in–** becomes **il** Before a root word starting with **m** or **p**, **in–** becomes **im–**. Before a root word starting with **r**, **in–** becomes **ir–**. **re–** means 'again' or 'back'. **sub–** means 'under'. **inter–** means 'between' or 'among'. **super–** means 'above'. **anti–** means 'against'. **auto–** means 'self' or 'own'.	**dis–**, **mis–**, **in–** disappoint, disagree, disobey misbehave, mislead, misspell (mis + spell) inactive, incorrect illegal, illegible immature, immortal, impossible, impatient, imperfect irregular, irrelevant, irresponsible **re–**: redo, refresh, return, reappear, redecorate **sub–**: subdivide, subheading, submarine, submerge **inter–**: interact, intercity, international, interrelated (inter + related) **super–**: supermarket, superman, superstar **anti–**: antiseptic, anti-clockwise, antidote **auto–**: automatic, autograph
The suffix –ation	The suffix **–ation** is added to verbs to form nouns. The rules already learnt still apply.	information, adoration, sensation, preparation, admiration

The suffix –ly	The suffix **–ly** is added to an adjective to form an adverb. The rules already learnt still apply. The **–ly** suffix starts with a consonant letter, so it is added straight on to most root words unless they end with **y**. If the root word ends with **y**, the **y** is changed to **i**. **Exceptions**: 1. If the root word ends with **–le**, the **–le** is changed to **–ly**. 2. If the root word ends with **–ic**, **–ally** is added rather than just **–ly**, except in the word *publicly*. 3. The words *truly*, *duly*, *wholly.*	sadly, completely, usually (usual + ly), finally (final + ly), comically (comical + ly) happily, angrily gently, simply, humbly, nobly basically, frantically, dramatically
Words with endings sounding like /ʒə/ or /tʃə/	The ending sounding like **/**ʒə**/** is always spelt **–sure**. The ending sounding like **/**tʃə**/** is often spelt **–ture**, but check that the word is not a root word ending in **(t)ch** with an **er** ending, e.g. *teacher*, *catcher*, *richer*, *stretcher.*	measure, treasure, pleasure, enclosure creature, furniture, picture, nature, adventure
Endings which sound like /ʒən/	If the ending sounds like **/**ʒən**/**, it is spelt as **–sion**.	division, invasion, confusion, decision, collision, television
The suffix –ous	Sometimes the root word is obvious and the usual rules apply for adding suffixes beginning with vowel letters. Sometimes there is no obvious root word. **–our** is changed to **–or** before **–ous** is added. A final 'e' must be kept if the /dʒ/ sound of 'g' is to be kept. If there is an /i:/ sound before the **–ous** ending, it is usually spelt as **i**, but a few words have **e**.	poisonous, dangerous, mountainous, famous, various tremendous, enormous, jealous humorous, glamorous, vigorous courageous, outrageous serious, obvious, curious hideous, spontaneous, courteous
Endings which sound like /ʃən/, spelt –tion, –sion, –ssion, –cian	Strictly speaking, the endings are **–ion** and **–ian**. Clues about whether to put **t**, **s**, **ss** or **c** before these endings often come from the last letter or letters of the root word. **–tion** is the most common spelling. It is used if the root word ends in **t** (invent) or **te** (hesitate). **–ssion** is used if the root word ends in **ss** or –**mit**. **–sion** is used if the root word ends in **d** or **se**. **Exceptions**: attend – attention, intend – intention **–cian** is used if the root word ends in **c** or **cs**.	invention, injection, action, hesitation, completion expression, discussion, confession, permission, admission expansion, extension, comprehension, tension musician, electrician, magician, politician, mathematician
Words with the /k/ sound spelt ch (Greek in origin)		scheme, chorus, chemist, echo, character

Words with the /ʃ/ sound spelt ch (mostly French in origin)		chef, chalet, machine, brochure
Words ending with the /g/ sound spelt –gue and the /k/ sound spelt –que (French in origin)		league, tongue, antique, unique
Words with the /s/ sound spelt sc (Latin in origin)		science, scene, discipline, fascinate, crescent
Words with the /eɪ/ sound spelt ei, eigh, or ey		vein, weigh, eight, neighbour, they, obey
Possessive apostrophe with plural words	The apostrophe is placed after the plural form of the word; **–s** is not added if the plural already ends in **–s**, but *is* added if the plural does not end in **–s** (i.e. is an irregular plural – e.g. *children's*).	girls', boys', babies', children's, men's, mice's (Note: singular proper nouns ending in an *s* use the 's suffix e.g. Cyprus's population.)
Homophones or near-homophones		accept/except, affect/effect, ball/bawl, berry/bury, brake/break, fair/fare, grate/great, groan/grown, here/hear, heel/heal/he'll, knot/not, mail/male, main/mane, meat/meet, medal/meddle, missed/mist, peace/piece, plain/plane, rain/rein/reign, scene/seen, weather/whether, whose/who's

Word list for Years 3 and 4

accident(ally)	circle	famous	island	peculiar	sentence
actual(ly)	complete	favourite	knowledge	perhaps	separate
address	consider	February	learn	popular	special
answer	continue	forward(s)	length	position	straight
appear	decide	fruit	library	possess(ion)	strange
arrive	describe	grammar	material	possible	strength
believe	different	group	medicine	potatoes	suppose
bicycle	difficult	guard	mention	pressure	surprise
breath	disappear	guide	minute	probably	therefore
breathe	early	heard	natural	promise	though/although
build	earth	heart	naughty	purpose	thought
business	eight/eighth	height	notice	quarter	through
calendar	enough	history	occasion(ally)	question	various
caught	exercise	imagine	often	recent	weight
centre	experience	increase	opposite	regular	woman
century	experiment	important	ordinary	reign	women
certain	extreme	interest	particular	remember	

Many root words simply need to be learnt, but once they are learnt, and the rules and guidelines for adding prefixes and suffixes are known, many longer words can be spelt correctly. Examples:

business (**busy + ness**, with the **y** of **busy** changed to **i** according to the rule).
disappear (just add **dis-** to **appear**).

Understanding relationships between words can also help with spelling. Examples:

bicycle is *cycle* (from the Greek for *wheel*) with **bi–** (meaning *two*) before it.
medicine is related to *medical* so the /s/ sound is spelt as **c**.
opposite is related to *oppose*, so the schwa sound in *opposite* is spelt as **o**.

Years 5 and 6

Revise work done in previous years

New work for Years 5 and 6		
Statutory requirements	**Rules and guidelines (non-statutory)**	**Example words (non-statutory)**
Endings which sound like /ʃəs/ spelt –cious or –tious	Not many common words end like this. If the root word ends in **–ce**, the /ʃ/ sound is usually spelt as **c** – e.g. *vice – vicious*, *grace – gracious*, *space – spacious*, *malice – malicious.* **Exception**: *anxious*	vicious, precious, conscious, delicious, malicious, suspicious ambitious, cautious, fictitious, infectious, nutritious
Endings which sound like /ʃəl/	**–cial** is common after a vowel letter and **–tial** after a consonant letter, but there are some exceptions. **Exceptions**: initial, financial, commercial, provincial (the spelling of the last three is clearly related to *finance*, *commerce* and *province*).	official, special, artificial, partial, confidential, essential
Words ending in –ant, –ance/–ancy, –ent, –ence/–ency	Use **–ant** and **–ance/–ancy** if there is a related word with a /æ/ or /eɪ/ sound in the right position; –**ation** endings are often a clue. Use **–ent** and **–ence/–ency** after soft **c** (/s/ sound), soft **g** (/dʒ/ sound) and **qu**, or if there is a related word with a clear /ɛ/ sound in the right position. There are many words, however, where the above guidelines don't help. These words just have to be learnt.	observant, observance, (observation), expectant (expectation), hesitant, hesitancy (hesitation), tolerant, tolerance (toleration), substance (substantial) innocent, innocence, decent, decency, frequent, frequency, confident, confidence (confidential) assistant, assistance, obedient, obedience, independent, independence
Words ending in –able and –ible	The **–able** ending is far more common than the **–ible** ending. As with **–ant** and **–ance/–ancy**, the **–able** ending is used if there is a related word ending in **–ation**. If the **–able** ending is added to a word ending in **–ce** or **–ge**, the **e** after the **c** or **g** must be kept as those letters would otherwise have their 'hard' sounds (as in *cap* and *gap*) before the **a** of the **–able** ending. The **–able** ending is usually but not always used if a complete root word can be heard before it, even if there is no related word ending in **–ation**. The first five examples opposite are obvious; in *reliable*, the complete word *rely* is heard, but the **y** changes to **i** in accordance with the rule. The **–ible** ending is common if a complete root word can't be heard before it but it also sometimes occurs when a complete word *can* be heard (e.g. *sensible*).	adorable (adoration), applicable (application), considerable (consideration), tolerable (toleration) changeable, noticeable, forcible, legible dependable, comfortable, understandable, reasonable, enjoyable, reliable possible, horrible, terrible, visible, incredible, sensible
Adding suffixes beginning with	The **r** is doubled if the **–fer** is still stressed when the ending is added.	referring, referred, referral, preferring, preferred, transferring,

vowel letters to words ending in –fer	The **r** is not doubled if the **–fer** is no longer stressed.	transferred reference, referee, preference, transference
Use of the hyphen	Hyphens can be used to join a prefix to a root word, especially if the prefix ends in a vowel letter and the root word also begins with one.	co-ordinate, re-enter, co-operate, co-own
Words with the /i:/ sound spelt ei after c	The '**i** before **e** except after **c**' rule applies to words where the sound spelt by **ei** is /i:/. Exceptions: *protein*, *caffeine*, *seize* (and *either* and *neither* if pronounced with an initial /i:/ sound).	deceive, conceive, receive, perceive, ceiling
Words containing the letter-string ough	**ough** is one of the trickiest spellings in English – it can be used to spell a number of different sounds.	ought, bought, thought, nought, brought, fought rough, tough, enough cough though, although, dough through thorough, borough plough
Words with 'silent' letters (i.e. letters whose presence cannot be predicted from the pronunciation of the word)	Some letters which are no longer sounded used to be sounded hundreds of years ago: e.g. in *knight*, there was a /k/ sound before the /n/, and the **gh** used to represent the sound that 'ch' now represents in the Scottish word *loch.*	doubt, island, lamb, solemn, thistle, knight
Homophones and other words that are often confused	In these pairs of words, nouns end **–ce** and verbs end **–se**. *Advice* and *advise* provide a useful clue as the word *advise* (verb) is pronounced with a /z/ sound – which could not be spelt **c**. aisle: a gangway between seats (in a church, train, plane) isle: an island aloud: out loud allowed: permitted affect: usually a verb (e.g. *The weather may affect our plans*.) effect: usually a noun (e.g. *It may have an effect on our plans*.). If a verb, it means 'bring about' (e.g. *He will effect changes in the running of the business*.). altar: a table-like piece of furniture in a church alter: to change ascent: the act of ascending (going up) assent: to agree/agreement (verb and noun) bridal: to do with a bride at a wedding	advice/advise device/devise licence/license practice/practise prophecy/prophesy eligible: suitable to be chosen or elected illegible: not legible (i.e. unreadable) eliminate: get rid of/exclude illuminate: light up farther: further father: a male parent guessed: past tense of the verb *guess* guest: visitor heard: past tense of the verb *hear* herd: a group of animals led: past tense of the verb *lead* lead: present tense of that verb, or else the metal which is very heavy (*as heavy as lead*) morning: before noon

	bridle: reins etc. for controlling a horse cereal: made from grain (e.g. breakfast cereal) serial: adjective from the noun *series* – a succession of things one after the other compliment: to make nice remarks about someone (verb) or the remark that is made (noun) complement: related to the word *complete* – to make something complete or more complete (e.g. *her scarf complemented her outfit*) descent: the act of descending (going down) dissent: to disagree/disagreement (verb and noun) desert: as a noun – a barren place (stress on first syllable); as a verb – to abandon (stress on second syllable) dessert: (stress on second syllable) a sweet course after the main course of a meal disinterested: not having a personal stake in the matter (a World Cup referee must be disinterested – i.e. must not be from one of the countries playing in the match) uninterested: not interested, bored (a referee should be interested, not uninterested, in football) draft: noun – a first attempt at writing something; verb – to make the first attempt; also, to draw in someone (e.g. *to draft in extra help*) draught: a current of air	mourning: grieving for someone who has died past: noun or adjective referring to a previous time (e.g. *In the past*) or preposition or adverb showing place (e.g. *he walked past me*) passed: past tense of the verb 'pass' (e.g. *I passed him in the road*) precede: go in front of or before proceed: go on principal: adjective – most important (e.g. *principal ballerina*) noun – important person (e.g. *principal of a college*) principle: basic truth or belief profit: money that is made in selling things prophet: someone who foretells the future stationary: not moving stationery: paper, envelopes etc. steal: take something that does not belong to you steel: metal wary: cautious weary: tired who's: contraction of *who is* or *who has* whose: belonging to someone (e.g. *Whose jacket is that?*)

Word list for Years 5 and 6

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

Many of these words can be used for practice in adding suffixes.

**Conscience* and *conscious* are related to *science* – all come from the Latin word meaning ‘to know’. *Conscience* is simply *science* with the prefix *con–* added. *Conscious* also contains the ‘sci’ of *science*.

Appendix 2: Grammar and punctuation

The grammar of our first language is learnt naturally and implicitly through interactions with other speakers and from reading. Explicit knowledge of grammar is, however, very important, as it gives us more conscious control and choice in our language. Building this knowledge is best achieved through a focus on grammar within the teaching of reading, writing and speaking. Once pupils have been introduced to a grammatical concept, they should be encouraged to apply their learning by using that grammar in their own speech and writing and noting where it is used in the speech and writing of others. Young pupils, in particular, use more complex language in speech than in writing, and teachers should build on this, aiming for a smooth transition to sophisticated writing.

The table below focuses on Standard English and should be read in conjunction with the programme of study as it sets out statutory requirements. The table shows when concepts should be introduced first, not necessarily when they should be completely understood. It is very important, therefore, that the content in earlier years be revisited in subsequent years to consolidate knowledge and build on pupils' understanding. Teachers should also go beyond the content set out here if they feel it is appropriate.

The grammatical terms that pupils should learn are set out in the final column. They should learn to recognise and use the terminology through discussion and practice. All terms in **bold** should be understood with the meanings set out in the glossary.

Years 1 to 6

Year	Word structure	Sentence structure	Text structure	Punctuation	Terminology for pupils
1	Regular **plural noun suffixes** *–s* or *–es* (e.g. *dog*, *dogs; wish*, *wishes*) **Suffixes** that can be added to **verbs** (e.g. *helping*, *helped*, *helper*) How the **prefix** *un–* changes the meaning of **verbs** and **adjectives** (negation, *e.g. unkind*, or undoing, *e.g. untie the boat*)	How **words** can combine to make **sentences** Joining **words** and joining **sentences** using *and*	Sequencing **sentences** to form short narratives	Separation of **words** with spaces Introduction to capital letters, full stops, question marks and exclamation marks to demarcate **sentences** Capital letters for names and for the personal **pronoun** *I*	word, sentence, letter, capital letter, full stop, punctuation, singular, plural, question mark, exclamation mark
2	Formation of **nouns** using **suffixes** such as *–ness*, *–er* Formation of **adjectives** using **suffixes** such as *–ful*, *–less* (A fuller list of **suffixes** can be found in the Year 2 spelling appendix.) Use of the **suffixes** *–er* and *–est* to form comparisons of **adjectives** and **adverbs**	**Subordination** (using *when*, *if*, *that*, or *because)* and **co-ordination** (using *or*, *and*, or *but*) Expanded **noun phrases** for description and specification (e.g. *the blue butterfly*, *plain flour*, *the man in the moon*) **Sentences** with different forms: statement, question, exclamation, command	Correct choice and consistent use of **present tense** and **past tense** throughout writing Use of the **continuous** form of **verbs** in the **present** and **past tense** to mark actions in progress (e.g. *she is drumming*, *he was shouting*)	Use of capital letters, full stops, question marks and exclamation marks to demarcate **sentences** Commas to separate items in a list **Apostrophes** to mark contracted forms in spelling	verb, tense (past, present), adjective, noun, suffix, apostrophe, comma
3	Formation of **nouns** using a range of **prefixes**, such as *super–*, *anti–*, *auto–* Use of the **determiners** *a* or *an* according to whether the next **word** begins with a **consonant** or a **vowel** (e.g. *a rock*, *an open box*) **Word families** based on	Expressing time and cause using **conjunctions** (e.g. *when*, *so*, *before*, *after*, *while*, *because*), **adverbs** (e.g. *then*, *next*, *soon*, *therefore*, or **prepositions** (e.g. *before*, *after*, *during*, *in*, *because of*)	Introduction to paragraphs as a way to group related material Headings and sub-headings to aid presentation Use of the **perfect** form of **verbs** to mark relationships of time and cause (e.g. *I have written it down so we*	Introduction to inverted commas to **punctuate** direct speech	word family, conjunction, adverb, preposition, direct speech, inverted commas (or "speech marks"), prefix, consonant, vowel, consonant letter, vowel letter, clause, subordinate clause

Year	Word structure	Sentence structure	Text structure	Punctuation	Terminology for pupils
	common **words**		*can check what he said.*)		
4	The grammatical difference between **plural** and **possessive** *-s* Standard English forms for **verb inflections** instead of local spoken forms (e.g. *we were* instead of *we was*, or *I did* instead of *I done*)	Appropriate choice of **pronoun** or **noun** within a **sentence** to avoid ambiguity and repetition **Fronted adverbials** (e.g. *Later that day*, *I heard the bad news.)*	Use of paragraphs to organise ideas around a theme Appropriate choice of **pronoun** or **noun** across **sentences** to aid cohesion and avoid repetition	Use of inverted commas to **punctuate** direct speech **Apostrophes** to mark singular and **plural** possession (e.g. *the girl's name*, *the boys' boots*) Use of commas after **fronted adverbials**	pronoun, possessive pronoun, adverbial
5	Converting **nouns** or **adjectives** into **verbs** using **suffixes** (e.g. *–ate; –ise; –ify*) **Verb prefixes** (e.g. *dis–*, *de–*, *mis–*, *over– and re–*)	**Relative clauses** beginning with *who*, *which*, *where*, *why*, *whose*, *that*, or an omitted relative pronoun Indicating degrees of possibility using **modal verbs** (e.g. *might*, *should*, *will*, *must*) or **adverbs** (e.g. *perhaps*, *surely*)	Devices to build **cohesion** within a paragraph (e.g. *then*, *after that*, *this*, *firstly*) Linking ideas across paragraphs using **adverbials** of time (e.g. *later*), place (e.g. *nearby*) and number (e.g. *secondly*)	Brackets, dashes or commas to indicate parenthesis Use of commas to clarify meaning or avoid ambiguity	relative clause, modal verb, relative pronoun, parenthesis, bracket, dash, determiner, cohesion, ambiguity

Year	Word structure	Sentence structure	Text structure	Punctuation	Terminology for pupils
6	The difference between vocabulary typical of informal speech and vocabulary appropriate for formal speech and writing (e.g. *said* versus *reported*, *alleged*, or *claimed* in formal speech or writing)	Use of the **passive voice** to affect the presentation of information in a **sentence** (e.g. *I broke the window in the greenhouse* versus *The window in the greenhouse was broken*) Expanded **noun phrases** to convey complicated information concisely (e.g. *the boy that jumped over the fence is over there*, or *the fact that it was raining meant the end of sports day*) The difference between structures typical of informal speech and structures appropriate for formal speech and writing (such as the use of question tags, e.g. *He's your friend*, *isn't he?*, or the use of the **subjunctive** in some very formal writing and speech)	Linking ideas across paragraphs using a wider range of **cohesive devices**: semantic **cohesion** (e.g. repetition of a **word** or phrase), grammatical connections (e.g. the use of **adverbials** such as *on the other hand*, *in contrast*, or *as a consequence*), and **ellipsis** Layout devices, such as headings, sub-headings, columns, bullets, or tables, to structure text	Use of the semi-colon, colon and dash to mark the boundary between independent **clauses** (e.g. It's raining; I'm fed up.) Use of the colon to introduce a list **Punctuation** of bullet points to list information How hyphens can be used to avoid ambiguity (e.g. *man eating shark* versus *man-eating shark*, or *recover* versus *re-cover*)	active and passive voice, subject and object, hyphen, colon, semi-colon, bullet points, synonym and antonym

Phonemic transcription examples using the International Phonetic Alphabet (IPA)

Vowels							
ʌ	but, cup	ɜ:	shirt, burn	ʊ	pull, should	əʊ	show, go
ɑ:	arm, bar	ɪ	sit, fitting	u:	glue, food	ɔɪ	boy, join
æ	cat, nap	i:	bee, beat	aɪ	lie, sky	ɛə	fare, air
ɛ	let, bed	ɒ	not, lock	aʊ	cow, shout	ɪə	here, ear
ə	alone, upon	ɔ:	call, law	eɪ	eight, say	ʊə	sure, tour

Consonants							
b	ball, dab	k	cat, luck	ɹ	read, cry	ð	the, father
d	do, shade	l	lit, silly	s	see, kiss	v	vase, alive
f	fall, if	m	man, imp	ʃ	she, stash	w	wall, window
g	go, sag	n	no, on	t	too, set	z	zoo, crazy
h	have, hold	ŋ	ring, finger	tʃ	cheap, itch	ʒ	measure, television
j	yes, yank	p	pal, stop	θ	thistle, both	dʒ	jam, barge

Glossary for the programmes of study for English at Key Stage 1 and 2

Glossary for the programmes of study for English at Key Stages 1 and 2

The following glossary includes all the technical grammatical terms used in the programmes of study for English at Key Stages 1 and 2. It is intended as an aid for teachers, not as the body of knowledge that should be learnt by pupils. Apart from a few which are used only in schools (e.g. *connective, root word*), the terms below are used with the meanings defined here in most modern books on English grammar. For further details, teachers should consult the many books that are available.

Terms in definitions

As in any tightly structured area of knowledge, grammar and spelling involve a network of technical concepts that help to define each other. Consequently, the definition of one concept builds on other concepts that are equally technical. Concepts that are defined elsewhere in the glossary appear in blue, and are hyperlinked. For some concepts, the technical definition may be slightly different from the meaning that some teachers may have learnt at school themselves; in these cases, the more familiar meaning is also discussed.

active voice	A verb in the active voice has its usual pattern of subject and object (in contrast with the passive voice).	*The school arranged a visit.* Passive voice: *A visit was arranged*.
adjective	The surest way to identify adjectives is by the ways they can be used: • before a noun, to make the noun's meaning more specific (i.e. to modify the noun), or • after the verb *be*, as its complement. Adjectives cannot be modified by other adjectives. This distinguishes them from nouns, which can be. Adjectives are sometimes called "describing words" because they pick out single characteristics such as size or colour. This is often true, but it doesn't help to distinguish adjectives from other word classes, because verbs, nouns and adverbs can do the same thing.	*The pupils did some really good work.* [adjective used before a noun, to modify it] *Their work was good.* [adjective used after the verb *be*, as its complement] Not adjectives: *The lamp glowed.* [verb] *It was such a bright red!* [noun] *He walked clumsily.* [adverb] *It was a French grammar book.* [noun]

adverb	The surest way to identify adverbs is by the ways they can be used: they can modify a verb, an adjective, or even another adverb. Put another way, adverbs can make the meanings of these other words more specific. Adverbs are sometimes said to describe manner or time. This is often true, but it doesn't help to distinguish adverbs from other word classes, because prepositions, nouns and subordinate clauses can also do this.	*Usha went upstairs to play on her computer.* [adverb modifying the verb *went*] *That match was really exciting!* [adverb modifying the adjective *exciting*] *We don't get to play games very often.* [adverb modifying the other adverb, *often*] Not adverbs: *Usha went up the stairs.* [preposition] *She finished her work this evening.* [noun] *She finished when the teacher got cross.* [subordinate clause]
adverbial	An adverbial is a word or phrase that makes the meaning of a verb more specific (i.e. it modifies the verb). Of course, adverbs can be used as an adverbial, but many types of words and phrases can be used this way, including preposition phrases and subordinate clauses.	*The bus leaves in five minutes.* [preposition phrase as adverbial: modifies *leaves*] *Alex forgot to buy Easter eggs.* [subordinate clause as adverbial: modifies *forgot*] *Priscila complained constantly.* [adverb: modifies *complained*]
apostrophe	Apostrophes have two completely different uses: • showing the place of missing letters (e.g. *I'm* for *I am*) • showing possession (e.g. *Hannah's mother*).	*I'm going out and I won't be long*. [showing missing letters] *Hannah's mother went to town in Justin's car*. [showing possession]
article	The articles are *the* (definite) and *a* or *an* (indefinite). Articles are a type of determiner.	*The dog found a bone in an old box.*
auxiliary verb	The auxiliary verbs are *be*, *have* and *do*, plus all the modal verbs. They can all be used to make questions and negative statements. In addition: • *be* is used in the continuous and passive • *have* is used in the perfect • *do* is used to make questions and negative statements if no other auxiliary verb is present.	*They are winning the match.* [*be* used in the continuous] *Have you finished your picture?* [*have* used to make a question, and the perfect] *No, I don't know him.* [*do* used to make a negative; no other auxiliary is present] *Will you come with me or not?* [modal verb *will* used to make a question]
clause	A clause is a special type of phrase, whose main word (or "head") is a verb that describes an event or state of affairs. Clauses can sometimes be complete sentences. Traditionally, a clause had to have a finite verb, but most modern grammarians also recognise non-finite clauses.	*Eleni's mother was out so Eleni was left in charge.* *Eleni's mother went out so Eleni was left in charge.* *Usha went upstairs to play on her computer.* [non-finite clause]

cohesion	A text has cohesion if it is clear how the meanings of its parts fit together. Cohesive devices can help to do this. In the example, there are repeated references to the same thing (shown by the different colours and underlines), and the logical relations, such as time and cause, between different parts are clear.	***A visit** has been arranged for Year 6, to the **Mountain Peaks Field Study Centre**, leaving school at 9.30am. **This** is **an overnight visit**. **The centre** has beautiful grounds and **a nature trail**. During the afternoon, the children will follow **the trail**.*
cohesive device	Cohesive devices are words used to show how the different parts of a text fit together. In other words, they create cohesion. Some examples of cohesive devices are: • determiners and pronouns, which can refer back to earlier words • prepositions, conjunctions and adverbs, which can make relations between words clear • ellipsis of expected words.	*Julia's dad bought her a football. The football was expensive!* [determiner; refers us back to a particular football] *We'll be going shopping before we go to the park.* [conjunction; makes a relationship of time clear] *Where are you going? [__] To school!* [ellipsis of the expected words *I'm going*; links the answer back to the question]
complement	A verb's complement adds more information about the verb's subject (or, in some cases, its object). Unlike the verb's object, its complement may be an adjective. The verb *be* normally has a complement.	*She is our teacher.* [adds more information about the subject, *she*] *Today is Wednesday.* [adds more information about the subject, *today*] *Learning makes me happy.* [adds more information about the object, *me*]
conjunction	A conjunction links two words or phrases together. There are two main types of conjunctions: • co-ordinating conjunctions (e.g. *and*) link two words or phrases together as an equal pair • subordinating conjunctions (e.g. *when*) introduce a subordinate clause.	*James bought a top and gloves.* [links the words *top* and *gloves* as an equal pair] *Ali is strong but he is also very fast*. [links two clauses as an equal pair] *Everyone watches when Kyle does back-flips*. [introduces a subordinate clause] *Joe can't practise kicking because he's injured*. [introduces a subordinate clause]
connective	This is an informal name for words that connect the ideas expressed in different clauses; connectives may be prepositions, conjunctions or adverbs.	*It rained on sports day, so we had to run without worrying about getting wet, but it was great fun because we got really muddy.*
consonant	A sound which is produced when the speaker closes off or obstructs the flow of air through the vocal tract, usually using lips, tongue or teeth. Most of the letters of the alphabet represent consonants. Only the letters *a*, *e*, *i*, *o*, *u* and *y* can represent vowel sounds.	/p/ [flow of air stopped by the lips, then released] /t/ [flow of air stopped by the tongue touching the roof of the mouth, then released] /f/ [flow of air obstructed by the top teeth touching the bottom lip] /s/ [flow of air obstructed by the tip of the tongue touching the gum line]

continuous	The continuous (also known as the "progressive") form of a verb generally describes actions in progress. It is formed by: • taking the *–ing* form of the verb (e.g. *singing, reading*) • adding the verb *be* before it (e.g. *he was reading*). The continuous can also be combined with the perfect (e.g. *he has been reading*).	*Michael is singing in the store room.* [present continuous] *Amanda was making a patchwork quilt.* [past continuous] *Usha had been practising for an hour when I called.* [past perfect continuous]
co-ordinate, co-ordination	Words or phrases are co-ordinated if they are linked as an equal pair by a co-ordinating conjunction (e.g. *and*). In the examples on the right, the co-ordinated elements are shown in the same colour, and the conjunction is underlined. The difference between co-ordination and subordination is that, in subordination, the two linked elements are not equal.	***Susan*** *and* ***Amra*** *met in a café*. [links the words *Susan* and *Amra* as an equal pair] ***They talked*** *and* ***drank tea*** *for an hour*. [links two clauses as an equal pair] ***Susan got a bus*** *but* ***Amra walked***. [links two clauses as an equal pair] Not co-ordination: *They ate before they met*. [*before* introduces a subordinate clause]
determiner	A determiner modifies a noun, but it goes before any other modifiers (e.g. adjectives or other nouns). Some examples of determiners are: • articles (*the*, *a* or *an*) • demonstratives (e.g. *this*, *those*) • possessives (e.g. *my*, *your*) • quantifiers (e.g. *some*, *every*) • numerals (e.g. *thirty-one*)	*the best team* [article] *that pupil* [demonstrative] *Julia's parents* [possessive] *some boys* [quantifier] *eleven strong players* [numeral] Contrast: *best the team* *strong eleven players* [both incorrect, because the determiner should come before other modifiers]
digraph	A type of grapheme where two letters represent one phoneme. Sometimes, these two letters are not next to one another; this is called a split digraph.	The digraph *ea* in *each* is pronounced /i:/. The digraph *sh* in *shed* is pronounced /ʃ/. The split digraph *i–e* in *line* is pronounced /aɪ/.
ellipsis	Ellipsis is the omission of a word or phrase which is expected and predictable.	*Frankie waved to Ivana and ~~she~~ watched her drive away.* *She did it because she wanted to ~~do it~~.*
etymology	A word's etymology is its history: its origins in earlier forms of English or other languages, and how its form and meaning have changed.	The word *school* was borrowed from a Greek word *σχολή* (*skholé*) meaning "leisure".

finite verb	Finite verbs can stand on their own as the only verb in a sentence. They can be in the present tense, the past tense, or imperatives. Verbs that are not finite, such as participles or infinitives, cannot stand on their own: they depend on another verb in the sentence.	*Lizzie does the dishes every day.* [present tense] *Even Hana did the dishes yesterday.* [past tense] *Do the dishes, Naser!* [imperative] Not finite verbs: *I have done them.* [depends on the finite verb *have*] *I will do them.* [depends on the finite verb *will*] *I want to do them!* [depends on the finite verb *want*]
fronting, fronted	A word or phrase that normally comes after the verb may be moved before the verb: when this happens, we say it has been "fronted". For example, a fronted adverbial is an adverbial which has been moved before the verb. When writing fronted phrases, we often follow them with a comma.	*Before we begin, make sure you've got a pencil.* [Without fronting: *Make sure you've got a pencil before we begin*.] *The day after tomorrow, I'm visiting my granddad.* [Without fronting: *I'm visiting my granddad the day after tomorrow*.]
future	Reference to future time can be marked in a number of different ways in English. All these ways involve the use of a present-tense verb. See also tense. Unlike many other languages (such as French, Spanish or Italian), English has no distinct "future tense" form of the verb comparable with its present and past tenses.	*He will leave tomorrow.* [present-tense *will* followed by infinitive *leave*] *He may leave tomorrow.* [present-tense *may* followed by infinitive *leave*] *He leaves tomorrow*. [present-tense *leaves*]
GPC	See grapheme-phoneme correspondences.	
grapheme	A letter, or combination of letters, that corresponds to a single phoneme within a word.	The grapheme *t* in the words *ten*, *bet* and *ate* corresponds to the phoneme /t/. The grapheme *ph* in the word *dolphin* corresponds to the phoneme /f/.
grapheme-phoneme correspondences	The links between letters, or combinations of letters, (graphemes) and the speech sounds (phonemes) that they represent. In the English writing system, graphemes may correspond to different phonemes in different words.	The grapheme *s* corresponds to the phoneme /s/ in the word *see*, but… …it corresponds to the phoneme /z/ in the word *easy.*
homograph	Two different words are homographs if they look exactly the same when written.	*A female pig is called a sow. The farmer has to sow the seeds.* *This animal is called a bear. I can't bear to look at it!*

homonym	Two different words are homonyms if they both look exactly the same when written, and sound exactly the same when pronounced.	*Has he left yet? Yes – he went through the door on the left.* *The noise a dog makes is called a bark. Trees have bark.*
homophone	Two different words are homophones if they sound exactly the same when pronounced.	*hear*, *here* *some*, *sum*
infinitive	A verb's infinitive is its bare root-word (e.g. walk, be). It is the form that is usually found in the dictionary. Infinitives are often used: • after *to* • after modal verbs.	*I want to walk.* *I will be quiet.*
inflection	Inflection is a change ('bending') of morphology which signals a special grammatical classification of the word. Inflection is sometimes thought of as a change of ending, but, in fact, some words can have all their parts inflected.	*dogs* is the plural inflection of *dog.* *went* is the past-tense inflection of *go.*
modal verb	Modal verbs are used to change the meaning of other verbs. They can express degrees of certainty, ability, or obligation. The main modal verbs are *will, would, can, could, may, might, shall, should, must* and *ought*. A modal verb only has finite forms and has no suffixes (e.g. *I sing → he sings*, but not *I must → he musts*).	*I can do this maths work by myself.* *This ride may be too scary for you!* *You should help your little brother.* *Is it going to rain? Yes, it might.*
modify	One word or phrase modifies another by making its meaning more specific. Because the two words make a phrase, the "modifier" is normally close to the modified word.	In the phrase *primary-school teacher*: • *teacher* is modified by *primary-school* (to mean a specific kind of teacher) • *school* is modified by *primary* (to mean a specific kind of school).
morphology	A word's morphology is its internal make-up, consisting of a root word plus any changes (e.g. the addition of suffix). Dictionaries normally give only the root word.	*dogs* has the morphological make-up: *dog* + *s.*

noun	The surest way to identify nouns is by the ways they can be used: they can go with a verb to act as its subject, and can usually be singular or plural. Nouns are sometimes called "naming words" because they name people, places and "things"; this is often true, but it doesn't help to distinguish nouns from other word classes. For example, prepositions can name places and verbs can name actions.	*Our dog bit the burglar on his behind!* *My big brother did an amazing jump on his skateboard.* Not nouns: *He's behind you!* [this names a place, but is a preposition, not a noun] *She can jump so high!* [this names an action, but is a verb, not a noun]
noun phrase	A noun phrase is a phrase (i.e. a group of grammatically connected words) with a noun as its "head" (main word). A noun phrase can normally be used in place of a noun. The noun is called the "head" of the phrase because all the other words help to modify the noun.	*Foxes can jump.* [noun phrase consisting of just a noun] *Adult foxes can jump.* [*adult* modifies *foxes*, so *adult* belongs to the noun phrase] *Almost all healthy adult foxes can jump.* [all the other words help to modify *foxes*, so they all belong to the noun phrase]
object	An object is normally a noun, pronoun or noun phrase that comes straight after the verb, and shows what the verb is acting upon. Objects can be turned into the subject of a passive verb, and cannot be adjectives. (Contrast with complements.)	*Year 2 designed that.* [pronoun *that* acting as object] *Year 2 designed a pretty display.* [noun phrase *a pretty display* acting as object] Contrast: *A display was designed.* [object of active verb → subject of passive verb] *Year 2 designed pretty.* [incorrect, because adjectives cannot be objects]
participle	Verbs in English have two participles, called "present participle" (e.g. walking, taking) and "past participle" (e.g. walked, taken). Unfortunately, these terms can be confusing to learners, because: • they don't necessarily have anything to do with present or past time • "past participles" are also used as passives.	*He is walking to school.* [present participle] *He has taken the bus to school.* [past participle] *The photo was taken in the rain.* [past participle]
passive voice	A verb in the passive voice: • is in its past-participle form (e.g. *thrown, taken, helped*) • follows the verb *be* • has its normal (active) object and subject reversed. Contrast active voice. A verb is not "passive" just because it has a passive meaning: it must be the passive-voice version of an active-voice verb.	*A visit was arranged by the school.* *The ball was thrown.* Active-voice versions: *The school arranged a visit.* *He threw the ball.* Not passive voice: *He received a warning.* *We had an accident.*

past tense	Verbs in the past tense are commonly used to: • talk about the past • talk about imagined situations • make a request sound more polite. Most verbs take a suffix *–ed*, to form their past tense, but many commonly used verbs are irregular. See also tense.	*Tom and Cristy showed me their new TV*. [names an event in the past] *Alex went on holiday to Brazil*. [names an event in the past; irregular past of *go*] *I wish I had a puppy.* [names an imagined situation, not a situation in the past] *I was hoping you'd help tomorrow.* [makes an implied request sound more polite]
perfect	The perfect form of a verb generally calls attention to the consequences of a prior situation. It is formed by: • taking the past participle of the verb (e.g. *thrown, taken, helped*) • adding the verb *have* before it (e.g. *she has helped*). It can also be combined with the continuous (*e.g. he has been reading*).	*She has downloaded some songs.* [present perfect; now we have some songs] *I had eaten lunch when you came.* [past perfect; I wasn't hungry when you came]
phoneme	A phoneme is the smallest unit of sound that signals a distinct, contrasting meaning. For example: • /t/ contrasts with /k/ to signal the difference between *tap* and *cap* • /t/ contrasts with /l/ to signal the difference between *bought* and *ball*. It is this contrast in meaning that tells us there are two distinct phonemes at work. There are around 44 phonemes in English; the exact number depends on regional accents. A single phoneme may be represented in writing by one, two, three or four letters constituting a single grapheme.	The word *cat* has three letters and three phonemes. The word *catch* has five letters and three phonemes. The word *caught* has six letters and three phonemes.
phrase	A phrase is a group of words that are grammatically connected. Technically speaking, they are connected because all the words in the phrase help to modify the main word of the phrase (called the "head"). If this main word is a verb, then the phrase is a clause or a sentence. Phrases can be made up of other phrases.	*She waved to her mother.* [The main word is *mother*, a noun.] *Always cross on the zebra crossing!* [The main word is *on*, a preposition.] *Nadia waved to her mother.* [The main word is *waved*, a verb. This phrase is also a sentence.]

plural	A plural noun normally has a suffix *–s* or *–es* and means "more than one". There are a few nouns with different morphology in the plural (e.g. *mice, formulae*).	*dogs* [more than one dog] *boxes* [more than one box] *mice* [more than one mouse]
possessive	A possessive can be: • a noun followed by an apostrophe (and sometimes *s*) • a possessive pronoun. A possessive names the "possessor" of the noun that it modifies. A possessive also acts as a determiner.	*Tariq's book* [Tariq has the book] *her basketball* [she has the basketball]
prefix	A prefix is added at the beginning of a word in order to turn it into another word. Contrast suffix.	*overnight* *disappear*
preposition	A preposition links a noun or pronoun to some other word in the sentence. Prepositions often describe locations or directions, but can describe other things, such as relations of time. Words like *before* or *since* act as prepositions when they link a noun, but conjunctions when they link clauses.	*Tom waved goodbye to Cristy. She'll be back from Australia in two weeks.* *I haven't seen my dog since this morning.* Contrast: *I'm going, since no-one wants me here!* [conjunction: links two clauses]
present tense	Verbs in the present tense are commonly used to: • talk about the present • talk about the future (see also future). They may take a suffix *–s* (depending on the subject). See also tense.	*Jamal goes to the pool every day.* [names a regular event] *He can swim.* [names a state that is true now] *The bus arrives at three*. [names a future event]
pronoun	Pronouns are normally used like nouns, except that: • they are grammatically more specialised • it is harder to modify them (i.e. it is harder to make their meaning more specific). In the examples, each sentence is written twice: once with pronouns (underlined), and once with nouns. The colours show where the same thing is being talked about.	***She*** *waved to* ***him****.* ***His*** *mother is over there.* ***This*** *will be an overnight* ***visit****.* ***He*** *is the one* ***who*** *broke it.* ***Amanda*** *waved to* ***Michael****.* ***John's*** *mother is over there.* *The* ***visit*** *will be an overnight* ***visit****.* ***Simon*** *is the one:* ***Simon*** *broke it.*

punctuation	Punctuation includes any conventional features of written presentation other than spelling and general layout: the standard punctuation marks (. , ; : ? ! - – ( ) “” ‘’), and also word-spaces, capital letters, apostrophes, paragraph breaks and bullet points. One important role of punctuation is to indicate sentence boundaries.	*“I’m going out, Usha, and I won’t be long,” Mum said.*
relative clause	A relative clause is a special type of subordinate clause that makes the meaning of a noun more specific (i.e. it modifies the noun). It does this by using a special pronoun to refer back to that noun. In the examples, the relative clauses are underlined, and the colour-coding pairs the pronouns with the nouns they refer back to. It is sometimes possible for the pronoun to refer back to the main clause as a whole, rather than referring back to a noun. It is also possible for the pronoun to be omitted.	That’s the **boy** **who** lives near school. [*who* refers back to *boy*] The **prize** **that** I won was a book. [*that* refers back to *prize*] **Tom broke the game**, **which** annoyed Ali. [*which* refers back to the whole clause] The **prize** ~~**that**~~ I won was a book. [the pronoun is omitted]
root word	A root word is a word which is not made up of any smaller root words, or prefixes or suffixes. When looking in a dictionary, we sometimes have to look for the root word of the word we are interested in.	*play**ed*** [the root word is *play*] *un**fair*** [the root word is *fair*]
schwa	The name of a vowel sound that is found only in unstressed positions in English. It is the most common vowel sound in English. It is written as /ə/ in the International Phonetic Alphabet. In the English writing system, it can be written in many different ways.	/ə*l*ɒŋ/ [*along*] /bʌtə/ [*butter*] /dɒktə/ [*doctor*]
sentence	A sentence is a group of words which are grammatically connected, and where nothing is grammatically missing. In other words, a sentence must be grammatically complete.	*John went to his friend’s house*. Contrast: *John went to.* [The preposition *to* should be linked to a noun, but the noun is missing. This is not grammatically complete, and so it is not a sentence.]
split digraph	See digraph.	

Standard English	Standard English is the variety of the English language that is generally used for formal purposes in speech and writing. It is not the English of any particular region and it can be spoken with any accent.	
stressed	A syllable is stressed if it is pronounced more forcefully than the syllables next to it. The other syllables are unstressed.	about visit
subject	The subject of a verb is normally the noun or pronoun that names the "do-er" or "be-er". The subject's normal position is: • just before the verb in a statement • just after the verb, or an auxiliary verb, in a question. Unlike the verb's object and complement, the subject can determine the form of the verb (e.g. *I am*, *you are*).	*Rula's mother went out.* *That is uncertain.* *The children will study the animals.* *Will the children study the animals?*
subjunctive	What is sometimes called the subjunctive of a verb is occasionally used in very formal contexts to indicate unreality, uncertainty, wish, emotion, judgement, or necessity. It can be hard to recognise, because it does not always differ from non-subjunctive forms. It has a distinguishable form in the following cases: • the third person singular of any verb in the present tense does not have its usual *–s* ending • the verb *be* in the present tense always has the form "be" (not "am", "are" or "is") • the verb *be* in the past tense always has the form "were" (not "was") • the negatives of verbs in the present are formed differently • some modal verbs have a different form.	*The school requires that all pupils be honest.* [It's possible for pupils not to be honest, but the school wants them to be.] *If Zoë were the class president, things would be much better.* [But Zoë isn't the class president.] *The school rules demand that pupils not enter the gym at lunchtime.* [But it still might happen.] *I wish you would stop!* [not "will stop"] *I insist that he come to visit every week.* [He doesn't actually come to visit, but I would like him to.] Not subjunctive: *I insist that he comes to visit every week*. [I am insisting that it's actually the case that he does visit.]

subordinate, subordination	A subordinate word or phrase tells us more about the meaning of the word it is subordinate to. Subordination can be thought of as an unequal relationship between a subordinate word and a main word. For example: • an adjective is subordinate to the noun it modifies • subjects and objects are subordinate to their verbs. Subordination is much more common that the equal relationship of co-ordination. See also subordinate clause.	*big dogs* [*big* is subordinate to *dogs*] *Big dogs need long walks.* [*big dogs* and *long walks* are subordinate to *need*] *We can watch TV when we've finished.* [*when we've finished* is subordinate to *watch*]
subordinate clause	A subordinate clause is subordinate to some word outside itself: • it may modify this word (e.g. as a relative clause or as an adverbial), or • it may be used as a verb's subject or object. However, clauses that are directly quoted as direct speech are not subordinate clauses.	*That's the street where Ben lives.* [relative clause; modifies *street*] *He watched her as she disappeared.* [adverbial; modifies *watched*] *What you said was very nice.* [acts as subject of *was*] *She noticed an hour had passed.* [acts as object of *noticed*]
suffix	A suffix is an "ending", something used at the end of one word to turn it into another word. Suffixes can often change one word class into another. Contrast prefix.	*call* → *called* *teach* → *teacher* [turns a verb into a noun] *terror* → *terrorise* [turns a noun into a verb]
syllable	A syllable sounds like a beat in a word. Syllables consist of at least one vowel, and possibly one or more consonants.	*Cat* has one syllable. *Fairy* has two syllables. *Hippopotamus* has five syllables.

tense	Tense is the choice between different verb forms that is normally used to indicate time (although tense and time do not always match up). Verbs in English (and other Germanic languages) have two distinct tense forms: present and past. Verbs in languages like French, Spanish and Italian have three distinct tense forms: present, past and future. English uses a variety of verbs in the present tense to talk about future time, such as *may*, *will*, *intend,* or *plan*. English also uses verbs in the past tense to talk about imagined situations in the past, present or future.	*He studies.* [present tense → present time] *He studied yesterday*. [past tense → past time] *He studies tomorrow, or else!* [present tense → future time] *He may study tomorrow*. [present tense + infinitive → future time] *He plans to study tomorrow*. [present tense + infinitive → future time] *If he studied tomorrow, he'd see the difference!* [past tense → imagined future] Contrast three distinct tense forms in Spanish: *Estudia.* [present tense] *Estudió.* [past tense] *Estudiará.* [future tense]
trigraph	A type of grapheme where three letters represent one phoneme.	*high* *pure* *patch* *hedge*
unstressed	See stressed.	
verb	The surest way to identify verbs is by the ways they can be used: they can usually have a tense, either present or past. (See also future.) Verbs are sometimes called "doing words" because many verbs name an action that someone does; while this can be a way of recognising verbs, it doesn't distinguish verbs from nouns (which can also name actions), and moreover many verbs do **not** name actions.	*He looked out of the school bus window.* [present tense] *The teacher wrote a song for the class.* [past tense] *We will go to the zoo soon!* [present tense + infinitive] *He likes chocolate.* [present tense] Not verbs: *The walk to Harriet's house will take an hour.* [noun] *Surfing makes Michelle so sleepy!* [noun]
vowel	A vowel is a speech sound which is produced without any closure or obstruction of the vocal tract. Vowels can form syllables by themselves, or they may combine with consonants. In the English writing system, the letters *a*, *e*, *i*, *o*, *u* and *y* can represent vowels.	

word	A word is a unit of grammar: it can be selected and moved around relatively independently, but cannot easily be split. In punctuation, words are normally separated by word spaces. Sometimes, what appears to be two words are grammatically treated as one. This may be indicated with a hyphen or apostrophe.	*headteacher* or *head teacher* [can be written with or without a space] *primary-school teacher* [normally written with a hyphen] *I'm* going out. *9.30 am*
word family	The words in a word family are normally related to each other by a combination of form, grammar and meaning.	*teacher* – *teach* *extensive* – *extend* – *extent*

Phonemic transcription examples using the International Phonetic Alphabet (IPA)

Vowels							
ʌ	but, cup	ɜ:	shirt, burn	ʊ	pull, should	əʊ	show, go
ɑ:	arm, bar	ɪ	sit, fitting	u:	glue, food	ɔɪ	boy, join
æ	cat, nap	i:	bee, beat	aɪ	lie, sky	ɛə	fare, air
ɛ	let, bed	ɒ	not, lock	aʊ	cow, shout	ɪə	here, ear
ə	alone, upon	ɔ:	call, law	eɪ	eight, say	ʊə	sure, tour

Consonants							
b	ball, dab	k	cat, luck	ɹ	read, cry	ð	the, father
d	do, shade	l	lit, silly	s	see, kiss	v	vase, alive
f	fall, if	m	man, imp	ʃ	she, stash	w	wall, window
g	go, sag	n	no, on	t	too, set	z	zoo, crazy
h	have, hold	ŋ	ring, finger	tʃ	cheap, itch	ʒ	measure, television
j	yes, yank	p	pal, stop	θ	thistle, both	dʒ	jam, barge

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