



**KEY STAGES 1 & 2  
COMPENDIUM**

**DRAFT PROPOSALS**

**MAY 1994**

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# THE NATIONAL CURRICULUM AT KEY STAGES 1 AND 2



This compendium covers the entire National Curriculum for Key Stages 1 and 2. It has been produced in response to requests to Sir Ron Dearing, especially from primary teachers, to fit the curriculum into one volume for easier reference.

The content brings together the programmes of study (and the appropriate level descriptions or end of key stage statements) for Key Stages 1 and 2 in each subject, in the following order:

English	pp. 1-22;
mathematics	pp. 23-49;
science	pp. 51-66;
design & technology	pp.68-79;
information technology	pp. 81-85;
history	pp. 87-97;
geography	pp. 99-108;
art	pp. 109-114;
music	pp. 115-120;
physical education	pp. 122-126;

SCAA is interested to know how useful teachers find this way of presenting the Orders. A question in the overview section of the consultation response form refers to this issue.

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## ENGLISH PROGRAMMES OF STUDY

1. English should develop pupils' abilities to communicate effectively in speech and writing, and enable them to be enthusiastic, responsive and knowledgeable readers.
2. Pupils' knowledge of the vocabulary and grammar of English is developed through reading, writing, speaking and listening: the relevant requirements are included in the programmes of study.
3. In order to participate confidently in public, cultural and working life, all pupils need to be able to speak, write and read standard English fluently and accurately. Specific requirements in relation to standard English are included in each programme of study.
4. All pupils are entitled to the full range of opportunities necessary to enable them to speak and write in standard English. The richness of other languages and dialects can make an important contribution to pupils' knowledge and understanding of language. In Wales, the linguistic and cultural knowledge of Welsh speaking pupils should be recognised and used when developing their competence in English. Provision should be made to ensure that such pupils are given access to the full scope of the programmes of study.
5. The following important features of standard English form the basis for provision in the programmes of study.
  - Standard English is distinguished from other forms of English by its vocabulary and by rules and conventions of grammar, spelling and punctuation which pupils should learn to follow.
  - The grammatical features which distinguish standard English are present in both the spoken and written forms. Features which should be taught, to ensure the correct use of standard English, include rules for using pronouns, adverbs and adjectives and for forming negatives, questions and the present and past tense of verbs.
  - Written standard English adheres to these rules except where non-standard forms are used for effect or technical reasons. Spoken standard English shares the vocabulary and core grammatical features of the written form. Differences between the spoken and written forms relate to the spontaneity of speech and to its function in conversation, so that, for example, changes of direction, emphasis or formality may result in unfinished or recast sentences which would be avoided by a writer in a polished piece. Features of spoken standard English which should be taught are included in the programmes of study for **Speaking and Listening**.
  - Spoken standard English is not the same as Received Pronunciation and can be expressed in a variety of accents.
6. Pupils should be given opportunities to apply and develop their information technology (IT) capability in their study of English, where appropriate.
7. The programme of study for each key stage should be taught to all or the great majority of pupils in the key stage, in ways appropriate to their abilities. However, for the small number of pupils who may need the provision, teachers may select material from earlier or later key stages where this is necessary to enable individual pupils to progress and demonstrate achievement. Such material should be presented in contexts suitable to the pupil's age.
8. Appropriate provision should be made for pupils who need to use:
  - means of communication other than speech, including computers, technological aids, signing, symbols or lip-reading;
  - non-sighted methods of reading, such as Braille, or need to acquire information in a non-visual or non-aural way;
  - technological aids in producing written work;
  - aids to allow access to practical activities within and beyond school.
9. The examples printed in italics are non-statutory.

# SPEAKING AND LISTENING

This programme of study is concerned with the development of effective speaking and listening. Pupils should be taught to:

- use the vocabulary and grammar of spoken standard English;
- formulate, clarify and express their ideas;
- adapt their speech to a widening range of circumstances and demands;
- listen, understand and respond appropriately to others.

## KEY STAGE 1

- 1.1** Pupils should be given opportunities which encourage progress in speaking and listening. In Key Stage 1 progress should be characterised by:
- a growing appreciation of the significance of standard English;
  - a growing fluency and confidence;
  - increasing clarity and coherence of thought and expression;
  - a developing ability to contribute in discussion;
  - a developing understanding of what is said;
  - a developing ability to adapt talk for different listeners and circumstances;
  - the use of a widening vocabulary.
- 1.2** Pupils working at higher levels should be given access to relevant parts of the programmes of study for the next key stage.
- 1.3** Pupils who have had little opportunity to express themselves orally in English, and those whose vocabulary is limited, should be given support to develop their language and extend their vocabulary.
- 1.4** Provision should be made to ensure that pupils unable to communicate orally may use other means including the use of technology, signing or symbols. Those with hearing impairment may use lip-reading.

## 2. Key Skills

- 2.1** To communicate effectively pupils should be taught the importance of language which is clear, fluent and interesting. They should be encouraged to speak with confidence, making themselves clear through organising what they say and choosing words with precision. They should be taught to incorporate relevant detail in explanations, descriptions and narratives, considering carefully the words they use and taking into account the needs of their listeners. This will involve learning to distinguish between the essential and the less important. Pupils should be taught the conventions of effective discussion and conversation, *eg turntaking, judging the relevance of what they have to say and learning how to time a contribution to a discussion*. They should be taught how to structure their talk by sequencing and organising it in ways which are coherent and understandable, *eg through using markers such as 'first', 'then', 'after that'*. They should learn to ask questions which clarify their understanding and to answer questions in ways which indicate a thoughtfulness about the matter under discussion.
- 2.2** Pupils should be encouraged to listen with growing attention and concentration, and to respond appropriately and effectively to what they have heard. They should use talk to develop and clarify their thinking and extend their ideas in the light of discussion. They should be encouraged to relate their contribution to a discussion to what has gone before, taking different views into account.

## 3. Standard English and Language Study

- 3.1** Pupils should be introduced with appropriate sensitivity to the importance of standard English. Pupils should consider their own speech and how they communicate with others,

particularly in more formal situations or with unfamiliar adults, *eg in assembly, with visitors to school*. Pupils should develop confidence in their ability to adapt what they say to their listeners and the circumstances. They should begin to recognise how language differs, *eg the vocabulary of standard English and that of dialects, how their choice of language varies in different situations*. Pupils should be introduced to the importance of appropriate subject–verb agreement, and correct and consistent use of verb tenses. Pupils may speak in different accents, but they should be taught to speak with clear diction and pronunciation and appropriate intonation. Pupils' understanding of English should be enhanced through their reading, *eg the use of sounds of words and repeated patterns in storytelling*, and their writing, *eg discussion of what detail to include in an account*.

**3.2** Pupils' range of vocabulary should be extended through activities which encourage their interest in words, including:

- discussion of the meanings of words and their use and interpretation in different contexts;
- discussion of alternative words, *eg the wind blew (howled, whistled, roared)*, opposites, *eg long, short, left, right*, and unfamiliar words related to language, *eg noun, verb*;
- consideration of words associated with specific occasions, *eg greetings, birthdays, family and school events, mealtimes*;
- exploration of characteristic language in storytelling, *eg 'Once upon a time', 'Who's been sitting in my chair?'*.

#### **4. Range**

**4.1** Pupils should speak for a range of purposes, including telling stories, both real and imagined; describing events, observations and experiences carefully; exploring, developing and clarifying ideas; making simple, clear explanations. They should be encouraged to relate stories to their own lives and experiences.

Classroom activities should be varied and should ensure that pupils are given opportunities to talk in a range of contexts for different purposes:

- imaginative play and drama;
- wordgames;
- reading and listening to nursery rhymes and poetry, and learning some by heart;
- reading aloud;
- making plans and simple investigations;
- explaining choices, *eg of books*;
- giving reasons for opinions and actions;
- predicting outcomes, *eg of a story or an experiment*;
- discussing ideas.

**4.2** Pupils should begin to consider how talk is influenced by the purpose and the intended audience, so that the speaker makes choices about how much detail to include, about vocabulary and tone of voice. Pupils should work in groups of different sizes and learn to present work to different audiences, including their friends, the class, the teacher and other adults in the school. Classroom activities should reflect the close interrelationship between speaking and listening.

**4.3** Pupils should be taught to listen carefully and to show their understanding by making relevant comments, *eg relating events in a story to their own experiences*. In considering what has been heard, *eg a taped story or radio broadcast*, pupils should be encouraged to remember specific points that interested them and to listen to others' reactions.

**4.4** Pupils should participate in drama activities, including telling stories through drama, improvisation and performances of varying kinds, and using language appropriate to a role or situation. They should be given opportunities to respond to drama they have watched as well as that in which they have participated.

# READING

This programme of study is concerned with the development of pupils' reading. Pupils should be taught to:

- read accurately and fluently;
- understand and respond to literature of increasing complexity drawn from the English literary heritage and from other cultures and traditions;
- analyse and evaluate a wide range of texts.

## KEY STAGE 1

1.1 Pupils should be given opportunities which encourage progress in reading. In Key Stage 1, pupils' developing ability to read print should be characterised by:

- familiarity with the nature and conventions of print;
- developing knowledge and understanding of the alphabetic system;
- awareness of the patterns of sounds and the ways symbols correspond to those sounds;
- reading a growing number of words accurately and quickly;
- using syntactic and contextual clues to check and confirm meaning.

Pupils' developing **understanding** should be characterised by:

- growing independence in choosing and reading books for themselves;
- willingness to read new and unfamiliar material;
- growing competence and confidence in reading texts of gradually increasing complexity;
- increasing ability to use books to find things out;
- increasing awareness of the range and purposes of print.

Pupils' developing **response** to text should be characterised by:

- choosing and reading books for pleasure;
- the growing ability to express preferences about what they have read, giving reasons.

1.2 Pupils who begin school with limited experience and understanding of literacy should be given a planned and extensive introduction to the initial stages of reading. Pupils should be taught the alphabet and their awareness of sounds and patterns of sounds should be developed as a preparation for phonic work. They should also be given an extensive introduction to books and stories in order to help them develop understanding of the nature and purpose of reading. Those pupils already able to read with fluency, accuracy and understanding should follow only those parts of the programmes of study which are relevant to their needs. Pupils working at higher levels should be given access to relevant parts of the programmes of study for the next key stage.

1.3 Pupils who need to use non-sighted methods of reading should be provided with alternative texts suited to their needs. Pupils' reading of and response to literature should be encouraged through the use of appropriate methods of communication.

## 2. Key Skills

2.1 Pupils should be taught to read with fluency, accuracy and understanding. They should be taught the alphabet, phonic skills, the basic conventions of books and print, and effective techniques for reading, understanding and responding. Pupils should be introduced to, and taught to make use of, the various sources of information in order to establish meaning. They should be taught to apply various approaches to word identification and recognition, and use their understanding of grammatical structure and the meaning of the text as a whole to make sense of print.

The areas to be taught are as follows.

**Phonic knowledge** focuses on the relationships between print symbols and sound patterns. They should be made aware of the sounds of spoken language, and taught how symbols correspond to those sounds. Opportunities should be given for:

- listening to sounds in oral language to develop phonological awareness;
- recognising alliteration, sound patterns and rhyme and relating those to patterns in letters;
- considering syllables in longer words;
- identifying initial and final sounds in words, including sounds which rhyme;
- identifying and using a comprehensive range of letters and sounds (including combinations of letters, blends and digraphs), and paying specific attention to their use in the formation of words;
- recognising inconsistencies in phonic patterns;
- recognising that some letters do not produce a sound themselves but influence the sound of others, *eg final 'e', soft 'c'*.

**Graphic knowledge** focuses on what can be learned about word meanings and parts of words from consistent letter patterns including:

- plurals – -s, -es and -ies;
- spelling patterns in verb endings – -ing and -ed;
- relationship between root words, *eg magic*, and derivatives, *eg magician*;
- prefixes and suffixes.

**Word recognition** focuses on the development of a vocabulary of words recognised on sight. Pupils should acquire a sight vocabulary, reading and understanding words automatically and quickly. This extends from a few words of personal importance to a larger number of words from books and the environment around them. Pupils should be shown how to use their sight vocabulary to help them read words which have similar features. They should discuss alternative meanings of words and phrases.

A significant marker of pupils' progress in reading in this key stage is the ability to read aloud 30 common usage words within simple, short narratives.

**Grammatical knowledge** focuses on the way language is ordered and organised into sentences (syntax). Pupils should be shown how to use their knowledge of word order and the structure of written language to confirm meaning or question information derived from other sources. Pupils should be taught to recognise the value of surrounding text in identifying unknown words. They should be taught to:

- check the accuracy of their reading by paying attention to whether their reading sounds right or makes sense grammatically;
- read ahead and/or re-read passages when the sense has been lost.

**Contextual understanding** focuses on meaning derived from the text as a whole. Pupils should be taught to use their knowledge of book conventions and story structure, and their background knowledge and understanding of the content of a book in order to confirm the sense of what they read. They should keep the overall sense of a passage in mind as a checking device.

**2.2** In understanding and responding to stories and poems, pupils should be given opportunities to:

- talk about characters, events and language in books, beginning to use appropriate terminology;
- say what might happen next in a story;
- retell stories;
- explain the content of a passage or whole text;
- choose books to read individually and with others;

- review their reading with their teacher;
- read complete short texts;
- re-read favourite stories and poems and learn them by heart;
- hear stories and poems read aloud frequently and regularly, including some longer, more challenging material;
- prepare, present and act out stories and poems they have read.

2.3 Pupils should be taught to use reference books for different purposes. They should be taught about the structural devices for organising information in such books, *eg contents page, headings, subheadings, captions*.

### ■ 3. Standard English and Language Study

Pupils should begin to consider the characteristics and features of different kinds of texts, *eg beginnings and endings in stories*. They should be taught to use their knowledge gained from reading to develop their understanding of standard English.

### ■ 4. Range

- 4.1 Teachers should draw on the various methods of teaching reading in a balanced and coherent way in order to meet the particular needs of individual children. Pupils should be given an extensive experience of children's literature.
- 4.2 Parental support for children's reading is vital. Thus, links between home and school should be developed as a support to classroom work. Parents should be encouraged to read to and with their children as often as possible and should be kept fully informed about progress made.
- 4.3 Pupils should read on their own, with others and to the teacher from a range of good quality literature which includes nursery rhymes, poems, stories, folk tales, myths, legends and picture books. In addition to reading other material, pupils should read back their own writing to the teacher. They should read a variety of non-fiction. Where reading schemes are consistent with the approach to reading in the National Curriculum they can be a valuable resource.
- 4.4 The books and poems read and discussed should be used to stimulate pupils' imagination and enthusiasm. They should include some or all of these features:
- interesting subject matter and setting which may be related to pupils' own experience or extend beyond their knowledge of the everyday;
  - a clear viewpoint, with accessible themes and ideas;
  - a clarity of expression and use of language which benefits from reading aloud and re-reading;
  - language with recognisable repetitive patterns, rhyme and rhythm;
  - straightforward characterisation and plot;
  - the use of a variety of narrative techniques, presented in immediately accessible ways;
  - illustrations which are visually stimulating and enhance the words of the text.
- 4.5 Pupils should be introduced to a wide range of simple information books which present material in accessible ways. The range should include dictionaries, reference books, encyclopaedias and information presented in fictional form.

### ■ 5. Selection of Literature

The literature pupils encounter in Key Stage 1 should be wide-ranging and cover the following categories:

- nursery rhymes, *eg 'London Bridge is Falling Down', 'Oranges and Lemons'*, poetry chosen from anthologies, *eg 'Singing in the Sun' edited by Jill Bennett, 'Poems for Seven Year Olds and Under' edited by Helen Nicoll*, and poems from collections by individual poets, *eg 'Complete Poems for Children' by James Reeves, 'Hot Dog and Other Poems' by Kit Wright, 'Come on Into My Tropical Garden' by Grace Nichols;*

- poems and stories with familiar settings and those based on imaginary or fantasy worlds, eg *'Rosie's Walk'* by Pat Hutchins, *'But Martin!'* by June Counsel, *'The Elephant and the Bad Baby'* by Elfrida Vipont and Raymond Briggs;
- books and poems written by significant children's authors, eg Janet and Allan Ahlberg (*Each Peach Pear Plum*), John Burningham (*Mr Gumpy's Outing*), Maurice Sendak (*Where the Wild Things Are*), Eric Carle (*The Very Hungry Caterpillar*), Pat Hutchins (*Titch*), Shirley Hughes (*Dogger*), Jill Tomlinson (*The Owl Who Was Afraid of the Dark*), Anthony Browne (*Bear Hunt*), David McKee (*Not Now, Bernard*), Dick King-Smith (*Lady Daisy*), Beatrix Potter (*The Tale of Peter Rabbit*), Alison Uttley (*Little Grey Rabbit to the Rescue*);
- retellings of traditional stories, folk and fairy stories, eg *'Popular Folk Tales'* by the Brothers Grimm (translated by Brian Alderson), *'Rapunzel'* edited by Barbara Rogasky; and Bible stories in a modern or simplified version;
- stories from a range of cultures, eg *'Katie Morag Delivers The Mail'* by Mairi Hedderwick, *'A Story, A Story'* retold by Gail E Haley, *'Nini at Carnival'* by Errol Lloyd;
- stories, poems and chants containing patterned and predictable language, eg *'A Dark, Dark Tale'* by Ruth Brown, *'The Berenstain Bears and The Spooky Old Tree'* by Stan and Jan Berenstain, *'My Cat Likes to Hide in Boxes'* by Eve Sutton and Lynley Dodd;
- stories and poems which are particularly challenging in terms of length or vocabulary, eg *'The Iron Man'* by Ted Hughes, *'A Necklace of Raindrops'* by Joan Aiken, *'The Just So Stories'* by Rudyard Kipling.

# WRITING

This programme of study is concerned with the development of pupils' ability to construct and convey meaning in written standard English. Pupils should be taught to use:

- compositional skills – developing ideas and communicating meaning to a reader, using a wide-ranging vocabulary and an effective style, organising and structuring sentences grammatically and whole texts coherently;
- essential presentational skills – accurate punctuation, correct spelling and legible handwriting;
- a widening variety of forms for different purposes.

## KEY STAGE 1

- 1.1** Pupils should be given opportunities which encourage progress in writing. In Key Stage 1, progress should be characterised by:
- a growing ability to construct and convey ideas in a variety of forms for different purposes;
  - a growing understanding of how to plan and organise writing so that its meaning is clearly communicated;
  - a developing vocabulary;
  - an increasing knowledge of simple spelling conventions and accuracy in the punctuation of a sentence;
  - the development of a comfortable, legible handwriting style.
- 1.2** Pupils working at higher levels should be given access to relevant parts of the programmes of study for the next key stage.
- 1.3** Provision should be made to ensure that pupils who depend physically on the use of technological aids to produce written work are able to follow as much of the programmes of study as possible. Pupils whose disability is such that handwriting is impossible will need to be exempted from the handwriting aspects of the programmes of study.

## 2. Key Skills

- 2.1** Pupils should be taught to write with confidence, fluency and accuracy. Thus, from the outset, they should be taught to differentiate between print and pictures and learn about the different purposes and functions of written language. They should see their teacher write in order to understand the connection between speech and writing. Pupils should be introduced to the alphabetic nature of writing, and begin to discriminate between letters, learning to write their own name. Pupils' early experiments and independent attempts at communicating in writing, using letters and known words, should be encouraged. They should be taught to hold a pencil correctly in order to enable the development of comfortable, legible handwriting.
- 2.2** Through discussion with their teacher, pupils should have opportunities to plan and review their writing by assembling ideas and making choices about vocabulary. Teachers should, on occasions, help pupils to compose at greater length by writing for them, demonstrating the ways that ideas may be recorded in print. As pupils become more confident and independent, collaboration, reading their work aloud, and discussion will continue to be important in improving the quality of what is written. They should learn to organise imaginative and factual writing in different ways, *eg a cumulative pattern in a poem, a list of ingredients for a cake.*
- 2.3** In **punctuation**, pupils should be taught that a speaker's intonation and emphasis are replaced by punctuation marks, which are, therefore, essential to effective writing. Pupils should be taught to punctuate their writing, be consistent in their use of capital letters, full stops and question marks, and begin to use commas.

**2.4 In spelling,** pupils should be taught to:

- write each letter of the alphabet;
- recognise the most obvious sound of each letter;
- learn simple spelling patterns;
- write common letter strings within familiar and common words, *eg their name, ring, hand, shop*;
- spell commonly occurring simple words;
- spell words with common prefixes and suffixes.

They should be taught to check their writing for accuracy. Teachers should encourage pupils to experiment with the spelling of complex words and, at the same time, discuss misapplied generalisations and other reasons for misspellings. Close attention should be paid to word families. Pupils should be taught the spelling of familiar words and use them in their writing. They should be taught to use word books and dictionaries to check for spellings, identifying initial letters as the means of locating words. They should use word lists to find words they need to spell, learning the correct spelling.

**2.5 In handwriting,** pupils should be taught to develop a comfortable, legible style which follows the conventions of written English, including:

- writing from left to right across the page and from the top to the bottom of the page;
- starting and finishing letters correctly;
- regularity of size and shape of letters;
- regularity of spacing of letters and words.

They should be taught the conventional ways of forming letters, both lower case and capitals. They should build on their knowledge of letter formation to join letters in words. They should develop an awareness of the importance of clear and neat presentation in order to communicate their meaning effectively.

### 3. Standard English and Language Study

**3.1** In order to structure their writing and confirm its sense, pupils should be introduced to the vocabulary and grammar of modern written standard English. They should be taught to apply their existing linguistic knowledge, drawn from oral language and their experience of reading, and taught how word choice and order are crucial to clarity of meaning. They should be taught that a sentence is a unit of sense demarcated by an initial capital letter and final punctuation mark, such as a full stop or a question mark. When writing sentences, pupils should learn to ensure that subject and verb agree. They should be introduced to the use of the verb 'to be' in the past and present tenses. Later, they should discuss the organisation of more complex texts and the way sentences link together.

**3.2** Pupils' vocabulary should be extended through consideration and discussion of words with similar meanings, opposites, and words with more than one meaning. Teaching should develop pupils' interest in words and their meanings, *eg by reflecting upon the way an author uses words; using words on display in the classroom; considering alternative word choices*. Pupils should be encouraged to ask about the meanings of unfamiliar words.

### 4. Range

**4.1** Pupils should be taught that the ability to construct and convey meaning in a wide range of forms is the main purpose of writing. Teaching should emphasise the close links between writing and reading, speaking and listening, *eg pupils should use their own writing as material for reading*.

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- 4.2** Pupils should be helped to understand the value of writing as a means of remembering, communicating, organising and developing ideas and information, and as a source of enjoyment. Pupils should be taught to write independently on subjects which are of interest and importance to them. They should write in response to a variety of stimuli, including stories, poems, classroom activities and personal experience. Pupils should be taught to identify the purpose for which they write and to write for a range of readers, *eg their teacher, their family, their peers and themselves*.
- 4.3** Pupils should be taught to organise their writing in different ways, helpful to the purpose, task and reader. They should be taught to write in a range of forms, incorporating some of the different characteristics into their own writing. The forms should include diaries, stories, letters, observational records, instructions, lists, captions, invitations, notices, poems and messages.

# SPEAKING AND LISTENING

This programme of study is concerned with the development of effective speaking and listening. Pupils should be taught to:

- use the vocabulary and grammar of spoken standard English;
- formulate, clarify and express their ideas;
- adapt their speech to a widening range of circumstances and demands;
- listen, understand and respond appropriately to others.

## KEY STAGE 2

- 1.1** Pupils should be given opportunities which encourage progress in speaking and listening. In Key Stage 2 progress should be characterised by:
- an increasing appreciation and use of standard English;
  - a growing ability to sustain talk, developing ideas in detail where appropriate;
  - an increasing ability to adapt talk to different purposes and audiences;
  - a developing vocabulary, used effectively;
  - comprehension of increasingly complex ideas;
  - increasing sensitivity about when and how to contribute to a discussion.
- 1.2** Pupils working at Levels 1 and 2 should be given a carefully planned programme to enable them to take a full part in oral activities. Pupils working at higher levels should be given access to relevant parts of the programmes of study for the next key stage.
- 1.3** Pupils who have had little opportunity to express themselves orally in English, and those whose vocabulary is limited, should be given support to develop their language and extend their vocabulary.
- 1.4** Provision should be made to ensure that pupils unable to communicate orally may use other means, including the use of technology, signing or symbols. Those with hearing impairment may use lip-reading.

## 2. Key Skills

- 2.1** In discussions, pupils should make a range of contributions, depending on the activity and the purpose of the talk. This should include making explanatory and tentative comments when ideas are being collected together, and reasoned, evaluative comments as discussion moves to conclusions or action. Pupils should be taught to revise and improve their speaking, *eg through preparing a poetry recitation to bring out its humour or sadness, or rehearsing a puppet show for presentation to the class*. Pupils should learn to evaluate their talk, *eg how well they drew other people into the talk or ensured that all views were given a fair hearing*. They should be encouraged to reflect on how their talk varies, *eg distinguishing between anecdotes and formal descriptions, between questioning and reporting*.
- 2.2** Pupils should be taught to listen carefully and to recall and re-present important features of an argument, talk, presentation, reading, radio or television programme. They should be taught to identify the gist of an account or the key points made in discussion. They should evaluate what they hear and make contributions which are relevant to what is being considered. They should be taught to listen carefully to others, questioning them to clarify what they mean and extending and following up the ideas. They should begin to qualify or justify what they think after listening to other opinions or accounts, and to deal politely with opposing points of view.

### 3. Standard English and Language Study

- 3.1 Pupils' appreciation and use of standard English should be developed by involvement with others in activities which, through their content and purpose, demand the range of grammatical constructions and vocabulary characteristic of spoken standard English. They should be taught to speak with clear diction, using appropriate vocabulary and grammar. Pupils should be taught how formal contexts require particular choices of vocabulary and greater precision in language structures, and to investigate how language varies according to context and purpose. They should learn characteristic features of standard English, including the consistent use of verb tenses and subject-verb agreement; correct standard forms of negatives, plurals and pronouns. They should also develop their understanding of the close relationship between the written and spoken forms of standard English; however, since most speech is spontaneous, speakers may change direction or emphasis mid-sentence, pause for reflection or leave a sentence unfinished to allow others to speak.
- 3.2 Pupils should be taught to make correct use of an increasingly varied vocabulary. The range of pupils' vocabulary should be further extended and enriched through activities which focus on words and their meanings, including:
- discussion of more imaginative and adventurous choices of words;
  - consideration of groups of words, *eg those with similar or opposite meanings, the range of words relevant to a topic;*
  - language used in drama, role-play and word games.

### 4. Range

- 4.1 Pupils should be encouraged to express themselves confidently and clearly. They should be taught to make judgements about the relative formality of a context and begin to adapt their speech accordingly. Pupils should learn to organise what they want to say and use vocabulary and syntax which enables the communication of more complex meanings. Classroom activities should be varied and should give pupils opportunities to talk in a range of contexts for many purposes:
- exploration, extension, explanation of ideas;
  - planning, prediction, investigation;
  - sharing ideas, insights and opinions;
  - reading aloud and enacting stories and poems;
  - reporting and describing events and observations;
  - presentations to an audience, live or on tape.
- 4.2 They should be taught to appreciate how effective speaking and listening are interdependent. Pupils should be given opportunities to communicate to a wider range of audiences, *eg children from other classes, the whole class, adults in the school, invited guests.*
- 4.3 They should have opportunities to listen to a range of people and media, *eg live presentations, narrative and drama, simple documentaries and factual programmes on radio and television.* They should be encouraged to respond to and comment on what they hear.
- 4.4 Pupils should experience a widening range of drama activities, including improvisation, role-play, and the writing and performance of scripted drama. In responding to drama they should begin to evaluate their own and others' use of language.

# READING

This programme of study is concerned with the development of pupils' reading. Pupils should be taught to:

- read accurately and fluently;
- understand and respond to literature of increasing complexity drawn from the English literary heritage and from other cultures and traditions;
- analyse and evaluate a wide range of texts.

## KEY STAGE 2

**1.1** Pupils should be given opportunities which encourage progress in reading. In Key Stage 2 progress is seen in pupils' increasing independence as readers, their understanding and response to what they have read and their growing ability to read to find things out.

Pupils' developing **understanding** should be characterised by:

- the confidence to choose and read more challenging and demanding texts;
- an increasing sensitivity to meanings beyond the literal;
- a growing ability to distinguish between more and less significant aspects of a text;
- asking and answering questions about a text;
- an ability to summarise the main points of a text and relate their summary to the full text;
- the use of appropriate reading strategies when seeking information;
- a growing ability to use reference skills to find specific information;
- the increasingly confident use of information retrieval systems and libraries.

Pupils' developing **response** to texts should be characterised by:

- their enthusiasm for reading, and ability to express opinions about books;
- their ability to support their view of a story, poem or non-fiction source by reference to a text;
- a growing sensitivity to how a writer uses language to communicate ideas and achieve effects;
- an awareness of how texts are constructed and themes and images developed.

**1.2** Pupils working towards Levels 1 and 2 should be given a carefully planned and balanced programme of reading instruction to ensure coverage of the initial stages of reading. They should be taught to use phonic and graphic clues, and their knowledge of grammatical structure and the meaning of a text as a whole, in order to make sense of print. Pupils should be given access to literature appropriate to their age and maturity, as outlined in this programme of study, and to the pleasure of reading. Pupils working at higher levels should be given access to relevant parts of the programmes of study for the next key stage.

**1.3** Pupils who need to use non-sighted methods of reading may use appropriate alternative texts suited to their needs. Pupils' reading of and response to literature should be encouraged through the use of appropriate methods of communication.

## 2. Key Skills

**2.1** To increase their ability to read with fluency, accuracy, understanding and enjoyment, pupils should be taught to extend their phonic and graphic knowledge to include more complex patterns and irregularities.

**2.2** Pupils should begin to consider in more detail the quality and depth of what they read and material which is read to them. They should be encouraged to respond imaginatively to the plot, characters, ideas, vocabulary and organisation of language in literature. They should

be taught to use inference and deduction. Pupils should be taught to refer to relevant passages or episodes to support their opinions, and to evaluate the texts they read in writing and discussion. Provision should emphasise the reading of a range of texts, not the detailed study of a limited number. Pupils' voluntary reading activities should be reviewed to assess their abilities and to ensure that each pupil is developing effective reading strategies. Pupils should keep records of their own reading.

- 2.3** Pupils should be taught how to find information in books and databases, using organisational devices, *eg chapter titles and headings, subheadings, glossaries, contents page and indexes* to help them to decide which parts of the material to read closely. They should be taught how to read for different purposes, adopting appropriate strategies for the task. The strategies should include skimming to gain an overall impression of a text, scanning to locate a specific piece of information, and detailed reading to obtain specific information.

Pupils should be taught to:

- pose pertinent questions about a topic they are investigating;
- identify the precise information which they wish to know;
- distinguish between fact and opinion;
- consider an argument critically;
- make succinct notes;
- use dictionaries, glossaries and thesauruses to explain unfamiliar vocabulary;
- note the meaning and use of newly encountered words;
- re-present information in different forms.

Pupils should be taught to use library classification systems, catalogues and indexes.

### 3. Standard English and Language Study

Pupils should be introduced to the organisational and structural features of different types of text, and to some of the appropriate terms to enable them to discuss the texts they read, *eg author, setting, plot, style*. They should use their knowledge gained from reading to develop their understanding of the structure, vocabulary and grammar of standard English.

### 4. Range

- 4.1** Pupils should be encouraged to develop as enthusiastic, independent and reflective readers. They should be introduced to a wide range of literature and non-fiction and be reading extensively for their own interest and pleasure, and for information.
- 4.2** Their reading should include stories, poems, plays, fables, myths and legends, novels, reference books and non-fiction texts. Teachers should develop pupils' reading through the use of progressively more challenging and demanding texts. Opportunities for reading should include both independent and shared reading of play scripts and other texts by groups and the whole class.
- 4.3** Pupils' reading should include texts:
- with challenging subject matter which broadens perspectives and extends thinking;
  - with more complex narrative structures and sustained ideas;
  - which include figurative language, both in poetry and prose.
- 4.4** Non-fiction material should be accessible to pupils at this key stage and be well written, up-to-date and accurate. Texts should be organised in ways which allow the speedy retrieval of information, *eg providing useful indexes and glossaries*, and include illustrations which support rather than dominate the words. The range of non-fiction should include dictionaries, thesauruses, encyclopaedias and reference books. Pupils should also be introduced to information sources not specifically written for children, *eg newspapers, timetables, brochures, databases, documentaries and news programmes*.

## 5. Selection of Literature

The literature in this key stage should be wide-ranging and cover the following categories:

- a range of modern verse by writers such as *John Agard, Allan Ahlberg, Charles Causley, John Foster, Ted Hughes, Ogden Nash, Grace Nichols, Gareth Owen, Brian Patten, James Reeves, Michael Rosen, Kit Wright*;
- a range of modern fiction by writers such as *Richard Adams, Joan Aiken, Betsy Byars, Susan Cooper, Helen Cresswell, Roald Dahl, Leon Garfield, Alan Garner, Rumer Godden, Russell Hoban, Ted Hughes, Gene Kemp, Judith Kerr, Clive King, Dick King-Smith, Penelope Lively, Jill Murphy, Jenny Nimmo, Philippa Pearce, Ian Serraillier, Rosemary Sutcliff, Jill Paton Walsh, E B White, T H White*;
- some classic poetry, eg *John Masefield (Sea Fever), H W Longfellow (The Wreck of the Hesperus), Edward Lear (The Jumblies), Walter de la Mare (The Listeners), Lewis Carroll (You are Old, Father William), T S Eliot (Macavity, the Mystery Cat), Alfred Noyes (The Highwayman), Eleanor Farjeon (It Was Long Ago), Hilaire Belloc (Tarantella), Robert Browning (The Pied Piper of Hamelin)*;
- some long-established children's fiction, eg *Lewis Carroll (Alice's Adventures in Wonderland), J M Barrie (Peter Pan), Richmal Crompton (Just William), Arthur Ransome (Swallows and Amazons), Kenneth Grahame (The Wind in the Willows), C S Lewis (The Lion, the Witch and the Wardrobe), A A Milne (Winnie the Pooh), Rudyard Kipling (The Jungle Book), E Nesbit (The Railway Children), Laura Ingalls Wilder (The Little House on the Prairie), Susan Coolidge (What Katy Did), Mary Norton (The Borrowers)*;
- texts drawn from a variety of cultures and traditions, eg *Valerie Flournoy (The Patchwork Quilt), Madhur Jaffrey (Seasons of Splendour), Florence Parry Heide and Judith Heide Gilliland (The Day of Ahmed's Secret), John Steptoe (Mufaro's Beautiful Daughters)*;
- myths, legends and traditional stories, eg *'The Faber Book of Greek Legends' edited by Kathleen Lines, 'Tales from the Mabinogion' by Gwyn Thomas and Kevin Crossley-Holland, 'Book of British Fairy Tales' edited by Alan Garner, 'The Broonie, Silkies and Fairies: Travellers Tales' by Duncan Williamson, 'Mouth Open, Story Jump Out' by Grace Hallworth.*

# WRITING

This programme of study is concerned with the development of pupils' ability to construct and convey meaning in written standard English. Pupils should be taught to use:

- compositional skills – developing ideas and communicating meaning to a reader, using a wide-ranging vocabulary and an effective style, organising and structuring sentences grammatically and whole texts coherently;
- essential presentational skills – accurate punctuation, correct spelling and legible handwriting;
- a widening variety of forms for different purposes.

## KEY STAGE 2

1.1 Pupils should be given opportunities which encourage progress in writing. In Key Stage 2 progress is seen in pupils' growing control over the skills required to explore and communicate experience, and convey information and ideas effectively.

Progress in writing in Key Stage 2 should be characterised by:

- the ability to write appropriately for a widening range of purposes and audiences;
- increasingly effective and careful organisation of ideas into coherent and grammatically correct sentences;
- the use of a widening, varied vocabulary;
- a developing understanding of how writing can be improved;
- increasing accuracy in the use of punctuation;
- increasing accuracy of spelling, including the spelling of complex, regularly patterned words;
- growing fluency in and control over different forms of handwriting and the use of a legible style appropriate to the purpose of the writing.

1.2 Pupils working towards Levels 1 and 2 should be given a carefully planned programme to ensure coverage of the initial stages of writing. Activities should reflect pupils' age and maturity. Pupils working at higher levels should be given access to relevant parts of the programmes of study for the next key stage.

1.3 Provision should be made to ensure that pupils who depend physically on the use of technological aids to produce written work are able to follow as much of the programmes of study as possible. Pupils whose disability is such that handwriting is impossible will need to be exempted from the handwriting aspects of the programmes of study.

## 2. Key Skills

2.1 Pupils should write in response to more demanding tasks. As pupils write for a wider range of purposes, they should be taught to distinguish degrees of formality in writing for unfamiliar audiences, *eg guidebooks, pamphlets, reviews, reports, formal letters*. They should begin to make judgements about when a particular tone, style, format or vocabulary is appropriate.

2.2 Pupils should develop their ability to plan, draft and improve their work, and to discuss and evaluate their own and others' writing. They should be taught to develop their writing beyond a first draft, learning to:

- **plan** – note and develop initial ideas;
- **draft** – develop ideas from the plan into structured written text;
- **revise** the draft – alter to make meaning clear, *eg removing ambiguity, vagueness*, consider choices of vocabulary;
- **proofread** the draft – check for spelling and punctuation errors, omissions or repetitions;
- **present** a neat, correct and clear final copy.

Pupils should develop their ability to organise and structure their writing in a variety of ways, using their experience of fiction, poetry and other texts.

**2.3 In punctuation**, pupils should be taught to use punctuation marks correctly, including full stops, commas, inverted commas, apostrophes, question marks and exclamation marks.

**2.4 In spelling**, pupils should be accumulating a bank of words which they can spell correctly and be taught to check spellings and meanings of words using a dictionary. When looking up words, pupils should be taught to apply their knowledge of the organisation of dictionaries, including headings, abbreviations and other conventions. They should also use their knowledge of letters and words including:

- initial and subsequent letters;
- the relevance of roots and origins of words, *eg 'loveliness' is to be found under 'lovely'*;
- alternative ways of writing the same sound, *eg n as in gn, kn, mn, pn*.

Pupils should be taught the meaning, use and spelling of common prefixes and suffixes, *eg un-, in-, -able, -ness, -ful*. They should learn about word families, the roots of words and their derivations. They should be taught the spelling of words with inflectional endings, *eg bead-ing, bead-ed, trap-ping, trap-ped*.

Pupils should be taught to:

- use the apostrophe to spell shortened forms of words;
- recognise silent letters;
- memorise the visual patterns of words, including those which are irregular;
- use appropriate terminology, including vowel and consonant;
- spell complex, polysyllabic words which conform to regular patterns, and how to break long and complex words into more manageable units, using their knowledge of meaning and morphology.

**2.5 In handwriting**, pupils should continue to practise the skills acquired during Key Stage 1 and develop legible handwriting in both joined up and printed styles. As pupils become increasingly confident and independent, their handwriting should show greater control and fluency. They should be taught to use different forms of handwriting for different purposes, *eg print for labelling maps or diagrams; a clear, neat hand for finished, presented work; a faster script for notes*.

### 3. Standard English and Language Study

**3.1** Pupils should be encouraged to reflect on their use of language, beginning to differentiate between spoken and written forms. They should learn that written standard English varies in degrees of formality, *eg a diary entry, a letter to an organisation requesting information*. When writing they should identify their audience and purpose, making careful choices of vocabulary and constructing effective, well-organised sentences and paragraphs in order to make meaning clear and interesting to a reader.

**3.2** Pupils should begin to develop their understanding of sentence grammar, specifically the syntax of complex sentences, including clauses and phrases. They should also be taught how to use paragraphs, linking sentences together coherently. They should be taught to use correctly nouns, pronouns, verbs, adjectives, adverbs, prepositions, conjunctions, singular/plural forms and verb tenses.

**3.3** Pupils should be taught to distinguish between words of similar meanings, to explain the meanings of words and to experiment with choices of vocabulary. Their interest in words should be extended by the discussion of language use and choices, *eg by comparing fictional and non-fictional treatments of similar themes*.

#### 4. Range

- 4.1 Pupils should continue to write for varied purposes, understanding that writing is essential to thinking and learning, and enjoyable in itself. They should be taught to use writing as a means of developing, organising and communicating ideas, and that it will require confident use of a wide vocabulary and a range of grammatical structures and punctuation.
- 4.2 Pupils should write for an extended range of audiences, including the teacher, the class, other children, adults in the school or community and imagined audiences. They should write in response to a wide range of stimuli, including stories, plays and poems, their interests and experiences and the activities of the classroom.
- 4.3 They should be taught to use the characteristics of different kinds of writing, *eg argument, commentary, narrative, dialogue*. The forms in which they write should include: poetry, using a variety of rhymes, rhythms, layouts and verse structure; stories; letters; notes; diaries; reports; instructions; dialogue and drama scripts; explanations. They should be taught to use features of layout, *eg headings, subheadings*, to clarify presentation.
- 4.4 Teaching should continue to emphasise the close links between reading and writing, *eg by writing alternative endings for a story*, and between writing and speaking and listening, *eg discussing ideas prior to writing, developing a drama activity into a script*.

# LEVEL DESCRIPTIONS

## ATTAINMENT TARGET 1 : SPEAKING AND LISTENING

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### Level 1

Pupils talk about matters of immediate interest. They listen to others and usually respond appropriately. They convey simple meanings to a range of listeners, speaking audibly and beginning to extend their ideas or accounts by providing some detail.

### Level 2

Pupils are beginning to show confidence in talking and listening, particularly on topics which interest them. On occasions, they show awareness of the needs of the listener by including relevant detail. In developing and explaining their ideas they speak clearly and use a growing vocabulary. They usually listen carefully and respond with increasing appropriateness to what others say. They are beginning to be aware that in some situations a more formal vocabulary and tone of voice are used.

### Level 3

Pupils talk and listen confidently in different contexts, showing understanding of the main points. In discussion, they explore, develop and communicate ideas. Through relevant spoken responses, they show they have listened with concentration. They have begun to adapt what they say to the needs of the listener, varying the use of vocabulary and the level of detail. They are beginning to be aware of standard English and when it is used.

### Level 4

Pupils talk and listen with confidence in an increasing range of contexts. Their talk is adapted to the purpose: developing ideas thoughtfully, describing events and conveying their opinions clearly. In discussion, they listen with concentration and make contributions which are responsive to others' ideas and views. They use some of the core features of standard English vocabulary and grammar appropriately.

### Level 5

Pupils talk and listen in a wide range of contexts, including some which are of a formal nature. Their talk engages the interest of the listener as they begin to vary their expression and vocabulary. In discussion, they pay close attention to what others say, asking questions to develop ideas and taking account of others' views. They have begun to use standard English in formal situations.

### Level 6

Pupils adapt their talk to the demands of different contexts with increasing confidence. Their talk engages the interest of the listener through the variety of its vocabulary and expression. Pupils take an active part in discussion, showing understanding of ideas and sensitivity to others. They are usually fluent in their use of standard English in formal situations.

## ATTAINMENT TARGET 2 : READING

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### ■ Level 1

In reading aloud simple texts pupils recognise familiar words accurately and easily. They use their knowledge of the alphabet and of sound-symbol relationships in order to read words and establish meaning. In these activities they sometimes require support. They express their response to poems and stories by identifying aspects they like.

### ■ Level 2

Pupils' reading of simple texts is generally accurate and shows understanding. They express opinions about major events or ideas in stories, poems and non-fiction. They use more than one strategy (phonic, graphic, syntactic and contextual) in reading unfamiliar words and establishing meaning.

### ■ Level 3

Pupils read a range of texts aloud fluently and accurately. They read unfamiliar words independently, using more than one strategy (phonic, graphic, syntactic and contextual) to establish meaning. In responding to fiction and non-fiction they show understanding of the main points and express preferences. They use their knowledge of the alphabet to locate books and find information.

### ■ Level 4

In responding to a range of texts, pupils show understanding of significant ideas, themes, events and characters, beginning to use inference and deduction. They refer to the text when explaining their views. They locate and retrieve ideas and information effectively.

### ■ Level 5

Pupils show understanding of a range of texts, selecting essential points and using inference and deduction where appropriate. In their responses, they identify key features and select sentences, phrases and relevant information to support their views. They retrieve and collate information from a range of sources.

### ■ Level 6

In reading and discussing a range of texts, pupils identify different layers of meaning and explain their significance. They give personal responses to literary texts, referring to aspects of language, structure and themes in justifying their views. They summarise a range of information drawn from different sources.

## ATTAINMENT TARGET 3 : WRITING

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### Level 1

Pupils' writing communicates meaning through simple words and phrases, usually organised into a simple statement. Pupils begin to show an awareness of full stops, identifying where they are needed in their own writing. Letters are usually clearly shaped and correctly orientated.

### Level 2

Pupils' writing conveys straightforward meanings in both narrative and non-narrative forms, using appropriate vocabulary. It shows some awareness of the reader, extending writing beyond a single statement, developing ideas in a sequence of sentences, usually demarcated by capital letters and full stops. Simple, monosyllabic words are usually spelt correctly, and where there are inaccuracies the alternative is phonetically plausible. In handwriting, some letters are joined.

### Level 3

Pupils' narrative writing is often organised, imaginative and clear. The main features of different forms are used appropriately, beginning to be adapted to different readers. Sequences of sentences extend ideas logically and words are chosen carefully for variety and interest. The basic grammatical structure of sentences is usually correct, including subject-verb agreement. Spelling is usually accurate, including that of simple, polysyllabic words. Simple punctuation (full stops, capital letters and question marks) is used accurately. Handwriting is joined and legible.

### Level 4

Pupils' writing in a range of forms is lively and thoughtful. Ideas are often sustained and developed in interesting ways and organised appropriately for the task and the reader. Vocabulary choices are often adventurous; words are used for effect. More complex sentences are grammatically correct, extending and developing meaning. Spelling, including that of polysyllabic words which conform to regular patterns, is generally accurate. Punctuation, including the use of commas to separate items in lists, is usually accurate. Handwriting is fluent, joined and legible.

### Level 5

Pupils' writing is varied and interesting, conveying meaning clearly in a range of forms for different readers, using a more formal style when appropriate. Vocabulary choices are imaginative, words are used precisely. Simple and complex sentences are organised into paragraphs. Spelling of complex, regularly patterned words, is usually correct. Commas, apostrophes and speech marks are usually used accurately. Handwriting is clear and fluent in a cursive style, and, where appropriate, is adapted to a range of tasks.

### Level 6

Pupils' writing often engages and sustains the reader's interest. It shows some adaptation of style and register to different forms, including using an impersonal style where appropriate. Pupils use a range of sentence structures and varied vocabulary to create effects. Spelling is generally accurate, including that of irregular words, and handwriting is neat and legible. A range of punctuation is usually used correctly to clarify meaning and ideas are organised into paragraphs.

## THE SCHEDULE

This appendix applies only in Wales to certain groups of pupils who have been taught through the medium of Welsh in Key Stage 1.

- 1. The modifications to the programmes of study set out in this Schedule apply to those pupils who are expected from the requirements relating to the provisions of the National Curriculum with regard to the teaching of English for the first key stage. These exceptions are set out in the Education (National Curriculum) (Exceptions) (Wales) Regulations 1989 – SI 1308/1989. The pupils who are excepted under these Regulations are those who are in a group where the medium of teaching to that group is wholly or partly in Welsh as regards more than half of the subjects comprising religious education and the foundation subjects as defined in the Education Reform Act, other than English and Welsh.*
- 2. Such pupils will have developed skills in and knowledge about language similar to those pupils taught through English and such pupils will generally display a growing confidence in their use of language.*

### Programmes of study at Key Stage 2

3. The development of English and Welsh should be seen as mutually supportive and this may require modification of the teaching within the programmes of study at Key Stage 2 but this will be slight and should ensure activities which:
  - build on the English language experiences of the home and of the community at large;
  - encourage pupils to transfer their skills in, and knowledge and understanding of, one language to the other;
  - draw pupils' attention, in a structured and systematic way, to the similarities and differences between the two languages;
  - assist pupils to acquire appropriate terminology which will enable them to discuss these similarities and differences purposefully;
  - develop pupils' understanding of the social contexts in which the languages are used;
  - provide a variety of reading material which will highlight these social contexts. Examples might be drawn from pupils' own work, the media, literature and reference books.

## MATHEMATICS PROGRAMMES OF STUDY

The examples printed in italics are non-statutory.

Pupils should be given opportunities to apply and develop their information technology (IT) capability in their study of mathematics, where appropriate.

The programme of study for each key stage should be taught to all or the great majority of pupils in the key stage, in ways appropriate to their abilities. However, for the small number of pupils who may need the provision, teachers may select material from earlier or later key stages where this is necessary to enable individual pupils to progress and demonstrate achievement. Such material should be presented in contexts suitable to the pupil's age.

Appropriate provision should be made for pupils who need to use:

- means of communication other than speech, including computers, technological aids, signing, symbols or lip-reading;
- non-sighted methods of reading, such as Braille, or need to acquire information in a non-visual or non-aural way;
- technological aids in producing written work;
- aids to allow access to practical activities within and beyond school.

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## KEY STAGE 1 PROGRAMME OF STUDY

Building on their prior knowledge and experience, pupils should develop an awareness of the underlying patterns in number and shape which are a foundation for calculating methods, measurement and shape work in the future. The development of mathematical language is of fundamental importance, so talking about work has a higher priority than recording.

The main emphases at this key stage are on:

- developing the appropriate mathematical language associated with number, shape and position;
- learning to count in preparation for work on place value and working with larger numbers;
- using the four operations of number in relevant contexts;
- recognising pattern and symmetry;
- developing skills in measuring and estimating.

These emphases do not describe discrete areas of study, as each interrelates with the others. Developing mathematical language, selecting and using materials and developing reasoning make sense only when set in the context of the other areas of mathematics. The key learning strategies of sorting and classifying, making comparisons and searching for patterns apply equally to work on number as to work on shape and space.

In planning, teaching and assessing, consideration should be given both to the progression within an area of study and the links each area has with the others.

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## USING AND APPLYING MATHEMATICS

**Using and Applying Mathematics** identifies processes which should permeate all work in mathematics. It should relate both to how pupils learn new mathematical ideas and to how they apply existing knowledge in daily activities and imagined situations. Pupils should be taught to use and apply mathematics in practical tasks, in real-life problems and in order to acquire further knowledge, skills and understanding in the subject itself. They should be given opportunities to talk about their work, and to compare their ideas and methods with others. Pupils should be taught to explain their thinking, ask questions and follow alternative suggestions to support their development of reasoning. They should be encouraged to find different ways of solving problems and to make decisions about the way they carry out tasks.

Pupils should be taught to:

### 1. Developing mathematical language

- a understand the language of number, of properties of shapes and of comparatives, *eg bigger than, next to and before*;
- b use numerals and other mathematical symbols, *eg '+' and '='*;
- c talk about their work, responding to and asking mathematical questions;

### 2. Selecting and using mathematics and materials

- a select and use the appropriate mathematics to help solve problems;
- b select and use mathematical equipment and materials to help complete a task;
- c try different mathematical approaches to problems and look for ways to overcome difficulties;

### 3. Developing mathematical reasoning

- a recognise simple patterns and relationships and make predictions about them;
- b ask questions such as 'What would happen if...?' and 'Why?';
- c understand general statements, *eg all even numbers divide by 2*, and investigate whether particular cases match them;
- d organise and check their work.

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Pupils should be helped to build on previous knowledge of counting and of the language of numbers. They should be encouraged to develop flexible methods of working with numbers orally and mentally, and to record in ways which relate to their mental work. They should be taught to calculate with, and use the interrelationships of, small numbers, in order to gain knowledge of basic addition and subtraction facts. Pupils should be given opportunities to work with large numbers to develop their understanding of place value. Pupils should be helped to appreciate how their knowledge and understanding can be used to develop a range of computational methods which extend beyond simple counting. They should be encouraged to use a variety of practical resources and contexts to extend and apply their knowledge of number. Pupils should be given opportunities to use calculators, where appropriate, both as a means to explore numbers and as a tool for calculating with realistic data. Pupils should be taught to build on their understanding of addition and subtraction in order to develop their understanding of multiplication. Pupils should be encouraged to collect or access data arising from an area of interest and to explore different ways of organising and representing it.

Pupils should be taught to:

## ■ 1. Developing an understanding of place value

- a count orally, knowing the number names; count collections of objects, checking the total; count in steps of different sizes, exploring patterns and recognising sequences, *eg odd and even numbers and simple multiples*;
- b read, write and order numbers, initially to 10, progressing to 1000 or more, and towards an understanding that the position of a digit signifies its value; begin to approximate larger numbers to the nearest 10 or 100;
- c recognise and use simple fractions, *eg halves and quarters of a whole*, decimal notation in recording money and negative numbers in a familiar context, *eg temperature scale, a number line or a calculator display*;

## ■ 2. Understanding relationships between numbers and developing computational methods

- a use repeating patterns to develop ideas of regularity and sequencing;
- b explore and record addition and subtraction patterns and patterns in number tables, *eg the hundred square*, explaining their patterns and using them to make predictions; to progress to exploring multiplication and division patterns;
- c know addition and subtraction facts, initially to 10, then to 20, and develop a range of mental methods for finding, from known facts, those which they cannot otherwise recall; progress to learning multiplication and division facts relating to the 2s, 5s, 10s, and other tables, and to developing mental methods for finding new results;
- d develop a variety of methods for adding and subtracting two-digit numbers, including using the fact that subtraction is the inverse of addition;
- e use a basic calculator (including the constant key), reading the display;

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Pupils should be taught to:

### ■ 3. Solving numerical problems

- a understand the operations of addition and subtraction (as 'take away' or comparison) and the relationship between them, and to use them to solve problems with whole numbers, including situations involving money;
- b progress to understand the operations of multiplication and division (as sharing or equal partition) and use them to solve problems with whole numbers or money, understanding and dealing appropriately with remainders;
- c choose a suitable computational method, using apparatus or a calculator where appropriate;
- d begin to check answers by different methods, *eg repeating the operation in a different order*, and gain a feel for the appropriate size of answer;

### ■ 4. Sorting, handling and classifying data

- a sort and classify a set of objects according to one, two or more criteria related to their properties;
- b collect, record and interpret data using an increasing range of charts, diagrams, tables and graphs.

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## SHAPE, SPACE AND MEASURES

Pupils should be helped to develop gradually their skills of reasoning by discussing shapes and movements which can be seen or visualised, stimulated by interesting objects and images. They should be given opportunities to gain a wide range of practical experience and to discuss their work and to develop appropriate language. Pupils should be encouraged to construct shapes and make patterns by using different materials, *eg scrap materials, boxes, cubes, polygon shapes, tiles, printing materials*. They should use IT devices, including programmable toys and computers, to explore space and create shapes. Pupils should be given opportunities to link work purposefully with other subjects, in particular physical education, art, science and technology. They should be helped to develop the everyday language for comparing quantities and the use of common standard units, progressing to the use of simple instruments in order to make measurements for a purpose.

Pupils should be taught to:

### 1. Understanding and using pattern, shape and movement

- a describe shapes, positions and movements which can be seen or visualised, using everyday language; begin to use mathematical terms to describe shapes and their properties, including knowing the names for squares, rectangles, circles, triangles, hexagons, pentagons, cubes, cuboids, cylinders and spheres;
- b use a variety of materials to make common 2-D and 3-D shapes, working with increasing care and accuracy; to begin to classify shapes according to mathematical criteria and recognise reflective symmetry in simple cases;
- c copy, continue and make patterns; recognise movements in a straight line (translations) and rotations, and combine them in simple ways;

### 2. Understanding and using measures

- a compare objects and events using appropriate language, initially without measuring and then using common standard and non-standard units of length, mass and capacity, *eg 'three-and-a-bit metres long', 'about three beakers full' or 'as heavy as 10 conkers'*; begin using a wider range of standard units, including standard units of time, choosing appropriately to a situation, and estimating with them;
- b choose and use simple measuring instruments, reading and interpreting scales with appropriate accuracy;
- c understand angle as a 'corner' or as a measure of turn and recognise quarter turns (right angles) and half turns.

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## KEY STAGE 2 PROGRAMME OF STUDY

Mathematics at Key Stage 2 builds on the mathematical experiences of Key Stage 1 and underpins the development of formal algebras and geometries in Key Stages 3 and 4. Mathematics at Key Stage 2 is characterised by an increasing awareness and understanding of the patterns, structures and relationships which underlie the number system, calculating methods, systems of measurement and properties of shapes. This understanding also allows pupils to extend their own mathematics into working with a wider range of numbers, solving problems with an increasing number of steps, appreciating more complex relationships and being able to make generalisations about mathematics. Where appropriate, pupils should be given opportunities to use IT to support and enhance their learning of mathematics.

The main emphases at this key stage are on:

- using and applying mathematics in practical tasks, in real-life problems and in acquiring further knowledge, skills and understanding in the subject itself;
- understanding and using the base and place value of our counting system, and understanding how it can be extended into fractions and decimals and numbers below zero;
- understanding relationships between numbers, learning basic number facts and developing a range of computational methods;
- solving numerical problems in a range of contexts, selecting appropriate sequences of operations and giving solutions that are appropriate and reasonable to the context of the problem;
- handling quantities of data, interpreting and representing data in tabular, graphical and diagrammatic form;
- developing an intuitive understanding of probability;
- describing and representing shapes in terms of their properties, location and movement;
- understanding and using the properties and relationships of shapes;
- measuring quantities including length, area, volume/capacity, angle, temperature, time and mass.

These emphases do not describe discrete areas of study, as each interrelates with the others. Developing mathematical language, reasoning and skills in applying mathematics make sense only when set in the context of the other areas of mathematics. Measurement is associated with shape, it reflects the base and place value of our counting system, and relates to handling data, while a developing confidence with calculating applies across most areas of mathematics, as well as to coping with everyday situations.

In planning, teaching and assessing, consideration should be given both to the progression within an area of study and to the links each area has with the others.

## USING AND APPLYING MATHEMATICS

**Using and Applying Mathematics** identifies processes which should permeate all other mathematics relating both to pupils' learning of new mathematical ideas and to the application of existing knowledge in fresh situations. Pupils should be taught to use and apply mathematics in practical tasks, in real-life problems, and in order to acquire further knowledge skills and understanding in the subject itself. Pupils should take increasing responsibility for selecting materials and methods, trying different approaches and organising and extending tasks. They should continue to have regular opportunities to talk about and explain their mathematics. They should be encouraged to devise and refine their own ways of recording.

Pupils should be taught to:

### 1. Developing mathematical language

- a understand and use the language of fractions, decimal and negative numbers, of standard measures, area and volume, of simple probability, including relationships such as multiple of, factor of and symmetrical to;
- b use diagrams, graphs and simple algebraic symbols;
- c present information and results clearly, and explain the reasons for their choice of presentation;

### 2. Selecting and using mathematics and materials

- a select and use the appropriate mathematics and materials to help solve problems;
- b try different mathematical approaches to problems and look for ways to overcome difficulties;
- c develop their own mathematical strategies for solving problems;
- d identify and obtain information needed to carry out their work;
- e check their results and consider whether they are reasonable;

### 3. Developing mathematical reasoning

- a understand general statements, *eg wrist size is half neck size*, and investigate whether particular cases match them;
- b search for a pattern in their results, trying out ideas of their own;
- c make conjectures of their own based on evidence they have produced;
- d explain their reasoning.

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Pupils' sense of pattern and generalisation in number, and recognition of relationships between numbers, should be developed throughout the key stage. It should support their understanding of the structure of the number system, its place value and notation, and act as a foundation for the development of algebraic skills in Key Stage 3. They should be given opportunities to use calculators, computers and a range of other resources where appropriate. They should be taught the skills needed for accurate and appropriate use of equipment. Pupils should be helped to acquire a sound understanding of the four operations and their interrelationships, together with an increasing fluency in mental calculation. They should be taught the skills of estimation and the habit of checking results. In calculating, pupils should be given opportunities to develop a wide range of methods, and use them flexibly and effectively.

Pupils should be taught to:

## ■ 1. Developing an understanding of place value and extending the number system

- a read, write and order whole numbers, understanding that the position of a digit signifies its value; use their understanding of place value to develop computational methods, to approximate numbers to the nearest 10 or 100, and to multiply and divide by powers of 10 when there are whole-number answers;
- b extend their understanding of the number system to negative numbers in context, and decimals up to two places in the context of measurement and money;
- c understand and use, in context, fractions and percentages to estimate, describe and compare proportions of a whole;

## ■ 2. Understanding relationships between numbers and developing computational methods

- a explore number sequences and arrays, *eg count in different sizes of step, doubling and halving, use of the multiplication square*, explaining patterns; interpret, generalise and use simple relationships, functions and formulae relating to numerical, spatial or practical situations, expressed initially in words and then in symbols;
- b use coordinates in the first quadrant, recognising the relationship between coordinates of related points on a line or in a shape, *eg vertices of a rectangle or a graph of the 3-times table*;
- c consolidate knowledge of addition and subtraction facts to 20, know the multiplication facts to 10 x 10 and develop a range of mental methods for finding quickly from known facts those which they cannot otherwise recall; know some properties of numbers, including multiples, factors and squares, extending to primes, cubes and square roots;
- d develop a variety of mental methods of computation with whole numbers up to 100 and explain patterns used; extend mental methods to develop a range of non-calculator methods for calculations which involve addition and subtraction of whole numbers less than 1000, and multiplication and division of whole numbers less than 1000 by whole numbers less than 100;

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Pupils should be taught to:

- e understand multiplication as repeated addition, and division as sharing or equal partitions; know associated language and recognise situations to which the operations apply; understand and use the relationships between the four operations, including inverses;
- f understand and use the features of a basic calculator, interpreting the display, including rounding and remainders, in the context of the problem
- g extend computational methods, when appropriate, to include calculating with negative numbers and calculating fractions and percentages of quantities using a calculator where necessary;

### ■ 3. Solving numerical problems

- a develop their use of the four operations to solve problems involving money and measures with no more than two decimal places;
- b choose sequences of suitable computational methods appropriate to a problem, adapt them and apply them accurately;
- c check results by different methods, *eg repeat the operations in a different order or use inverse operations*, estimate and approximate, and gain a feeling for the size of a solution to a problem.

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## SHAPE, SPACE AND MEASURES

Pupils should be taught to use their increasing command of language to develop their skills of reasoning by explaining shapes and movements which can be seen or visualised. They should be given opportunities to construct shapes and patterns, and to solve problems using a wide range of resources, *eg 2-D shapes, spatial puzzles, cubes, tiles, geoboards, printing materials, paper for folding and grid work*. Pupils should be given opportunities to use computers to create and transform shapes. In all their work they should be taught to extend and apply their knowledge of the properties of shapes and movements, and to begin to use more accurate drawing, construction and measurement skills. Pupils should be given opportunities to make purposeful links with other subjects, including art, technology, science and physical education, and to draw on a wide range of situations involving patterns, including some from different cultural traditions. They should be given opportunities to develop and apply their measuring skills, to use an increasing variety of measuring instruments and standard units, and to begin to develop an appreciation of relative size and scale.

Pupils should be taught to:

### 1. Understanding and using the properties of shapes and movements

- a visualise and describe shapes and movements, developing precision in using related geometrical language;
- b make 2-D and 3-D shapes and patterns with increasing accuracy and recognise their geometrical properties; recognise reflective symmetries of 2-D and 3-D shapes and rotational symmetries of 2-D shapes; use properties to classify shapes and to solve problems in two and three dimensions;
- c transform 2-D shapes by translation, reflection and rotation, develop an understanding of the meaning of congruence, and use transformations to create and describe repeating patterns;

### 2. Understanding and using measures

- a choose appropriate standard units of length, mass, capacity and time, and make sensible estimates with them in everyday situations;
- b choose and use appropriate measuring instruments, interpreting numbers and reading scales to an appropriate degree of accuracy;
- c use angles (right angles, fractions of a complete turn and, later, degrees) to measure rotation, and to know the associated language;
- d find perimeters of simple shapes and find areas and volumes by counting methods, leading to the use of other practical methods;
- e extend knowledge, when appropriate, to convert between metric units, and to know Imperial units still in daily use as well as their rough metric equivalents.

## HANDLING DATA

Handling data involves establishing a line of enquiry and posing questions, accessing or gathering the appropriate data, analysing the data and, finally, interpreting the results in the light of the original questions. Purposeful enquiries will often arise in other subjects, including geography, history and science. The mathematical aspect is concerned particularly with the analysis and interpretation of data. Pupils should be given some opportunities to collect data for themselves, but more often they should draw on existing sources, where the data is based on sufficiently large samples to be of interest and practical value. Pupils should be given opportunities to use computers as a rich source of interesting data and as a tool for exploring graphical representation. They should be taught to develop a critical approach to ways of representing, analysing and drawing conclusions from data. Pupils should be given opportunities to develop an intuitive understanding of probability and associated language through discussion of common events, games and simple experiments which involve an element of chance.

Pupils should be taught to:

### 1. Collection, interpretation and representation of data

- a interpret tables used in everyday life; interpret and create frequency tables, including those for grouped discrete data;
- b know alternative ways of representing discrete numerical data using graphs and diagrams, including block graphs, line graphs and pictograms, and choose appropriately for the given task;
- c interpret a wider range of graphs and diagrams which represent data, including pie charts, using a computer where appropriate;
- d understand and use measures of average, leading towards the mode, the median, the mean in relevant contexts, and the range as a measure of spread;
- e draw conclusions from statistics and graphs, and recognise why some conclusions can be uncertain or misleading;

### 2. Introduction to probability

- a develop understanding of fairness and use a vocabulary which includes the words 'evens', 'fair', 'unfair', 'probably', 'equally likely';
- b understand that the probability of events lies between impossibility and certainty, leading to the use of the scale from 0 to 1;
- c recognise situations where estimates of probability can be based on equally likely outcomes and others where estimates must be based on experimental evidence, and make or approximate these estimates.

# LEVEL DESCRIPTIONS

## ATTAINMENT TARGET 1: USING AND APPLYING MATHEMATICS

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

In matching pupils' work to the level descriptions in **Using and Applying Mathematics**, teachers should expect achievement to be demonstrated through activities which use mathematics from the other attainment targets at, or very close to, the same level.

### Level 1

Pupils use mathematics as an integral part of daily activities and imagined situations. They represent their work with objects or pictures and talk about it. They recognise a simple pattern or relationship, perhaps one based on their experience, and use it to make a prediction.

### Level 2

Pupils select the mathematics for daily activities and imagined situations. They discuss their work using familiar mathematical language and begin to represent it using symbols. They ask and respond appropriately to questions such as 'What would happen if...?'.  
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### Level 3

Pupils try different approaches and find ways of overcoming difficulties which arise when they are solving problems. They begin to organise their work and check results. Pupils talk about their mathematical work and are beginning to explain their thinking. They use and interpret mathematical symbols and diagrams. Pupils show that they understand a general statement by finding particular examples which match it.

### Level 4

Pupils are developing their own strategies for solving problems and are using these strategies both in working within mathematics and in applying mathematics to practical contexts. They present information and results in a clear and organised way, explaining the reasons for their presentation. They search for a pattern by trying out ideas of their own.

### Level 5

In order to carry through realistic tasks and mathematical problems, pupils identify and obtain necessary information; they check their results, considering whether they are sensible. Pupils show understanding of situations by describing them mathematically using symbols, words and diagrams. They make conjectures of their own, based on evidence they have produced, and give a convincing explanation of their reasoning.

### Level 6

Pupils carry through substantial tasks and solve quite complex problems by breaking them down into smaller more manageable tasks. They interpret, discuss and synthesise information presented in a variety of mathematical forms, ensuring that the text they have written explains and informs their use of diagrams. Pupils appreciate the need to question the accuracy of their generalisations and test them by checking a few particular cases.

## ATTAINMENT TARGET 2: NUMBER AND ALGEBRA

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### ■ Level 1

Pupils show they can count, order, estimate, add and subtract numbers when solving problems involving up to 10 objects. They read and write the numbers involved. Pupils recognise and make repeating patterns and count the number of each object in each repeat.

### ■ Level 2

Pupils count sets of objects reliably and use mental recall of addition and subtraction facts to 10. They have begun to understand the place value of each digit in a number and use this to order numbers up to 100. They choose the appropriate operation when solving addition and subtraction problems. They have begun to use fractions, being able to identify halves and quarters. They recognise sequences of numbers, such as odd and even numbers.

### ■ Level 3

Pupils have extended their understanding of place value to numbers up to 1000 and approximate these numbers to the nearest 10 or 100. They have begun to use decimals and negative numbers, in contexts such as money, temperature and calculator displays. Pupils use mental recall of addition and subtraction facts to 20 in solving problems. Pupils use mental recall of the 2, 5 and 10 multiplication tables, and others up to  $5 \times 5$ , in solving whole number problems involving multiplication and division, including those which give rise to remainders. They are beginning to develop other mental strategies of their own and use them to find methods for adding and subtracting two-digit numbers. They use calculator methods where appropriate. Pupils also solve problems involving multiplication or division of money by whole numbers.

### ■ Level 4

Pupils have begun to understand the relationship between place values, using this in order to multiply whole numbers by 10 or 100. They recognise approximate proportions of a whole and use simple fractions and percentages to describe these. In solving problems pupils use mental recall of multiplication facts up to  $10 \times 10$  and a range of mental and written methods of calculation. In solving numerical problems with a calculator and otherwise, pupils check the reasonableness of their results by reference to their knowledge of the context or to the size of the numbers. Pupils explore and describe number patterns, and relationships such as 'multiple', 'factor' and 'square'. They are beginning to use simple formulae expressed in words. Pupils use and interpret coordinates in the first quadrant.

## ■ Level 5

Pupils have extended their understanding of the relationship between place values, using this to multiply and divide whole numbers and decimal numbers by 10, 100 and 1000, and applying it to convert one metric unit to another. They have extended their use of negative numbers to include ordering on the number line and adding, subtracting, multiplying and dividing in contexts such as measurement. Pupils have begun to calculate with fractions and percentages, using fractions less than 1, and percentages less than 100 per cent, to calculate fractional or percentage parts of quantities and measurements using a calculator where necessary. Pupils understand and use an appropriate non-calculator method for solving problems involving multiplying and dividing a three-digit number by a two-digit number. When solving numerical problems pupils usually check their solutions by applying inverse operations or estimating using approximations. They use simple formulae expressed in symbolic form, and express in symbolic form linear functions involving one or two operations.

## ■ Level 6

Pupils order and approximate decimals and use these to solve numerical problems and equations of the form  $ax^n = 20$ , by trial and improvement. Pupils multiply and divide negative numbers in appropriate contexts. Pupils are aware of which number to consider as 100 per cent, or a whole, in problems involving comparisons, and use this to evaluate one number as a fraction or percentage of another. Pupils understand and use the equivalences between fractions, decimals and percentages. They calculate using ratios in a variety of situations. When exploring number patterns, pupils describe in words the rule for generating the  $n$ th term of a sequence, where the rule for the  $n$ th term is linear. They formulate and solve linear equations with whole number coefficients. They use coordinates in all four quadrants to represent mappings, expressed algebraically, interpreting their general features.

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## ATTAINMENT TARGET 3: SHAPE, SPACE AND MEASURES

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### ■ Level 1

When building and sorting in 3-D and 2-D, pupils use everyday language to describe properties and positions. They compare and order objects, and order events, without measuring.

### ■ Level 2

Pupils use mathematical names for common 2-D and 3-D shapes and describe their properties, such as numbers of sides and corners. They distinguish between straight and turning movements, understand angle as a measurement of turn, and recognise right angles in turns and corners.

### ■ Level 3

Pupils sort 3-D and 2-D shapes in various ways and use mathematical properties including reflective symmetry to describe each method of sorting. They use non-standard units and standard metric units of length, capacity and mass, and standard units of time, including metres, centimetres, litres, kilograms, days, hours and minutes.

### ■ Level 4

Pupils make 3-D mathematical models by linking given faces or edges, draw common 2-D shapes in different orientations on grids, and identify congruent shapes and orders of rotational symmetry. They reflect simple shapes in a mirror line. They choose and use appropriate units and instruments, interpreting numbers on a range of measuring instruments with appropriate accuracy. They find perimeters of simple shapes and find areas by counting squares, and find volumes by counting cubes.

### ■ Level 5

When constructing models and when drawing or using shapes, pupils measure and draw angles to the nearest degree, and use language associated with angle. They identify all the symmetries of shapes. They know the rough metric equivalents of Imperial units still in daily use. They make sensible estimates of a range of measures in relation to everyday situations.

### ■ Level 6

Pupils recognise and use common 2-D representations of 3-D objects. They know and use the properties of quadrilaterals in classifying different types of quadrilateral. They solve problems using angle and symmetry properties of polygons and properties of intersecting and parallel lines, and explain these properties. They devise instructions for a computer to generate and transform shapes and paths. They use appropriate formulae for finding areas of plane figures and volumes of cuboids when solving problems. They enlarge shapes by a positive whole number scale factor.

## ATTAINMENT TARGET 4: HANDLING DATA

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### ■ Level 1

When pupils sort and classify objects, they are able to demonstrate the criterion they have used.

### ■ Level 2

Pupils sort and classify objects using more than one criterion. When they have gathered information, pupils record results in simple tables, block graphs and diagrams in order to communicate their findings to others.

### ■ Level 3

Pupils extract and interpret information presented in simple tables and lists. They construct bar charts and pictograms, where the symbol represents a group of units, to communicate information they have gathered, and they interpret information presented to them in these forms.

### ■ Level 4

Pupils collect discrete data and record them using a frequency table. They understand, use and find the mode and median. They group data in equal class intervals, where appropriate, and represent collected data in frequency diagrams, and interpret such diagrams. They understand and use simple vocabulary associated with probability, such as 'fair', 'certain' and 'likely'.

### ■ Level 5

Pupils design and use a data collection sheet appropriate to a particular line of enquiry. Pupils understand, use and calculate the mean of discrete data. They compare two simple distributions and draw conclusions by using the range and one of the measures of average. They make qualitative interpretations of pie charts. They understand and use the probability scale from 0 to 1. Pupils make and justify estimates of probability, or approximations to these, by selecting and using a method based on equally likely outcomes or on experimental evidence as appropriate. They understand that different outcomes may result from repeating an experiment.

### ■ Level 6

Pupils collect and record continuous data, choosing appropriate equal class intervals over a sensible range to create a frequency table. They construct and interpret frequency diagrams and other forms of visual representation. Pupils draw conclusions from scatter graphs which describe discrete or continuous data, and they have a basic understanding of correlation. When dealing with a combination of two experiments, pupils identify all the outcomes by using diagrammatic, tabular or other forms of communication. In solving problems, they use their knowledge that the total probability of all the mutually exclusive outcomes of an experiment is 1.

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# APPENDIX

The following pages describe an example of how *Using and Applying Mathematics* could be integrated into the programmes of study and into the *Number and Algebra* attainment target.

# KEY STAGE 1 PROGRAMME OF STUDY

## GENERAL REQUIREMENTS

Building on their prior knowledge and experience, pupils should develop an awareness of the underlying patterns in number and shape, which are a foundation for calculating methods, measurement and shape work in the future. The development of mathematical language is of fundamental importance, so talk about work has a higher priority than written work.

Pupils in this key stage should be taught to:

- count, in preparation for work on place value and working with larger numbers;
- use the four operations of number in relevant contexts;
- recognise pattern and symmetry;
- develop skills in measuring and estimating;
- develop the appropriate mathematical language associated with number, shape and position.

These priorities interrelate, each with the others. For example, the key learning strategies of sorting and classifying, making comparisons and searching for patterns apply equally to work on number as to work on shape and space.

In planning, teaching and assessing, consideration should be given, therefore, both to the progression within an area of study and the links each area has with the others.

It is particularly important that pupils are taught to use and apply their mathematics in practical tasks and real-life problems. It is equally important that pupils are taught to use and apply their mathematics to acquire further knowledge, skills and understanding in the subject itself.

In the context of their work in each attainment target, pupils should be taught to:

### 1. Developing mathematical language

- a understand the language of number, of properties of shapes and of comparatives, *eg bigger than, next to and before*;
- b use numerals and other mathematical symbols, *eg '+' and '='*;
- c talk about their work, responding to and asking mathematical questions;

### 2. Selecting and using mathematics and materials

- a select and use the appropriate mathematics to help solve problems;
- b select and use mathematical equipment and materials to help complete a task;
- c try different mathematical approaches to problems and look for ways to overcome difficulties;

### 3. Developing mathematical reasoning

- a recognise simple patterns and relationships and make predictions about them;
- b ask questions such as 'What would happen if...?' and 'Why?';
- c understand general statements, *eg all even numbers divide by 2*, and investigate whether particular cases match them;
- d organise and check their work.

## NUMBER

Pupils should be helped to build on previous knowledge of counting and of the language of numbers. They should be encouraged to develop flexible methods of working with numbers orally and mentally, and to record in ways which relate to their mental work. They should be taught to calculate with, and use the interrelationships of, small numbers, in order to gain knowledge of basic addition and subtraction facts. Pupils should be given opportunities to work with large numbers to develop their understanding of place value. Pupils should be helped to appreciate how their knowledge and understanding can be used to develop a range of computational methods which extend beyond simple counting. They should be encouraged to use a variety of practical resources and contexts to extend and apply their knowledge of number. Pupils should be given opportunities to use calculators, where appropriate, both as a means to explore numbers and as a tool for calculating with realistic data. Pupils should be taught to build on their understanding of addition and subtraction in order to develop their understanding of multiplication. Pupils should be encouraged to collect or access data arising from an area of interest and to explore different ways of organising and representing it.

Pupils should be taught to:

### 1. Developing an understanding of place value

- a count orally, knowing the number names; count collections of objects, checking the total; count in steps of different sizes, exploring patterns and recognising sequences, including odd and even numbers and simple multiples;
- b read, write and order numbers, initially to 10, progressing to 1000 or more, and towards an understanding that the position of a digit signifies its value; begin to approximate larger numbers to the nearest 10 or 100;
- c recognise and use simple fractions, *eg halves and quarters of a whole*, decimal notation in recording money and negative numbers in a familiar context, *eg a temperature scale, a number line or a calculator display*;

### 2. Understanding relationships between numbers and developing computational methods

- a use repeating patterns to develop ideas of regularity and sequencing;
- b explore and record addition and subtraction patterns and patterns in number tables, *eg the hundred square*, explaining their patterns and using them to make predictions; to progress to exploring multiplication and division patterns;
- c know addition and subtraction facts, initially to 10, then to 20, and develop a range of mental methods for finding, from known facts, those which they cannot otherwise recall; progress to learning multiplication and division facts relating to the 2s, 5s, 10s, and other tables, and to developing mental methods for finding new results;
- d develop a variety of methods for adding and subtracting two-digit numbers, including using the fact that subtraction is the inverse of addition;
- e use a basic calculator (including the constant key), reading the display;

Pupils should be taught to:

### ■ 3. Solving numerical problems

- a understand the operations of addition and subtraction (as 'take away' or comparison) and the relationship between them, and to use them to solve problems with whole numbers, including situations involving money;
- b progress to understand the operations of multiplication and division (as sharing or equal partition) and use them to solve problems with whole numbers or money, understanding and dealing appropriately with remainders;
- c choose a suitable computational method, using apparatus or a calculator where appropriate;
- d begin to check answers by different methods, *eg repeating the operation in a different order*, and gain a feel for the appropriate size of answer;

### ■ 4. Sorting, handling and classifying data

- a sort and classify a set of objects according to one, two or more criteria related to their properties;
- b collect, record and interpret data using an increasing range of charts, diagrams, tables and graphs.

# KEY STAGE 2 PROGRAMME OF STUDY

## GENERAL REQUIREMENTS

Mathematics at Key Stage 2 builds on the mathematical experiences of Key Stage 1 and underpins the development of formal algebras and geometries in Key Stages 3 and 4. Mathematics at Key Stage 2 is characterised by an increasing awareness and understanding of the patterns, structures and relationships which underlie the number system, calculating methods, systems of measurement and properties of shapes. This understanding also allows pupils to extend their own mathematics into working with a wider range of numbers, solving problems with an increasing number of steps, appreciating more complex relationships and being able to make generalisations about mathematics. Where appropriate, pupils should be given opportunities to use IT to support and enhance their learning of mathematics.

Pupils in this key stage should be taught to:

- understand and use the base and place value of our counting system, and understand how it can be extended into fractions, decimals and numbers below zero;
- understand relationships between numbers, learn basic number facts and develop a range of computational methods;
- solve numerical problems in a range of contexts, selecting appropriate sequences of operations and giving solutions which are appropriate and reasonable to the context of the problem;
- handle quantities of data, interpret and represent data in tabular, graphical and diagrammatic form;
- develop an intuitive understanding of probability;
- describe and represent shapes in terms of their properties, location and movement;
- understand and use the properties and relationships of shapes;
- measure quantities including length, area, volume/capacity, angle, temperature, time and mass;
- use and apply mathematics in practical tasks, in real-life problems, and in acquiring further knowledge, skills and understanding in the subject itself.

These priorities interrelate, each with the others. For example, measurement is associated with shape, it reflects the base and place value of our counting system, and it relates to handling data; a developing confidence with calculating applies across most areas of mathematics, as well as to coping with everyday situations.

In planning, teaching and assessing, consideration should be given both to the progression within an area of study and to the links each area has with the others.

It is particularly important that pupils are taught to use and apply their mathematics in practical tasks and real-life problems. It is equally important that pupils are taught to use and apply their mathematics in order to acquire further knowledge, skills and understanding in the subject itself.

In the context of their work in each attainment target, pupils should be taught to:

### 1. Developing mathematical language

- **a** understand and use the language of fractions, decimal and negative numbers, of standard measures, area and volume, of simple probability, including relationships such as multiple of, factor of and symmetrical to;
- **b** use diagrams, graphs and simple algebraic symbols;
- **c** present information and results clearly, and explain the reasons for their choice of presentation;

Pupils should be taught to:

## ■ 2. Selecting and using mathematics and materials

- a select and use the appropriate mathematics and materials to help solve problems;
- b try different mathematical approaches to problems and look for ways to overcome difficulties;
- c develop their own mathematical strategies for solving problems;
- d identify and obtain information needed to carry out their work;
- e check their results and consider whether they are reasonable;

## ■ 3. Developing mathematical reasoning

- a understand general statements, *eg wrist size is half neck size*, and investigate whether particular cases match them;
- b search for a pattern in their results, trying out ideas of their own;
- c make conjectures of their own based on evidence they have produced;
- d explain their reasoning.

Pupils' sense of pattern and generalisation in number, and recognition of relationships between numbers should be developed throughout the key stage. It should support their understanding of the structure of the number system, its place value and notation, and act as a foundation for the development of algebraic skills in Key Stage 3. Pupils should be given opportunities to use calculators, computers and a range of other resources where appropriate. They should be taught the skills needed for accurate and appropriate use of equipment. Pupils should be helped to acquire a sound understanding of the four operations and their interrelationships, together with an increasing fluency in mental calculation. They should be taught the skills of estimation and the habit of checking results. In calculating, pupils should be given opportunities to develop a wide range of methods, and use them flexibly and effectively.

Pupils should be taught to:

## ■ 1. Developing an understanding of place value and extending the number system

- a read, write and order whole numbers, understanding that the position of a digit signifies its value; use their understanding of place value to develop computational methods, to approximate numbers to the nearest 10 or 100 and to multiply and divide by powers of 10 when there are whole number answers; use the relationship between place values to convert one metric unit to another;
- b extend their understanding of the number system to negative numbers in context, and decimals up to two places in the context of measurement and money;
- c understand and use, in context, fractions and percentages to estimate, describe and compare proportions of a whole using fractions less than one, and percentages less than 100 per cent, to calculate fractional or percentage parts of quantities or measurements;

## ■ 2. Understanding relationships between numbers and developing computational methods

- a explore number sequences and arrays, *eg count in different sizes of step, doubling and halving, use of the multiplication square*; explaining patterns; interpret, generalise and use simple relationships, functions and formulae relating to numerical, spatial or practical situations, expressed initially in words and then in symbols, progressing to expressing in symbolic form linear functions involving one or two operations;
- b use coordinates in the first quadrant, recognising the relationship between coordinates of related points on a line or in a shape, *eg vertices of a rectangle or a graph of the 3-times table*;
- c consolidate knowledge of addition and subtraction facts to 20, know the multiplication facts to 10 x 10, and develop a range of mental methods for finding quickly, from known facts, those which they cannot otherwise recall; know some properties of numbers, including multiples, factors and squares, extending to primes, cubes and square roots;

Pupils should be taught to:

- **d** develop a variety of mental methods of computation with whole numbers up to 100 and explain patterns used; extend mental methods to develop a range of non-calculator methods for calculations which involve addition and subtraction of whole numbers less than 1000, and multiplication and division of whole numbers less than 1000 by whole numbers less than 100;
- **e** understand multiplication as repeated addition, and division as sharing or equal partitions; know associated language and recognise situations to which the operations apply; understand and use the relationships between the four operations, including inverses;
- **f** understand and use the features of a basic calculator, interpreting the display, including rounding and remainders, in the context of the problem;
- **g** extend computational methods, when appropriate, to include calculating with negative numbers and calculating fractions and percentages of quantities using a calculator where necessary;

### ■ 3. Solving numerical problems

- **a** develop their use of the four operations to solve problems involving money and measures with no more than two decimal places, including progressing to using an appropriate non-calculator method for multiplying and dividing a three-digit number by a two-digit number;
- **b** choose sequences of suitable computational methods appropriate to a problem, adapt them and apply them accurately;
- **c** check results by different methods, *eg use knowledge of context, repeat the operations in a different order, use inverse operations, estimate and approximate, and gain a feeling for the size of a solution to a problem.*

## LEVEL DESCRIPTIONS FOR NUMBER AND ALGEBRA WITH APPLICATION

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### ■ Level 1

Pupils show they can count, order, estimate, add and subtract numbers when solving problems related to daily experiences which involve up to 10 objects. They read and write the numbers involved, represent their work with objects or pictures and talk about it. Pupils recognise and make repeating patterns, and use such patterns to make predictions.

### ■ Level 2

Pupils count sets of objects reliably and use mental recall of addition and subtraction facts to 10, discussing their work by using appropriate mathematical language and asking and answering appropriate questions. They have begun to understand the place value of each digit in a number and use this to order numbers up to 100. They choose the appropriate operation when solving problems which involve addition and subtraction, discuss why, and have begun to represent their number work using symbols. They have begun to identify and use halves and quarters. They recognise sequences of numbers, such as odd and even numbers.

### ■ Level 3

Pupils show understanding of place value to 1000 and use this to make approximations. They have begun to use decimal and negative numbers in contexts such as money, temperature and calculator displays. They use mental recall of addition and subtraction facts up to 20 in solving problems, and find ways of overcoming difficulties which arise. They also use mental recall of the 2, 5 and 10 multiplication tables, and others up to  $5 \times 5$ , in solving whole-number problems, which involve multiplication and division, including those involving money. They have begun to develop and discuss a range of mental methods, and use these to develop written methods for adding and subtracting, and explain their thinking. They find particular examples to illustrate general statements about number. They use calculator methods where appropriate, beginning to check results and organise their number work.

### ■ Level 4

Pupils have begun to use their understanding of place value to multiply whole numbers by 10 and 100. They recognise approximate proportions of a whole and use simple fractions and percentages to describe these. In solving practical and other problems, pupils develop their own strategies, use mental recall of multiplication facts up to  $10 \times 10$  and a range of mental and written methods of calculation. In solving numerical problems with a calculator and otherwise, pupils check the reasonableness and accuracy of their results, communicate in a clear and organised way and explain the reasons for their presentation. Pupils explore and describe number patterns and relationships, such as multiple, factor and square, trying out ideas of their own, and have begun to use simple formulae expressed in words. Pupils use and interpret coordinates in the first quadrant.

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## ■ Level 5

Pupils use their understanding of place value to multiply and divide whole numbers and decimals by 10, 100 and 1000. They order and calculate with negative numbers in practical contexts, and have begun to calculate fractional or percentage parts of quantities and measurements, using a calculator where appropriate. Pupils understand and use an appropriate non-calculator method for solving problems which involve multiplying and dividing a 3-digit by a 2-digit number. When solving real and mathematical problems involving number, pupils make conjectures of their own, identify and obtain necessary information and evidence, check their solutions using an appropriate method, and give convincing explanations of their reasoning. They express and use simple formulae in symbolic form and describe situations mathematically using symbols, words and diagrams.

## ■ Level 6

Pupils order and approximate decimals when solving numerical problems and equations such as  $x^2 = 20$ , using trial and improvement. In problems involving comparisons, pupils evaluate one number as a fraction or percentage of another, show understanding of and use the equivalences between fractions, decimals and percentages, and calculate using ratios, in appropriate situations. When solving quite complex problems involving number and algebra, pupils break them down into more manageable tasks, and interpret, discuss and synthesise information in a variety of mathematical forms. When exploring number patterns, pupils describe in words the rule for generating the  $n$ th term of a linear sequence, questioning and checking the accuracy of their generalisations. They formulate and solve linear equations with whole-number coefficients, and represent algebraic mappings graphically using four quadrants, interpreting their general features.

*[The page contains extremely faint, illegible text, likely bleed-through from the reverse side of the paper. The text is arranged in several paragraphs and is difficult to decipher.]*

## SCIENCE PROGRAMMES OF STUDY

Examples printed in italics are non-statutory.

Pupils should be given opportunities to apply and develop their information technology (IT) capability in their study of science, where appropriate.

The programme of study for each key stage should be taught to all or the great majority of pupils in the key stage, in ways appropriate to their abilities. However, for the small number of pupils who may need the provision, teachers may select material from earlier or later key stages where this is necessary to enable individual pupils to progress and demonstrate achievement. Such material should be presented in contexts suitable to the pupil's age.

Appropriate provision should be made for pupils who need to use:

- means of communication other than speech, including computers, technological aids, signing, symbols or lip-reading;
- non-sighted methods of reading, such as Braille, or need to acquire information in a non-visual or non-aural way;
- technological aids in producing written work;
- aids to allow access to practical activities within and beyond the school.

### ■ Sound

Hearing-impaired pupils should be supported in their access to this part of the programme of study by the use of visual demonstrations of the properties of sounds, eg through the use of oscilloscopes, sound-level meters, speech trainers or musical instruments.

### ■ Light

Visually impaired pupils who retain a degree of sensitivity to light can have access to this part of the programme of study. For others, if it is appropriate, their knowledge of the Sun and light bulbs as thermal energy sources may support access.

## KEY STAGE 1 PROGRAMME OF STUDY

This section of the programme of study describes the basis of work with all pupils during the key stage. Working on this basis, pupils should be taught the specific programmes of study for Attainment Targets 1, 2, 3 and 4. Contexts derived from the programmes of study for Attainment Targets 2, 3 and 4 should be used to teach pupils about the experimental and investigative methods in Attainment Target 1.

### Range of activities

Pupils should develop their skills, knowledge and understanding of science through focused exploration and investigation of living things, materials, phenomena and processes which are within their everyday experience. These activities should involve both first-hand experience and the use of other sources of information. They should be introduced to the use of IT for storing, retrieving and presenting information.

### Communication

Pupils should be encouraged to ask questions such as 'How?', 'Why?', 'What will happen if...?'. They should be taught appropriate vocabulary for naming the materials and processes they are using and encouraged to use this when they communicate their findings. They should be taught that data can be communicated effectively in a number of ways, including presentation in drawings, diagrams, tables and charts.

### Science in everyday life

Pupils should be helped, through the use of a variety of domestic and environmental contexts, to develop an awareness of the importance of science in everyday life and its relevance to their personal health. They should understand that living things and the environment need to be treated with care and sensitivity.

### The nature of scientific ideas

Through the activities they undertake, pupils should begin to understand that scientific knowledge and understanding rely on evidence and that scientific evidence can be obtained in a number of ways.

### Health and safety

Pupils should be encouraged to develop their knowledge and understanding of health and safety when working with living things and with materials. They should be taught to:

- recognise the hazards and risks in their activities;
- follow simple instructions to control the risk to themselves.

## EXPERIMENTAL AND INVESTIGATIVE SCIENCE

Pupils should be encouraged to use a practical approach to finding out about their immediate surroundings and to develop an understanding of scientific ideas. They should have opportunities both to test ideas suggested by their teachers and to suggest ideas that can be investigated. On some occasions they should make their own decisions about what to do. They should obtain evidence by making observations and measurements and begin to interpret this evidence. They should develop a variety of ways, including drawings and charts, of presenting the information they have collected. Pupils should have some opportunities to carry out the whole process of investigating an idea.

Pupils should be taught:

### 1. Planning experimental procedures

- a to turn suggestions into a form which can be investigated;
- b to recognise when a comparison is unfair;
- c the importance of fair testing;
- d that thinking about what is likely to happen can be useful when planning what to do;

### 2. Obtaining evidence

- a to explore using appropriate senses;
- b to make observations and measurements;
- c to make a record of observations and measurements;

### 3. Analysing evidence, drawing conclusions and considering evidence

- a to communicate what happened;
- b to make comparisons;
- c to use tables and bar charts to present results;
- d to indicate whether the evidence collected supports any prediction made;
- e to use results to draw conclusions;
- f to explain what happened, drawing on scientific knowledge and understanding where possible.

## LIFE AND LIVING PROCESSES

Pupils should begin to develop their understanding of life processes in animals and flowering plants. The work on animals should focus on humans. They should be taught about variation and that living things are suited to a particular environment.

Pupils should be taught:

### 1. Life processes

- a the differences between things that are living and things that have never been alive;
- b that humans move, feed, grow, use their senses and reproduce;

### 2. Humans as organisms

- a to name the main external parts of the human body;
- b that humans need food and water to stay alive;
- c that taking exercise and eating the right types and amount of food help humans to keep healthy;
- d that humans use their senses to be aware of the world around them;
- e that humans grow from babies into children and then into adults, and that adults can produce babies;

### 3. Plants as organisms

- a to name the leaf, flower, stem and root of flowering plants;
- b that plants need light and water to grow;
- c that flowering plants grow and produce seeds which, in turn, produce new plants;

### 4. Variation and classification

- a to recognise similarities and differences between themselves and other pupils;
- b that living things can be grouped according to observable similarities and differences;

### 5. Living things in their environment

- a that there are different kinds of plants and animals in the local environment;
- b that animals and plants found in the local environment are suited to it.

## MATERIALS AND THEIR PROPERTIES

Pupils should develop their understanding of how similarities and differences can be used to group materials, and how materials may be changed.

Pupils should be taught:

### 1. Grouping materials

- a to use their senses to explore and recognise the similarities and differences between materials;
- b to sort materials into groups on the basis of simple properties such as texture, appearance, smell, transparency, buoyancy and whether they are magnetic or non-magnetic;
- c to recognise and name common types of material, *eg metal, plastic, wool, paper, rock*, and to know that some of these materials are found naturally;
- d that a specific material has a variety of uses;
- e that materials are chosen for specific uses on the basis of their properties;

### 2. Changing materials

- a that some objects can be changed in shape by processes such as squashing, bending, twisting and stretching, but that this does not change the mass of the object;
- b to describe the way some everyday materials change when they are heated or cooled.

## PHYSICAL PROCESSES

Pupils should develop their understanding of forces and movement, sound, light, and periodic changes in their environment.

Pupils should be taught:

### 1. Forces and motion

#### forces acting on objects

- a to describe the movement of familiar things;
- b about forces as pushes and pulls;
- c that forces can make things speed up or slow down;
- d that forces can change the shapes of objects;

### 2. Sound

#### making sounds

- a that sounds are produced in a variety of ways;
- b that sounds are heard because they enter the ear;
- c that sounds travel through a variety of materials;

### 3. Light

#### light and dark

- a that light comes from a variety of sources, including the Sun;
- b that darkness is the absence of light;

### 4. The Earth and beyond

#### periodic changes

- a that the position of the Sun appears to change over a whole day;
- b that there are seasonal changes in the number of hours of daylight.

## KEY STAGE 2 PROGRAMME OF STUDY

This section of the programme of study describes the basis of work with all pupils during the key stage. Working on this basis, pupils should be taught the specific programmes of study for Attainment Targets 1, 2, 3 and 4. Contexts derived from the programmes of study for Attainment Targets 2, 3 and 4 should be used to teach pupils about the experimental and investigative methods in Attainment Target 1.

### Range of activities

Pupils should continue to be given opportunities to develop their skills, knowledge and understanding of science through focused exploration and investigation in familiar contexts. These activities should continue to involve both first-hand experience and secondary sources, and to involve the use of IT for storing, retrieving and presenting information.

### Communication

Pupils should continue to be encouraged to ask questions during their work in science. They should be taught appropriate scientific vocabulary with which to describe and explain the behaviour of the living things, materials and processes they encounter. They should be encouraged to use this in order to communicate their ideas effectively. They should be taught to use a range of methods, including diagrams, drawings, graphs, tables and charts to record and present information in a systematic manner.

### Science in everyday life

Pupils should continue to develop their awareness of the relevance of science to their personal health and to their local environment. They should understand that living things and the environment need to be treated with care and sensitivity. They should be given opportunities to explain familiar phenomena in terms of their understanding of science and to see how science has played a part in the development of many of the things that they use.

### The nature of scientific ideas

Pupils should begin to obtain evidence to test ideas in a range of contexts. They should be helped to understand that the causes of many phenomena can be explained.

### Health and safety

Pupils should develop further knowledge and understanding of health and safety when working with living things and with materials. They should be taught to:

- recognise hazards to themselves and others in a range of activities;
- assess the risks to themselves and others;
- take action to control these risks.

## EXPERIMENTAL AND INVESTIGATIVE SCIENCE

Pupils should build on the skills and understanding developed at Key Stage 1. They should make use of their increasing scientific knowledge to carry out work in a wider range of contexts and to develop their understanding of a wider range of ideas. They should have opportunities both to test ideas suggested by their teachers and to suggest ideas that can be investigated. They should be taught to make observations and measurements in a precise and systematic way and to use their scientific knowledge and understanding to draw conclusions from the evidence. They should be helped to present their findings concisely and accurately in a variety of ways, including drawings, diagrams, graphs and charts. Pupils should have some opportunities to carry out the whole process of investigating an idea and to make decisions about what to do.

Pupils should be taught:

### 1. Planning experimental procedures

- a to turn ideas into a form that can be investigated;
- b that trial runs sometimes provide information that helps planning;
- c that making predictions can be useful when planning what to do;
- d to use scientific knowledge and understanding to decide what evidence is needed;
- e that a fair test involves changing one factor, observing or measuring the effect, and keeping the other factors the same;
- f to consider what apparatus and equipment to use;

### 2. Obtaining evidence

- a to carry out fair tests;
- b to use apparatus and equipment correctly;
- c to make careful observations and measurements;
- d to repeat observations and measurements to improve reliability;
- e to record measurements and observations clearly as work is carried out;

### 3. Analysing evidence, drawing conclusions and considering evidence

- a to make comparisons;
- b to use tables, bar charts and line graphs to present results;
- c to look for trends or patterns in results;
- d to say if enough evidence is available to answer the question;
- e to use results to draw conclusions;
- f to say whether the evidence collected supports any prediction made;
- g to explain conclusions in terms of scientific knowledge and understanding;
- h to consider how likely it is that the same results would be obtained if the work was repeated.

## LIFE AND LIVING PROCESSES

Pupils should develop their understanding of life processes in animals and flowering plants. The work on animals should focus on humans. They should be taught that living things are adapted to a particular habitat and that living things in an environment are interdependent.

Pupils should be taught:

### 1. Life processes

- a that there are life processes common to all animals;

### 2. Humans as organisms

#### nutrition

- a that food is needed for energy and for growth, and that a varied diet is needed to keep healthy;
- b the functions of their teeth and the importance of dental care;
- c that food has to be digested and that the process begins in the mouth;

#### circulation

- d how blood circulates and how the heart acts as a pump;

#### movement and exercise

- e that some animals, including humans, have skeletons and muscles to support their bodies and help them to move;
- f the effect of exercise on breathing and pulse rate as one way in which the human body responds to change;

#### growth and reproduction

- g the main stages of the human life cycle;

#### health

- h the harmful effects of tobacco;
- i the importance of exercise for health;
- j that the abuse of alcohol and other drugs can have harmful effects;

### 3. Plants as organisms

- a the functions of the leaf, flower, stem and root in flowering plants;
- b that green plants make food using energy from the Sun;
- c that plant growth is affected by availability of light and water and by temperature;
- d the life cycle of plants, including pollination, germination and seed dispersal;

### 4. Variation and classification

- a how locally occurring animals and plants can be classified using keys;

### 5. Living things in their environment

#### adaptation

- a that different plants and animals are found in different habitats;
- b how different animals and plants in two habitats are suited to their environment;

#### feeding relationships

- c that food chains show feeding relationships in an ecosystem;
- d that all food chains start with plants.

## MATERIALS AND THEIR PROPERTIES

Pupils should develop their understanding of the properties and classification of materials and the ways in which materials can be changed.

Pupils should be taught:

### 1. Grouping and classifying materials

- a to compare everyday materials on the basis of properties such as hardness, strength, flexibility and magnetic behaviour, and to relate these properties to everyday uses;
- b that some materials are better thermal and electrical insulators than others;
- c to describe and group rocks and soils on the basis of characteristics such as appearance, texture and permeability;
- d that materials come from a range of sources;
- e to recognise differences between solids, liquids and gases in terms of ease of flow and maintenance of shape and volume;

### 2. Separating mixtures of materials

- a that solid particles of different sizes can be separated by sieving;
- b that some solids dissolve in liquids to give solutions but some do not;
- c that insoluble solids can be separated from solutions by filtering;
- d that there is a limit to the mass of solid that can dissolve in a given amount of liquid, and that this limit is different for different solids;
- e that solids that have dissolved can be recovered by evaporating the liquid from the solution;

### 3. Changing materials

- a that mixing, heating or cooling materials can cause them to change;
- b that sometimes these changes can be reversed and sometimes they cannot;
- c that dissolving, melting, boiling, condensing, freezing and evaporating are changes that can be reversed;
- d the part that evaporation and condensation play in the water cycle;
- e that mass is conserved throughout these changes;
- f that burning is a change which is usually not reversible;
- g to consider what process caused a change;
- h that changes can be initiated or prevented.

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## PHYSICAL PROCESSES

Pupils should develop their understanding of electric circuits, energy, forces and motion, sound, light and the Earth's place in the Solar System.

Pupils should be taught:

### 1. Electricity

#### simple circuits

- a to construct simple circuits involving batteries, wires, bulbs, buzzers and motors;
- b that a complete circuit, including a battery, is needed to make electrical devices work;
- c how switches can be used to complete or break circuits;
- d to find ways of varying the current in a circuit to make bulbs brighter or dimmer;
- e how to draw circuit diagrams both from series circuits and from pictures of series circuits;
- f how to construct series circuits from diagrams;

### 2. Energy

#### energy sources

- a that fuels burn and heat other things;
- b that temperature is a measure of how hot things are;
- c that batteries, food, fuels, waves and wind are all sources of energy;

### 3. Forces and motion

#### different types of force

- a that things are pulled towards the Earth by gravity and that this pull is called weight;
- b that there are attractive and repulsive forces between magnets;
- c that friction and upthrust are forces;
- d that tension in springs and elastic bands is a force;
- e to measure forces in newtons;

#### balanced forces

- f that forces act in particular directions;
- g to represent the direction and point of application of a force by an arrow;
- h that forces acting on an object in opposite directions can balance;
- i that if an object is not moving then the forces on it are balanced;

#### unbalanced forces

- j that unbalanced forces change the speed or direction of moving objects;
- k that if an object is speeding up or slowing down then the forces on it are unbalanced;

### 4. Sound

#### vibration and sound

- a that sounds are made when objects vibrate;
- b that the pitch and loudness of sounds depend on the way in which the object vibrates;
- c how soundproofing works;

Pupils should be taught:

■ **5. Light**

**everyday  
effects of light**

- **a** that light travels in straight lines from a source;
- **b** that light cannot pass through some materials and that this leads to the formation of shadows;
- **c** that light can be reflected from some surfaces;
- **d** that we see things when light scattered from them enters our eyes;

■ **6. The Earth and beyond**

**the Earth in the  
Solar System**

- **a** that the Earth orbits the Sun;
- **b** that the length of a year is the time it takes the Earth to orbit the Sun;
- **c** that the planets orbit the Sun and that the Moon orbits the Earth;
- **d** how shadows change as the Sun moves across the sky;
- **e** that the Earth spins around its own axis;
- **f** how day and night are related to the spin of the Earth.

# LEVEL DESCRIPTIONS

## ATTAINMENT TARGET 1: EXPERIMENTAL AND INVESTIGATIVE SCIENCE

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### Level 1

Pupils work with familiar materials and equipment. They observe and compare objects, living things and events, and communicate their findings.

### Level 2

Pupils use equipment provided and make observations and measurements related to their task. They respond to suggestions as well as suggesting their own ways of finding things out. They describe what happens and, if it is appropriate, record their results in simple tables.

### Level 3

Pupils make simple predictions where appropriate and suggest how ideas can be tested. They make relevant observations and use simple apparatus to make measurements. They recognise when a test is unfair and plan a fair test, with some help. They provide simple, reasoned explanations for observations and measurements.

### Level 4

Pupils recognise the need for a fair test. They describe how to carry out a fair test by identifying and varying one condition and keeping a second condition the same. Where appropriate they select apparatus and equipment to use. They present data clearly, using tables, bar charts or line graphs, where it is appropriate to do so. They use these to point out trends in the data. They take account of these when they make conclusions. They relate conclusions to simple scientific knowledge and understanding.

### Level 5

Pupils use scientific knowledge and understanding to devise and explain the use of fair tests in contexts which involve only a few factors. They use a range of simple apparatus with appropriate precision. They record observations and measurements systematically and present them as graphs, where appropriate. They explain how likely it is that the same results would be obtained if they repeated the work. Their conclusions, which they relate to scientific knowledge and understanding, are consistent with the evidence obtained.

### Level 6

Pupils use scientific knowledge and understanding to identify the key factors they need to take account of in tasks set in a range of contexts. They make measurements with care and precision, using apparatus such as thermometers and ammeters. They identify anomalies in measurements and observations. They draw conclusions which are consistent with the evidence and explain them using scientific knowledge and understanding.

SCIENCE

## ATTAINMENT TARGET 2: LIFE AND LIVING PROCESSES

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### ■ Level 1

Pupils observe and describe a range of living things. They use correct names for common living things and for external parts of their body and of plants.

### ■ Level 2

Pupils recognise similarities and differences between living things. They sort living things into groups and describe in everyday terms the basis for their groupings. They recognise that different living things are found in different places. They describe the basic conditions animals and plants need in order to survive.

### ■ Level 3

Pupils classify things as living or non-living and relate this classification to some basic life processes. They make simple connections between cause and effect; for example, they explain that lack of light or water alters plant growth. They give reasons for features they describe, explaining, for example, the way in which an animal or plant is suited to a habitat.

### ■ Level 4

Pupils use keys to help them to classify and group living things systematically. They locate and use scientific names for some major organs of the human body and flowering plant. They explain relationships between plants and animals in a habitat in terms of food chains and competition.

### ■ Level 5

Pupils understand why it is important to classify and group living things. They describe the main functions of some organs of the human body and flowering plant, and explain how these carry out functions essential to the organism. They describe the main stages of the life cycles of humans and flowering plants and point out similarities.

### ■ Level 6

Pupils explain some of the basic life processes in animals and plants using the appropriate scientific terminology. They understand some of the factors which cause variation between living things. They use their knowledge of cell structure to help explain how some cells are adapted to their particular functions. They recognise key features that affect the distribution and abundance of organisms in habitats.

## ATTAINMENT TARGET 3: MATERIALS AND THEIR PROPERTIES

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### Level 1

Pupils observe and describe a range of materials in terms of properties such as appearance, hardness, flexibility and texture.

### Level 2

Pupils recognise similarities and differences between materials. They sort materials into groups and describe in everyday terms the basis for their groupings.

### Level 3

Pupils recognise that some changes can be reversed and some cannot, and classify changes in this way. They give reasons for features they describe, explaining, for example, which properties of a material make it suitable for a specific purpose.

### Level 4

Pupils describe differences between the properties of different materials and explain how these are used to classify materials as solids, liquids and gases. They recognise that some changes caused by heating and cooling can be reversed easily while others cannot, and they begin to explain, using scientific terms, the differences between these changes.

### Level 5

Pupils apply knowledge and understanding gained in one context to new situations. For example, they use understanding of evaporation and condensation to explain the water cycle, or they use knowledge about how a mixture of sand, salt and water can be separated to suggest ways in which other mixtures might be separated.

### Level 6

Pupils recognise and explain similarities between some chemical reactions; for example, the reactions of acids or combustion. They recognise that all matter is made up of particles. They use word equations to summarise simple reactions. They relate changes of state to energy transfers in a range of contexts; for example, in the water cycle or in the formation of igneous rocks.

## ATTAINMENT TARGET 4: PHYSICAL PROCESSES

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### Level 1

Pupils observe and describe simple events such as the movement of familiar things, pushes and pulls or changes. They recognise that phenomena, such as light, come from a variety of sources.

### Level 2

Pupils recognise and describe in everyday terms similarities and differences between pairs of related objects or events; for example, between two light sources or between the movements of two toys.

### Level 3

Pupils classify phenomena into general categories; for example, they group pushes and pulls together as forces. They make simple connections between cause and effect, explaining, for example, that forces change the shape or motion of objects.

### Level 4

Pupils give explanations for a range of events they observe. They express themselves using suitable scientific vocabulary, explaining, for example, that 'moving objects are slowed down by friction' or that 'shadows are formed when the path of light is blocked'.

### Level 5

Pupils explain some observable effects in terms of abstract ideas; for example, they explain floating in terms of balanced forces or fuels as stores of useful energy. They recognise a variety of ideas can be used in a specific context; for example, they describe ways in which the current in a circuit can be varied.

### Level 6

Pupils apply scientific knowledge to explain how systems, such as levers or sound insulation, work. They make links between a cause and its effects in cases where the links are not directly observable, explaining, for example, that the sound produced by a vibrating object is detected in the ear. They recognise that concepts can be applied to a range of contexts; for example, they describe and explain energy transfer in a number of devices.

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The first part of the paper discusses the historical context of the study, tracing the roots of the research back to the early 20th century. It highlights the contributions of several key figures in the field, whose work laid the foundation for the current study. The author notes that while there has been significant progress, many questions remain unanswered, particularly regarding the underlying mechanisms of the phenomenon being studied.

The second part of the paper presents the methodology used in the study, detailing the experimental design and the data collection process. The author describes the challenges faced during the data collection phase and how these were overcome through innovative techniques. The results of the study are then presented, showing a clear correlation between the variables being investigated. The author provides a detailed analysis of these results, discussing their implications for the field and suggesting potential areas for further research.

In conclusion, the author summarizes the findings of the study and emphasizes the importance of continued research in this area. The paper ends with a call to action, encouraging other researchers to build upon the work presented here and to explore new avenues of inquiry.

The following section discusses the theoretical framework of the study, drawing on existing literature to inform the current research. The author argues that the current study builds upon previous work by providing a more comprehensive understanding of the phenomenon. The paper also addresses some of the limitations of the current study and offers suggestions for how these might be addressed in future research.

The author concludes the paper by reflecting on the broader implications of the study. The findings suggest that there is a need for further research in this area, particularly in the context of the current study. The author expresses hope that the current study will contribute to a better understanding of the phenomenon and inspire further research.

## DESIGN & TECHNOLOGY

The examples printed in *italics* are non-statutory.

Pupils should be given opportunities to apply and develop their information technology (IT) capability in their study of design & technology, where appropriate.

The programme of study for each key stage should be taught to all or the great majority of pupils in the key stage, in ways appropriate to their abilities. However, for the small number of pupils who may need the provision, teachers may select material from earlier or later key stages where this is necessary to enable individual pupils to progress and demonstrate achievement. Such material should be presented in contexts suitable to the pupil's age.

Appropriate provision should be made for pupils who need to use:

- means of communication other than speech, including computers, technological aids, signing, symbols or lip-reading;
- non-sighted methods of reading, such as Braille, or need to acquire information in a non-visual or non-aural way;
- technological aids in producing written work;
- aids to allow access to practical activities within and beyond the school.

Design & technology capability requires pupils to combine their designing and making skills with knowledge and understanding, in order to design and make products.

## RANGE OF ACTIVITIES

Pupils should develop their design & technology capability through:

- assignments in which pupils design and make products using a range of materials and components;
- focused practical tasks in which they develop and practise particular skills and knowledge;
- activities in which pupils investigate, disassemble and evaluate simple products.

Pupils should have opportunities to:

- apply IT where appropriate to their designing and making activities;
- use construction kits.

### ■ Designing and making assignments

Pupils' designing and making should take place within familiar contexts, which they should be encouraged to explore in order to make suggestions for action. At least two such assignments should be given, focusing on different materials and contexts.

Pupils should be taught to:

- **a** apply their designing and making skills;
- **b** apply knowledge and understanding;
- **c** apply knowledge and skills, where appropriate, from the programmes of study of other subjects, particularly art, mathematics and science.

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## DESIGNING SKILLS

During this key stage, pupils should be introduced to simple modelling and communication techniques. Activities should allow increasing scope during the key stage for pupils to develop and refine their design ideas.

As they progress, pupils will begin to:

- be reflective about their ideas;
- apply their previous knowledge and experience;
- suggest achievable ways forward.

### 1. Generating ideas and clarifying the task

Pupils should be taught to:

- a explain what they are making and why;
- b clarify their ideas through discussion with each other and the teacher;
- c draw on their own experience to help generate ideas.

### 2. Developing and communicating design ideas

Pupils should be taught to:

- a develop their ideas through shaping, assembling and rearranging materials and components;
- b understand how a drawing can convey information about an object or idea;
- c develop and communicate their design ideas by making freehand drawings, and by modelling their ideas in other ways, *eg by using actual materials with temporary fixings.*

## MAKING SKILLS

During this key stage, pupils should be introduced to making techniques with a range of materials and components, through activities which:

- help them to develop their manual dexterity and develop simple craft skills;
- take account of their developing physical capability.

As they progress, pupils will:

- become more skilful with particular tools and equipment;
- become increasingly accurate in their work;
- increasingly recognise when marking out and measuring materials before cutting or joining is appropriate.

### 1. Cutting and shaping

Pupils should be taught to:

- a use simple tools and equipment to cut materials to shape, and to make holes;
- b use appropriate holding devices when working on materials with tools;
- c mark out and measure materials where appropriate.

### 2. Joining and combining

Pupils should be taught to:

- a assemble and join materials and components in a variety of ways;
- b devise and make joints that allow movement;
- c mix and combine foods using appropriate equipment.

### 3. Finishing

Pupils should be taught to:

- a apply simple finishing techniques to improve their products.

### 1. Planning

Pupils should be taught to:

- a keep their working area orderly and safe.

As they progress, pupils will begin to:

- b select tools and equipment, materials and components appropriately;
- c make realistic suggestions about how they can achieve their intentions.

### 2. Evaluating

Pupils should be taught to:

- a consider their work critically and identify strengths and weaknesses.

As they progress, pupils will:

- b begin to be critical of their own and others' work;
- c become increasingly able to suggest improvements to design ideas and to their making.

## KNOWLEDGE AND UNDERSTANDING

Pupils should be taught the appropriate vocabulary for naming and describing the materials and components they are using.

### 1. Materials

In order to develop an understanding of how to use materials, pupils should work with a range of materials and components including:

- a sheet materials;
- b items that can be assembled to make products, *eg reclaimed materials*;
- c textiles;
- d food;
- e construction kits.

Pupils should investigate the working characteristics of materials, *eg colour, strength, flexibility, texture, taste*, and should begin to relate these properties to the ways materials are used. Pupils should be taught to compare the ways in which materials behave, and how this behaviour can be changed to suit different purposes.

### 2. Mechanisms

In order to develop an understanding of how to use mechanisms, pupils should be taught to use simple mechanisms, including wheels and axles, to achieve functional results.

### 3. Structures

In order to develop an understanding of how to use structures, pupils should investigate simple structures, and be taught how to make them more stable and withstand greater loads.

### 4. Products

Pupils should develop their design & technology understanding through studying simple products which have clearly discernible functions and parts. They should investigate and take apart products to learn how they function. Pupils should be encouraged to consider the purposes for which products are intended, and to relate these to people's needs. They should relate the ways things work to:

- a the choice of materials and how they have been used;
- b the views of those who use them.

### 5. Quality

In order to develop an understanding of quality, pupils should be taught that the quality of a product depends on:

- a how well it is made;
- b how well it meets its purpose.

### 6. Health and safety

Pupils should be encouraged to develop their knowledge and understanding of health and safety as consumers, and when working with materials. They should be taught to:

- a consider the hazards and risks in their activities;
- b follow simple instructions to control the risk to themselves.

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Design & technology capability requires pupils to combine their designing and making skills with knowledge and understanding, in order to design and make products.

## RANGE OF ACTIVITIES

Pupils should develop their design & technology capability through:

- assignments in which pupils design and make products using a range of materials and components;
- focused practical tasks in which they develop and practise particular skills and knowledge;
- activities in which pupils investigate, disassemble and evaluate simple products.

Pupils should have opportunities to:

- apply IT where appropriate to their designing and making activities;
- use construction kits.

### ■ Designing and making assignments

Pupils' designing and making should take place within familiar contexts. Assignments should allow increasing scope for pupils to:

- investigate contexts;
- develop and refine their design ideas, using discussion, drawing and 3-D models.

At least four such assignments should be given, focusing on a variety of contexts and materials. One of these should require the use of mechanisms and/or electrical circuits incorporating switches.

Pupils should be taught to:

- **a** apply their designing and making skills;
- **b** apply knowledge and understanding;
- **c** apply knowledge and skills where appropriate from the programmes of study of other subjects, particularly art, mathematics and science.

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## DESIGNING SKILLS

During this key stage, pupils should be taught further modelling and communicating skills, and be given opportunities to consider examples of models, drawings and plans produced by other people. They should be encouraged to evaluate their work as it develops, bearing in mind the purposes for which it is intended.

As they progress, pupils will:

- use a wider range of techniques to generate, develop and refine their design ideas;
- become more reflective about their ideas;
- make greater use of their previous knowledge and experience, including their understanding of products and applications;
- increasingly suggest achievable ways forward, which take into account the resources available;
- increasingly take into account the views and preferences of the user.

### 1. Generating ideas and clarifying the task

Pupils should be taught to:

- a reflect on the task and suggest ways forward;
- b clarify their ideas through discussion, drawing and modelling;
- c consider what materials, ingredients and components to use;
- d consider the purpose for which they are designing, and develop criteria for their design.

### 2. Developing and communicating design ideas

Pupils should be taught:

- a that appearance, function, safety and reliability are important considerations in developing proposals;
- b to understand that the working characteristics of materials, ingredients and components should be taken into account when deciding which materials to use, and what making techniques to apply.

## MAKING SKILLS

During this key stage, pupils should be taught additional cutting, shaping, joining, combining and finishing techniques with a wider range of materials and components, through activities which:

- help them to develop their manual dexterity and refine their craft skills;
- take account of their developing physical capability.

As they progress, pupils will become:

- proficient with an increasing range of materials, tools and equipment, and techniques;
- more skilful with particular tools and equipment;
- increasingly accurate in their work;
- increasingly competent at matching their method of working to the materials and the task in hand.

### 1. Cutting and shaping

Pupils should be taught to:

- a cut and shape a range of materials using a variety of tools, equipment and techniques;
- b use appropriate holding devices when working on materials with tools and equipment;
- c measure and mark out materials before cutting when appropriate, allowing for fine finishing where necessary.

### 2. Joining and combining

Pupils should be taught to:

- a assemble, combine and join a range of materials and components using a variety of techniques;
- b join materials accurately in permanent and semi-permanent ways.

### 3. Finishing

Pupils should be taught to apply a range of finishing techniques appropriate to the materials being used, taking account of the purposes to which the finished products will be put.

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Pupils should be taught to understand some of the ways in which drawings can convey information about an object or idea, and to model their ideas in 2-D and 3-D. In particular, they should be taught to explore, develop and communicate aspects of their design proposals by:

- c using freehand drawing techniques;
- d making quick 3-D models;
- e trialing combinations of materials, ingredients or components.

## Planning and Evaluating

### 1. Planning

During this key stage, pupils should be encouraged to develop a clear idea about what has to be done, and suggest ways of achieving it, including proposing a sequence of actions. They should be taught to:

- a suggest alternative methods of proceeding if first attempts fail;
- b select appropriate tools and equipment according to the processes and materials to be used;
- c work independently and in teams.

As they progress, pupils will:

- d plan over longer time periods and in more detail;
- e become increasingly able to predict the consequences of their design decisions;
- f increasingly take into account the implications of their design and planning decisions.

### 2. Evaluating

Pupils should be taught to:

- a examine their work critically, identifying strengths and weaknesses, and suggesting ways of improving it;
- b carry out appropriate tests on their products, *eg on strength, user reaction, function*;
- c use the results of their tests to indicate ways of improving their products, and implement these improvements.

As they progress, pupils will:

- d become more critical of their own and others' work;
- e take into account a wider range of criteria when examining their own and others' work;
- f become more systematic in evaluating their work and taking action to improve it.

## KNOWLEDGE AND UNDERSTANDING

Pupils should be taught the appropriate vocabulary for naming and describing the materials and components they are using. During the key stage this vocabulary will widen to include technical terms and terms for technological processes.

### 1. Materials

In order to develop an understanding of how to use materials, pupils should work with a range of materials and components including:

- a stiff and flexible sheet materials;
- b materials that allow frameworks to be made;
- c mouldable materials;
- d textiles;
- e food;
- f electrical and mechanical components;
- g construction kits.

Pupils should investigate the working characteristics, *eg colour, density, elasticity, absorbency, insulation/conduction, texture, taste*, and should relate these properties to the ways materials are used. Pupils should investigate how materials can be combined and mixed in order to create more useful properties, *eg incorporating new materials in a structure to strengthen it, using raising agents to improve texture*.

As part of their work with food, pupils should also be taught:

- h to select and combine raw, precooked and processed ingredients, in varying proportions, to create and modify products and to improve their sensory characteristics.

### 2. Control

In order to develop an understanding of how to use control, pupils should investigate how things move, by studying a range of mechanical and electrical products. They should be taught how the movement of devices can be controlled, and should be taught:

- a to use simple mechanisms to achieve different types of movement;
- b to use electrical circuits to achieve functional results, including using simple switches within their products.

### 3. Structures

In order to develop an understanding of how to use structures, pupils should investigate the behaviour of structures, including how they can fail when loaded. They should be taught:

- a techniques for reinforcing and strengthening structures.

### 4. Products and applications

Pupils should develop their design & technology understanding through studying the workings and functions of familiar products and applications around them. They should be taught to investigate, disassemble and evaluate simple products in order to learn how they function.

They should relate the way things work to:

- a their intended purpose;
- b peoples' needs;
- c the views of those who use them;
- d the choice of materials and the ways they have been used;
- e the processes used to produce them.

Pupils should also learn about the work of distinguished engineers, designers and technologists, and the historical development of familiar products.

### 5. Quality

In order to develop an understanding of quality, pupils should be taught to distinguish between quality of design and quality of manufacture. They should use these concepts in evaluating their own and other people's work. Pupils should begin to consider the effectiveness of a product, including the extent to which it:

- a meets a clear need;
- b is fit for its purpose;
- c is an appropriate use of resources.

### 6. Health and safety

Pupils should develop further knowledge and understanding of health and safety as designers and consumers, and when working with materials. They should be taught to:

- a recognise hazards to themselves and others in a range of products, activities and environments;
- b assess the risks to themselves and others;
- c take action to control these risks.

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# LEVEL DESCRIPTIONS FOR DESIGN & TECHNOLOGY

## ATTAINMENT TARGET 1: DESIGNING

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### ■ Level 1

When designing and making, pupils generate ideas through shaping, assembling and rearranging materials and components. They recognise the simple features of familiar products and, when prompted, relate them to their own ideas. They are beginning to use pictures and words to convey what they want to do.

### ■ Level 2

When designing and making, pupils use their own experiences of using materials, techniques and products to help generate ideas. Models and pictures are used to develop and communicate their designs. They are beginning to reflect on their ideas and suggest improvements.

### ■ Level 3

When designing and making, pupils generate ideas, recognising that their designs will have to satisfy conflicting requirements. They make realistic suggestions about how they can achieve their intentions and suggest more ideas when asked. Labelled sketches are used to show the details of their designs.

## ATTAINMENT TARGET 2: MAKING

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### ■ Level 1

When designing and making, pupils talk about what they are making and which materials they will use. They select from a narrow range of materials and use the appropriate techniques and tools to shape, assemble and join them.

### ■ Level 2

When designing and making, pupils select from a range of materials, tools and techniques, explaining their choices. They manipulate tools safely and assemble and join materials in a variety of ways. They are beginning to compare their final products with their original intentions and make judgements about the outcomes of their work.

### ■ Level 3

When designing and making, pupils think ahead about the order of their work, choosing tools, materials and techniques more purposefully. They are beginning to use tools with some accuracy and use simple finishing techniques to improve their products. They modify materials and components to help assembly and achieve precision. Their products are similar to their original intentions and they identify where they have made changes.

#### ■ Level 4

When designing and making, pupils gather information independently and use it to help generate a number of ideas. They recognise that users have views and preferences, and are beginning to take them into account. They evaluate their work as it develops, bearing in mind the purposes for which it is intended. They use sketches and models to illustrate alternatives, and make choices between the alternatives showing an awareness of any constraints.

#### ■ Level 5

When designing and making, pupils generate ideas which draw upon external sources and their understanding of the characteristics of familiar products. They clarify their ideas through discussion, drawing and modelling in 2-D and 3-D. Ideas are evaluated, showing an understanding of the situation in which their design will have to function.

#### ■ Level 6

When designing and making, pupils generate ideas which draw upon a wider range of sources of information, including those not immediately related to the task, and an understanding of the form and function of familiar products. They develop criteria for their designs, which take into account appearance, function, safety, reliability and the purposes for which they are intended, and use these to formulate a design proposal. They make preliminary 3-D models to explore and test their design thinking, and use formal drawing methods to communicate their intentions.

#### ■ Level 4

When designing and making, pupils produce a step-by-step plan which identifies the main stages in making and lists the tools, materials and processes needed. They cut, measure and mark out simple forms in a variety of materials and join them using a range of techniques. They show increasing accuracy, paying attention to quality of finish and function. They identify what is, and what is not, working well in their products.

#### ■ Level 5

When designing and making, pupils work from plans which they have produced, modifying them in the light of difficulties. They use a range of tools, materials and processes safely with increasing precision and control. They use measuring and checking procedures as their work develops and suggest alternative ways of proceeding if first attempts fail. They evaluate their finished products by comparing them with their design intentions and suggest ways of improving them.

#### ■ Level 6

When designing and making, pupils produce plans which outline the consequences of their design decisions and suggest alternative methods of proceeding if first attempts fail. They are becoming increasingly skilful in the use of the techniques and processes identified in the programme of study and use tools and equipment to work materials precisely. They use given techniques to evaluate their products in use and to identify ways of improving them.



## INFORMATION TECHNOLOGY PROGRAMMES OF STUDY

This section describes the knowledge, skills and understanding of information technology (IT) in the National Curriculum. Information technology capability should be developed through a range of curriculum activities, including work within National Curriculum subjects, as appropriate.

The examples printed in italics are non-statutory.

The programme of study for each key stage should be taught to all or the great majority of pupils in the key stage, in ways appropriate to their abilities. However, for the small number of pupils who may need the provision, teachers may select material from earlier or later key stages where this is necessary to enable individual pupils to progress and demonstrate achievement. Such material should be presented in contexts suitable to the pupil's age.

Appropriate provision should be made for pupils who need to use:

- means of communication other than speech, including computers, technological aids, signing, symbols or lip-reading;
- non-sighted methods of reading, such as Braille, or need to acquire information in a non-visual or non-aural way;
- technological aids in producing written work;
- aids to allow access to practical activities within and beyond school.

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# KEY STAGE 1 PROGRAMME OF STUDY

During this key stage, pupils should be gathering experience of using IT for different purposes. They should be introduced to a variety of IT applications and given opportunities to use IT in a range of contexts.

They should be encouraged to discuss their experience of using IT and to look for parallels with the use of IT in the wider world.

## ■ Progression

Through the key stage, pupils will:

- use a variety of applications;
- show increasing skill in their ability to use IT equipment, including keyboards;
- undertake tasks of increasing difficulty;
- be increasingly aware of the intended audience.

## ■ 1. Communicating and handling information

Pupils should be taught to use IT to organise and communicate ideas and information. They should be taught to use an increasing variety of equipment and applications confidently and purposefully.

In particular, pupils should be taught to use IT to:

- **a** communicate in a variety of forms, including simple text, graphics or sound;
- **b** organise and present their ideas in different forms, *eg written, tabular, graphical, pictorial*;
- **c** collect, sort and classify information;
- **d** store and retrieve information;
- **e** use a range of IT equipment.

## ■ 2. Using IT to investigate

Pupils should be taught to recognise the uses of IT around them. They should be given opportunities to investigate the use of control technology in everyday life, and to use appropriate applications to explore aspects of their own, and the wider, environment, *eg using simulations, microworlds, applications requiring decision making*.

In particular, pupils should be taught to:

- **a** control everyday items and describe the effects of their actions;
- **b** control devices by giving direct instructions;
- **c** use IT to investigate real and imaginary situations.

## KEY STAGE 2 PROGRAMME OF STUDY

During this key stage, pupils should be extending their experience of using IT in different ways for different purposes. They should be developing their understanding of the processes they are using and be encouraged to interpret and apply their results. Pupils should work with an increasing range of IT applications, using them in a variety of contexts.

They should be encouraged to discuss their experience of using IT and to recognise its value in their own working practices. They should recognise parallels with the use of IT in the wider world, and should begin to consider the effects of such uses by comparing them with other methods.

### ■ Progression

Through the key stage, pupils will:

- use an increasing variety of applications for particular purposes;
- develop their skills in using IT equipment and computer interfaces;
- undertake increasingly complex tasks, using greater amounts of information;
- become more critical of the results of their work, and check for plausibility;
- develop increasing sensitivity to the needs of their audience.

### ■ 1. Communicating and handling information

Pupils should be taught to use IT to organise and communicate ideas and information. They should be taught to use an increasing variety of equipment and applications confidently and purposefully.

In particular, pupils should be taught to use IT to:

- **a** organise, refine and present ideas and information in different forms;
- **b** communicate in a variety of forms, including combining text, graphics and sound as appropriate, taking the audience into account;
- **c** collect information for particular purposes and sort and classify it, checking for accuracy;
- **d** analyse, interpret and check results, and select the elements required for particular purposes;
- **e** use a wider range of equipment and interfaces.

### ■ 2. Using IT to investigate

Pupils should be taught to recognise the wider uses of IT around them. They should be given opportunities to investigate the use of control technology in everyday life, and to use an increasing range of appropriate software packages to explore different aspects of real life, *eg using simulations, microworlds, applications requiring decision making.*

In particular, pupils should be taught to:

- **a** control more complicated items and describe the effects of their actions;
- **b** plan, test, modify and store sequences of instructions to control devices;
- **c** use simulations and similar packages to ask and answer questions of the 'What would happen if . . .?' type;
- **d** recognise patterns in simulations and similar packages, predicting the outcomes of different decisions that could be made, and compare results with predictions.

## LEVEL DESCRIPTIONS FOR THE ATTAINMENT TARGET: INFORMATION TECHNOLOGY CAPABILITY

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3. The 10-level scale does not apply at Key Stage 4, for which separate attainment descriptions will be devised, related to GCSE grades and their equivalents in other appropriate qualifications.

### Level 1

Pupils are beginning to use IT to make choices and communicate meaning. They recognise that a range of equipment, including computers, toys and domestic appliances, responds to signals or commands, and that they can select options when using such devices to produce a variety of outcomes. They explore and access information held on a range of equipment, showing increasing awareness that information exists in a variety of forms.

### Level 2

Pupils are beginning to use IT to create and present ideas using pictures, symbols, words or sounds. They collect, sort and classify information using IT to present their findings. Pupils confidently control a range of equipment and devices, communicating the effects of their actions. They use software to investigate options and make decisions as they explore aspects of the real and imaginary worlds. With some support, they store and retrieve work.

### Level 3

Pupils use IT to create, amend, organise and present ideas. They use IT to collate and present information they have collected, and begin to search and investigate this information, following straightforward lines of enquiry. Pupils understand that equipment can respond to a series of instructions which lead to specific goals. They use software, such as simulations, to make decisions, and begin to see the consequences of their choices. They store and retrieve work, and describe their use of IT compared with other methods of achieving similar ends.

### Level 4

Pupils use IT to present work, and demonstrate how its use contributes to the development and modification of their ideas. They add to, amend and interrogate previously-stored information. They understand the need for precision in framing questions when collecting information. They interpret and analyse their findings, checking for accuracy and questioning the plausibility of the results. Pupils are beginning to develop, test and modify sets of instructions to control devices to act in a predetermined sequence of effects. They are beginning to use computer models and simulations to detect patterns and relationships, and are beginning to make predictions about the consequences of their decision making.

### Level 5

Pupils use IT to organise, refine and present information in different forms and styles for specific purposes and audiences. They combine sets of instructions to control devices, and are becoming sensitive to the need for precision. They use IT to explore the effects of changing variables in a computer model, questioning the plausibility and validity of their findings. They communicate their knowledge and experience of using IT, and relate this to observed uses in everyday life.

## ■ Level 6

Pupils develop and refine work, using information from a range of sources, demonstrating a clear sense of audience and purpose in their presentation. They use increasingly complex lines of enquiry to test hypotheses. Pupils can develop, trial and refine sets of instructions to control IT devices, demonstrating an increasing awareness of the notions of efficiency and economy. They understand that devices can be made to respond to data from sensors. Pupils use computer models of increasing complexity and are beginning to assess the validity of these models.

[The page contains several paragraphs of text that are almost entirely illegible due to extreme blurring. The text appears to be organized into sections, possibly by date or topic, but the specific content cannot be discerned.]

## HISTORY PROGRAMMES OF STUDY

The examples printed in italics are non-statutory.

Pupils should be given opportunities to apply and develop their information technology (IT) capability in their study of history, where appropriate.

The programme of study for each key stage should be taught to all or the great majority of pupils in the key stage, in ways appropriate to their abilities. However, for the small number of pupils who may need the provision, teachers may select material from earlier or later key stages where this is necessary to enable individual pupils to progress and demonstrate achievement. Such material should be presented in contexts suitable to the pupil's age.

Appropriate provision should be made for pupils who need to use:

- means of communication other than speech, including computers, technological aids, signing, symbols or lip-reading;
- non-sighted methods of reading, such as Braille, or need to acquire information in a non-visual or non-aural way;
- technological aids in producing written work;
- aids to allow access to practical activities within and beyond school.

## KEY STAGE 1 PROGRAMME OF STUDY

Across the key stage, pupils should be given opportunities to develop an awareness of the past and of the ways in which it was different from the present. They should be taught about changes in their own lives and those of their families and localities; and about notable events and personalities. They should be helped to develop an awareness of chronology and should be introduced to sources of information of different types.

Progressing from familiar situations to those more distant in time and place, pupils should be taught about the everyday life, work, leisure and culture of men, women and children in the past, *eg clothes, houses, diet, shops, jobs, transport, entertainment*. They should be taught about:

- changes in their own lives and those of their family or adults around them;
- aspects of the way of life of people in the past beyond living memory.

Across the key stage, pupils should be taught about:

- the lives of different kinds of famous men and women, *eg rulers, saints, artists, engineers, explorers, inventors, pioneers*;
- past events of different types, *eg local and national events, events in other countries and events which have been remembered and commemorated by succeeding generations, such as centenaries, religious festivals, anniversaries, the Gunpowder Plot, the Olympic Games*.

### Key elements

The key elements outlined below are closely related to each other. They should be developed across the key stage through the study of the historical content outlined above.

1. Pupils should be given opportunities to develop a sense of chronology, to sequence events and objects, and to use common words and phrases relating to the passing of time, *eg old, new, before, after, long ago, days of the week, months, years*.
2. Pupils should be helped to develop an awareness of the past through stories from different periods and cultures, including stories and eyewitness accounts of historical events.
3. Pupils should be helped to develop an awareness of why people did things, why events happened and what happened as a result. They should be given opportunities to identify differences between ways of life at different times.
4. Pupils should be introduced to some of the different ways in which the past is represented, *eg pictures, written accounts, films, television programmes, plays, songs, reproductions of objects, museum displays*.
5. Pupils should be helped to develop an awareness of some of the ways in which they can find out about the past. They should be encouraged to ask questions about the past and should have opportunities to learn about the past from a range of sources of information, including artefacts, pictures and photographs, adults talking about their own past, written sources, and buildings and sites.
6. Pupils should have opportunities to communicate their awareness and understanding of history in a variety of ways, including orally, visually and in writing.

## KEY STAGE 2 PROGRAMME OF STUDY

Pupils should be taught about important episodes and developments in Britain's past, from Roman to modern times, and about ancient civilisations and the history of other parts of the world. They should be helped to develop a sense of chronology and to learn about changes in everyday life over long periods of time. They should have opportunities to investigate local history and to learn about the past from a range of sources of information.

Pupils should be taught **FOUR** core units and **FOUR** extension studies.

The four core units are:

(1) Romans, Anglo-Saxons and Vikings in Britain

(2) Life in Tudor times

**EITHER** (3) Victorian Britain

**OR** (4) Britain Since 1930

(5) Ancient Greece.

The four extension studies should extend or complement the core units.

### Key elements

The key elements outlined below are closely related. They build on the knowledge, understanding and skills outlined at Key Stage 1 and should be developed across the key stage through the study of the historical content in the programme of study.

1. Pupils should be introduced to the study of history from a variety of perspectives: political; economic, technological and scientific; social; religious; cultural and aesthetic.
2. Pupils should be taught about the chronology of the main events and developments in the programme of study. They should be taught to use dates and terms relating to the passing of time, including ancient, modern, BC, AD, century and decade, and terms which define different periods, *eg Tudor, Victorian*.
3. Pupils should be given opportunities to extend their historical knowledge by learning about aspects of the programme of study in depth. They should be helped to make links and connections between the main events and developments studied, both within and across periods.
4. Pupils should be taught about features of particular periods or situations. They should be taught about the social, cultural, religious and ethnic diversity of the societies studied and the experiences of men and women in these societies. They should be taught about the ideas, beliefs and attitudes of people in the past.
5. Pupils should be taught to describe and identify reasons for and results of historical events, developments or changes in the periods studied.
6. Where appropriate, pupils should be given opportunities to consider how and why some aspects of the past have been interpreted differently.
7. Pupils should have opportunities to learn about the periods studied from a range of sources of information, including documents and printed sources, artefacts, pictures and photographs, music, and buildings and sites. They should be helped to understand the value of historical sources for the periods studied. They should have opportunities to ask and answer questions, choose sources for use in finding out about an historical topic, and collect and record information.

8. Pupils should be shown how to organise and communicate historical knowledge and understanding in a variety of ways. They should have opportunities to:

- recall, select and organise historical information, dates and terms;
- demonstrate their knowledge and understanding of history orally, visually and in writing, using a range of techniques, including the writing of narratives and descriptions.

In organising their knowledge and understanding of history, pupils should be taught, and given opportunities to use, the vocabulary necessary to understand the periods and topics studied, including court, parliament, nation, civilisations, invasion, conquest, settlement, conversion, slavery, trade, industry, law.

## Core Unit 1: Romans, Anglo-Saxons and Vikings in Britain

Pupils should be introduced to the early history of the British Isles and the ways in which British society was shaped by different peoples. They should have opportunities to study, in greater depth, ONE of: the Romans; Anglo-Saxons; Vikings.

Pupils should be taught in **outline** about invasions and settlements from 55 BC to the early eleventh century, including the following.

- The Roman conquest and occupation of Britain, and its impact on Celtic societies.
- Anglo-Saxon invasions and settlements.
- Viking raids and settlement.

Pupils should have opportunities to study in greater depth **ONE** of the three invasions, including reasons which prompted people to come to Britain, the way of life of the settlers and their impact on the peoples whom they conquered.

They should be taught in **greater depth** about **ONE** of the following.

### ROMANS

- The Roman conquest and its impact on Britain, *eg the extent of Romanisation and its impact on Celtic society, Boudicca and resistance to Roman rule, the end of imperial rule*
- Everyday life, *eg houses and home life, religion*
- The legacy of Roman rule, *eg place names, Roman remains including roads, buildings and settlements*

### OR ANGLO-SAXONS

- The arrival of the Anglo-Saxons and their impact on England, *eg early settlement, the conversion of the Anglo-Saxons to Christianity, King Alfred and Anglo-Saxon resistance to Viking incursions*
- Everyday life, *eg houses and home life, religion*
- The legacy of settlement, *eg place names, myths and legends, arts and architecture*

### OR VIKINGS

- Viking raids and their impact on Britain, *eg their settlement in different parts of the British Isles, King Alfred and Anglo-Saxon resistance to Viking incursions*
- Everyday life, *eg houses and home life, religion*
- The legacy of settlement, *eg place names, myths and legends, arts and architecture*

## Core Unit 2: Life in Tudor Times

Pupils should be introduced to some of the major events in Tudor times. The focus should be on Tudor monarchs, the way of life of people at different levels of society and the start of Britain's expansion overseas.

Pupils should be taught about the following.

### Major events and people

- Tudor monarchs
- The break with Rome
- Exploration overseas, *eg Drake and Raleigh and their voyages*
- The Armada (1588)

### The way of life of people at different levels of society

- Court life, *eg drama, music, the progresses of Elizabeth I, the role of a personality, such as Thomas More or the Earl of Essex*
- Ways of life in town and country
- Arts and architecture, including Shakespeare, *eg Elizabethan theatres, country houses and domestic buildings*

## EITHER

### Core Unit 3: Victorian Britain

Pupils should be introduced to the lives of men, women and children at different levels of society in Britain, and the ways in which they were affected by changes in industry and transport.

Pupils should be taught about the following.

#### ■ Economic developments

- Steam power, factories and mass production, *eg economic growth and the provision of jobs, the impact of mass production on living and working conditions*
- The growth of railways, *eg the work of Stephenson and Brunel*

#### ■ The lives of people in town and country at different levels of society

- At work, *eg factory life, Lord Shaftesbury and factory reform, Florence Nightingale and nursing, agriculture*
- At home, *eg family life, Victoria and the royal family, the role of religion, public health*
- At leisure, *eg music, sport, holidays, the Great Exhibition*
- At school, *eg Sunday schools, National and Board schools*

## OR

### Core Unit 4: Britain Since 1930

Pupils should be introduced to the lives of men, women and children at different levels of society and the ways in which they were affected by the Second World War and changes in technology and transport.

Pupils should be taught about the following.

#### ■ Economic developments

- Changes in industry and transport, including the impact of new technologies, *eg motor cars, computers, space travel*

#### ■ Britons at war

- The impact of the Second World War on the people of Britain, *eg evacuation, the Blitz, the armed forces, rationing*

#### ■ The lives of people in different parts of Britain at different levels of society

- At home, *eg changes in the roles of men and women, diet and health, housing conditions*
- At work, *eg the Depression, changes in employment, automation, women at work*
- At leisure, *eg radio, cinema and television, the Festival of Britain, sport, holidays*

## Core Unit 5: Ancient Greece

Pupils should be introduced to the civilisation of ancient Greece and its legacy to the modern world. The focus should be on the way of life, beliefs and achievements of the ancient Greeks.

Pupils should be taught about the following.

### ■ The city state

- Athens and Sparta, including everyday life, *eg citizens and slaves*
- Arts and architecture

### ■ Greek religion

- Myths and legends of Greek gods and goddesses, heroes and heroines

### ■ Relations with other peoples

- War and colonisation, *eg the Greeks in Southern Italy; Greeks and Persians, such as the stories of Marathon, Thermopylae and Salamis; the campaigns of Alexander the Great; the impact of Rome on Greece*

### ■ The legacy of Greece

- Influence on the modern world, *eg politics, sport, architecture, science*

## Extension Studies

Extension studies extend and complement the core.

Pupils should be taught **FOUR** extension studies, one from each of the following categories.

### **A. A study of an aspect of the past over a long period of time**

This study should:

- extend over a long period of time, *eg 1000 years*;
- cover an important historical issue;
- compare developments in different periods and places.

*Examples of such studies are: ships and seafarers; food and farming; churches and places of worship; writing and printing; land transport; domestic life, families and childhood; emigration and immigration.*

### **B. A study of local history**

This study should be **ONE** of the following:

- an aspect of the local community over a long period of time, *eg education, leisure, religion*;
- an aspect of the local community during a short period of time or the local community's involvement in a particular event, *eg the Reformation in a local area, how the land was enclosed, the First World War*;
- an aspect of the local community which illustrates developments taught in core study units, *eg local fortifications, Anglo-Saxon settlement, life in the country house, child labour in the Industrial Revolution, new towns in the twentieth century.*

### **C. A study of a past non-European society**

This study should:

- introduce pupils to the uses of archaeological evidence;
- cover key features, including the everyday lives of men and women.

This study should be chosen from:

- Ancient Egypt;
- Mesopotamia, *eg Ancient Sumer or the Assyrian Empire*;
- The Indus Valley;
- The Maya;
- Benin;
- The Aztecs.

### **D. A study in depth of an aspect of history related to the programme of study for Key Stage 2**

This study should:

- cover an important historical issue;
- cover in detail an aspect of the past related to the programme of study.

*Examples of such studies are: Greek temples and religion; the Greek colonies; Celtic Britain; a Stuart monarch, such as Mary Queen of Scots, or James I; the life of an inventor, explorer, reformer or scientist, such as Mary Kingsley, Christopher Columbus, David Livingstone, Edwin Chadwick, Sir Isaac Newton; rural life in Victorian England.*



## LEVEL DESCRIPTIONS FOR THE HISTORY ATTAINMENT TARGET

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3.

### Level 1

Pupils show awareness of the distinction between present and past in their own and other people's lives. They know and recount episodes from stories about the past. Their developing sense of chronology is shown by their ability to sequence events and objects and to use everyday terms about the passing of time. They are aware that they can find out about the past from sources of information.

### Level 2

Pupils demonstrate factual knowledge of aspects of a time beyond living memory, and the personalities and events they have been taught about. Their sense of chronology is shown by their use of terms concerned with the passing of time to order events and objects, and by their ability to make distinctions between aspects of their own lives and past times. They suggest reasons why people in the past acted as they did. They are beginning to show awareness that the past is represented in different ways and to answer questions about the past using sources of information.

### Level 3

Pupils demonstrate factual knowledge of a few of the events, people and periods from the appropriate programme of study. Their increasing understanding of chronology is shown through their awareness that the past can be divided into different periods of time and their recognition of some similarities and differences between these periods. They begin to identify reasons and results. They know that the past is represented in different ways and select information from sources to answer specific questions about the past.

### Level 4

Pupils demonstrate factual knowledge of people, events and developments in the history of Britain and other countries drawn from the appropriate programme of study. They know about and describe the distinctive features of the past societies and periods they have studied and how some changed over time. They produce structured accounts of historical events, making use of dates and relevant terms. They describe reasons for, and results of, some events and developments. They know that the past is represented in different ways and are beginning to show understanding of some of the reasons for this. They begin to select sources of information to answer specific questions.

### Level 5

Pupils demonstrate factual knowledge of a range of people, events and developments in the history of Britain and other countries drawn from the appropriate programme of study. They describe different aspects of past societies and periods they have studied and begin to make connections between them. They show why and how things changed. They produce structured accounts of historical events, making use of dates and relevant terms. They begin to offer explanations of events and developments. They know that some events have been interpreted in different ways and suggest reasons for this. Drawing on their historical knowledge, pupils identify and are beginning to evaluate sources of information for particular tasks.

## ■ Level 6

Pupils make links between different aspects of their factual knowledge of a range of people, events and developments in the history of Britain and other countries drawn from the appropriate Programme of Study. Their work shows some understanding of the relationships between distinctive features of past societies and periods. They select, organise and deploy information, making use of dates and terms, to produce well-structured work. They offer explanations of events, changes and developments. They identify and begin to explain different historical interpretations of some events, issues, topics and personalities. Drawing on their historical knowledge, pupils suggest lines of enquiry and identify sources of information which they use critically to find out about specific topics.



## GEOGRAPHY PROGRAMMES OF STUDY

The examples printed in italics are non-statutory.

Pupils should be given opportunities, where appropriate, to apply and develop their information technology (IT) capability in their study of geography.

The programme of study for each key stage should be taught to all or the great majority of pupils in the key stage, in ways appropriate to their abilities. However, for the small number of pupils who may need the provision, teachers may select material from earlier or later key stages where this is necessary to enable individual pupils to progress and demonstrate achievement. Such material should be presented in contexts suitable to the pupil's age.

Appropriate provision should be made for pupils who need to use:

- means of communication other than speech, including computers, technological aids, signing, symbols or lip-reading;
- non-sighted methods of reading, such as Braille, or need to acquire information in a non-visual or non-aural way;
- technological aids in producing written work;
- aids to allow access to practical activities within and beyond school.

## KEY STAGE 1 PROGRAMME OF STUDY

The Key Stage 1 Programme of Study requires all pupils to carry out three geographical investigations. Two investigations focus on particular places – the locality of the school and a contrasting locality. The other focuses on a particular geographical theme. All should involve the development of skills, as well as knowledge and understanding of places and themes.

Pupils should develop an awareness of places other than those studied directly, building them into a 'locational framework' which provides a world context for their work in geography and other subjects.

Pupils should be encouraged to develop their skills, knowledge and understanding in geographical enquiries largely of the 'What/where is it?', 'What is it like?' type. Much of the pupils' learning should be based on direct experience, practical activities and fieldwork in the locality of the school.

The locality of the school includes the school buildings and grounds and the surrounding area within easy access. The contrasting locality should be an area of similar size.

### ■ Progression

Through the key stage, pupils will increasingly:

- broaden and deepen their knowledge and understanding of places and themes;
- recognise and describe what places are like, using appropriate geographical vocabulary;
- offer their own explanations for what they observe;
- make comparisons between places and between geographical features;
- develop and use appropriate geographical skills.

## Geographical Skills

- In studying places and a theme**, pupils should be taught to:
  - a observe their surroundings from different viewpoints, examine photographs, pictures and pictorial maps of places, and use an increasing range of geographical terms, *eg hill, river, road*, in describing what they see;
  - b use relevant information from material provided by the teacher, *eg books, computer software, photographs*, to investigate particular places and themes;
  - c develop their geographical skills through work both in and out of the classroom.
- In studying places and a theme**, pupils should be taught to develop and use the following geographical skills:
  - a observing, communicating and recording information about places by asking and responding to questions about their surroundings;
  - b following directions, including the terms up, down, on, under, behind, in front of, near, far, left, right, north, south, east, west;
  - c using and making different kinds of maps and plans, both real and imaginary, at a variety of scales, using pictures/symbols and other aspects of a key;
  - d following a route on a plan or a map;
  - e using maps and a globe to identify major geographical features, *eg seas, rivers, cities*.

## Places and Themes

Pupils should have opportunities to investigate:

- the locality of the school;
  - a contrasting locality, either in or beyond the United Kingdom;
  - the quality of the environment in a locality.
- In studying the physical and human features that give places their identity**, pupils should be taught:
    - a about the main physical and/or human features of the localities;
    - b about the effects of weather on themselves and their surroundings;
    - c how land and buildings are used;
    - d about similarities and differences between localities;
    - e that the localities studied are set within a broader geographical context.
  - In developing an awareness of places other than those studied directly**, pupils should be taught:
    - a to give the address of their home;
    - b to name the country in which they live;
    - c that their own country is part of the United Kingdom which is made up of England, Wales, Scotland and Northern Ireland;
    - d to locate on a map the constituent countries of the United Kingdom;
    - e to mark on a map of the United Kingdom approximately where they live.
  - In investigating the quality of the environment in a locality**, pupils should be taught:
    - a to express their likes and dislikes about the environment concerned;
    - b about changes in that environment;
    - c about ways in which the quality of that environment can be sustained and improved.

## KEY STAGE 2 PROGRAMME OF STUDY

The Key Stage 2 Programme of Study requires all pupils to carry out studies of three places. It also requires that pupils study, in the context of actual places, five geographical themes, which may be taught alone, in combination with other themes, or as part of the studies of places. Elements of skills, places and themes should feature in all geographical studies, whether the main focus is a place or a theme.

Pupils are required to study three localities. The locality of the school should cover an area larger than the immediate vicinity of the school and contain the homes of the majority of pupils in the school. The other localities to be studied should be areas similar in size to the locality of the school.

Pupils should develop an awareness of places other than those studied directly, building them into a 'locational framework' which provides a world context for their work in geography and other subjects.

Pupils should be encouraged to develop their skills, knowledge and understanding through geographical enquiries, across a widening range of scales, based on fieldwork and classroom activities. Enquiry questions should be largely of the 'What/where is it?', 'What is it like?', 'How did it get like this?' type.

Thematic studies should, between them, involve work at local and national scales. A range of geographical contexts, including the European Union, should be used.

### Progression

Through the key stage, pupils will increasingly:

- broaden and deepen their knowledge and understanding of places and themes;
- recognise and describe what places are like with accuracy and coherence;
- offer explanations for the characteristics of places;
- identify physical and human processes and describe some of their effects;
- apply geographical ideas learnt in one context to other studies at the same scale;
- acquire information, from secondary sources as well as first-hand observation, to investigate aspects of local and more distant physical and human environments;
- develop and use appropriate geographical skills.

## Geographical Skills

- In studying places and themes**, pupils should be taught:
  - **a** to identify and describe geographical features and conditions, using simple instruments, *eg rain gauges, clinometers, compasses*, to make measurements;
  - **b** select and use relevant information from a variety of sources, *eg visitors, photographs, maps, television and radio programmes, computer databases, books, newspapers*, to investigate particular places or themes.

Pupils should be given the opportunity to use IT to collect and analyse geographical evidence.
- In studying places and themes**, pupils should be taught to develop and apply the following geographical skills:
  - **a** observing and communicating information about geographical features and places, using appropriate geographical vocabulary;
  - **b** measuring and recording accurately;
  - **c** interpreting information from maps and plans by developing a range of map skills (using coordinates and four-figure grid references, using symbols and keys, measuring direction and distance, following routes);
  - **d** using maps and photographs, including oblique aerial photographs, to identify features and relationships;
  - **e** making and using their own maps and plans at a variety of scales;
  - **f** using the contents page and index of atlases;
  - **g** understanding the relationship between a globe and a map.

## Places

During Key Stage 2 pupils should study:

- the locality of the school;
  - a contrasting locality in the United Kingdom;
  - a locality in a country in Latin America, Africa or Asia (excluding Japan).
- In studying how physical and human processes give places their character and distinctiveness**, pupils should be taught:
    - **a** about the physical and human features and environmental issues in the localities;
    - **b** about the relationships between the features of the localities and human activities;
    - **c** about the location of activities within the localities;
    - **d** about recent or proposed changes in the localities;
    - **e** similarities and differences between the localities;
    - **f** that the localities are set within a broader geographical context.
  - In developing an awareness of places other than those studied directly**, pupils should be taught:
    - **a** to locate, using globes, maps or atlases, places that they are studying and places that are in the news;
    - **b** to identify, using globes, maps or atlases, the points of reference specified on Maps A, B and C;
    - **c** major features of the geography of the United Kingdom.

## Themes

Work on geographical themes must involve work at local and national scales and in a range of contexts, including the European Union. Each of the five themes can be taught alone, in combination with other themes, or as part of the studies of places. Thematic work should be set within the context of actual places.

### Rivers

5. **In studying a physical process and its effect on the landscape**, pupils should be taught:
- a the main components of the water cycle;
  - b that rivers have sources, channels, tributaries and mouths, that they receive water from a wide area, and that most eventually flow into a lake or a sea;
  - c that rivers erode, transport and deposit materials;
  - d about landscape features associated with rivers.

### Weather

6. **In studying how weather varies between places and over time**, pupils should be taught:
- a how site conditions can influence the weather, *eg temperatures in the shade and in the sun, wind speed in sheltered and exposed sites*;
  - b about seasonal weather patterns;
  - c about weather conditions, including extremes, in different parts of the world.

### Communications

7. **In investigating how different forms of transport meet different needs and how transport changes affect human activities**, pupils should be taught:
- a that people make journeys and use different means of transport;
  - b why roads and railways do not always take the shortest route between the places they link;
  - c about different modes of transport and transport networks and about the effects of changes in these networks.

### Economic activities

8. **In studying how goods and services are provided and how this is related to decisions about the use of land**, pupils should be taught:
- a how goods and services are provided;
  - b that land is used in different ways, *eg farming, leisure, manufacturing industry*;
  - c about a particular issue which demonstrates how conflicts can arise over the use of land.

### Environment

9. **In investigating how the environment can be managed and protected**, pupils should be taught:
- a that human activities affect the environment;
  - b ways in which people manage their environment;
  - c to consider whether some types of environment need special protection.

## LEVEL DESCRIPTIONS FOR THE GEOGRAPHY ATTAINMENT TARGET

The following level descriptions describe the types and range of performance which pupils working at a particular level should characteristically demonstrate. In deciding on a pupil's level of attainment at the end of a key stage, teachers should judge which level description best fits the pupil's performance.

The great majority of pupils should be working at Levels 1 to 3 by the end of Key Stage 1, Levels 2 to 5 by the end of Key Stage 2 and Levels 3 to 7 by the end of Key Stage 3. Levels 8 to 10 are available for the most able pupils at Key Stage 3.

**At Levels 1, 2 and 3, pupils show their knowledge, understanding and skills in relation to a limited range of studies of places and themes.**

### ■ Level 1

Pupils recognise a small range of specific places and features of the environment, and express what they like about a place. They make simple observations about places and geographical features and use material provided to find information.

### ■ Level 2

Pupils specify some of the geographical characteristics which make places distinctive, and express likes and dislikes about places. They select from information provided to identify places or geographical features and use simple skills to pursue set tasks.

### ■ Level 3

Pupils describe aspects of human and physical processes in different localities and show an awareness that places can have both similar and different characteristics. They offer reasons for some of their observations and personal preferences about places. They use a range of appropriate skills and information to pursue set tasks.

**At Levels 4, 5 and 6, pupils show their knowledge, understanding and skills in relation to studies of a range of places and themes at more than one scale and in contrasting environments.**

### ■ Level 4

Pupils describe geographical features, distinguishing between physical and human processes. They show some understanding of how these processes can change the environment and lead to similarities and differences between places. They show an awareness that others may have different environmental preferences from their own. Pupils use a range of geographical skills (from the Key Stage 2 or Key Stage 3 Programmes of Study) and information to undertake simple tasks and draw conclusions.

### ■ Level 5

Pupils describe and offer simple explanations for a range of physical and human processes and show how these processes can change the environment and lead to similarities and differences between places. They describe and offer simple explanations for ways in which environments are managed. Pupils use, with some guidance, a wide range of geographical skills (from the Key Stage 2 or Key Stage 3 Programmes of Study) and evidence to undertake set tasks and draw valid conclusions.

### ■ Level 6

Pupils offer explanations for a range of physical and human processes and recognise that, in different places, the same processes can have different effects. They describe ways in which places can change over time. They describe and offer explanations for different approaches to managing environments. They identify, with some guidance, relevant geographical questions and make effective use of a wide range of skills (from the Key Stage 2 or Key Stage 3 Programmes of Study) and evidence to answer these questions. Pupils occasionally evaluate aspects of their work.



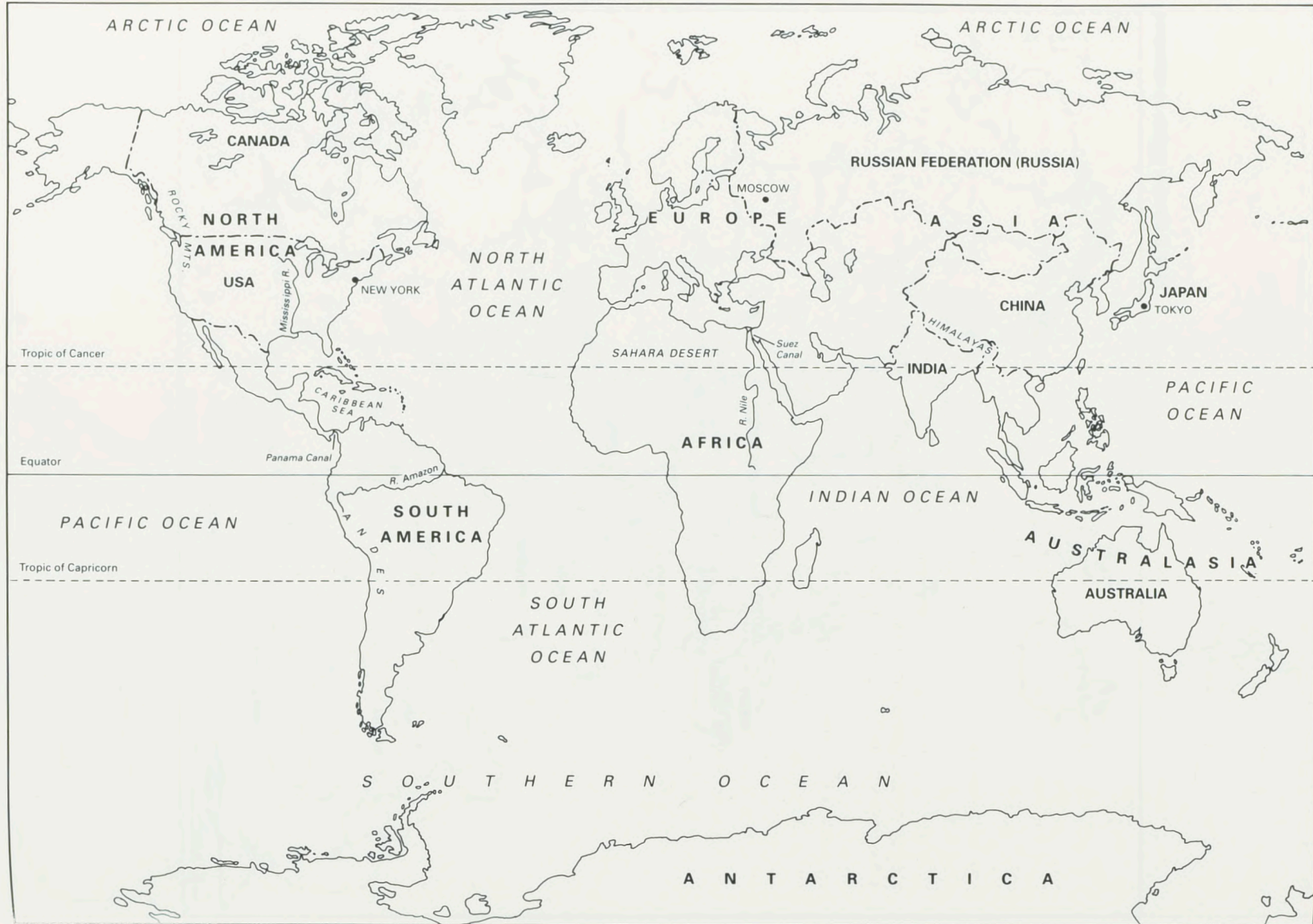
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MAP B Europe: points of reference



NORTH POLE

MAP C World: points of reference



## ART PROGRAMMES OF STUDY

‘Art’ should be interpreted as ‘art, craft and design’ throughout and ‘artists’ should be interpreted as ‘artists, craftworkers and designers’.

Although the programmes of study have been set out in relation to each attainment target, there is no implication that teaching activities or learning opportunities should be designed to address them separately.

The examples printed in italics are non-statutory.

Pupils should be taught to use materials, tools and techniques for practical work in accordance with health and safety requirements.

Pupils should be given opportunities to apply and develop their information technology (IT) capability in their study of art where appropriate.

The programme of study for each key stage should be taught to all or the great majority of pupils in the key stage, in ways appropriate to their abilities. However, for the small number of pupils who may need the provision, teachers may select material from earlier or later key stages where this is necessary to enable individual pupils to progress and demonstrate achievement. Such material should be presented in contexts suitable to the pupil’s age.

Appropriate provision should be made for pupils who need to use:

- means of communication other than speech, including computers, technological aids, signing, symbols or lip-reading;
- non-sighted methods of reading, such as Braille, or need to acquire information in a non-visual or non-aural way;
- technological aids in producing written work;
- aids to allow access to practical activities within and beyond school.

## KEY STAGE 1 PROGRAMME OF STUDY

1. Pupils should be encouraged to develop their creative, imaginative and practical skills through a balanced programme of art, craft and design activities working individually, in groups and as a whole class.
2. Activities should introduce pupils to different ways in which ideas and feelings are presented in visual form. They should explore artistic elements in practical work, including:
  - how images are made using line and tone;
  - colour matching and mixing from primary colours;
  - pattern and texture in natural and made forms;
  - the use of shape, form and space in making images and artefacts.
3. Pupils should be introduced to the work of artists, craftworkers and designers, *eg painting, printmaking, sculpture, ceramics, textiles, graphic design, architecture*. Examples should include works of art, craft and design in the locality, contemporary work, and from a variety of periods and cultures, Western and non-Western. The selection should be made in order to develop pupils' artistic experience and knowledge and an appreciation of the richness of our diverse cultural heritage.

## INVESTIGATING AND MAKING

### General Programme of Study

In all key stages, pupils should be given **opportunities** to:

- **record responses** to direct experience, memory and imagination;
- **gather and use** source materials to stimulate and develop ideas;
- **explore** and use materials, tools and techniques in practical work on a variety of scales;
- **review and modify** their work as it progresses;

### Key Stage-Specific Programme of Study

Pupils should be **taught** to:

- **a** record what has been experienced, observed, remembered and imagined;
- **b** recognise images, objects and artefacts as sources of ideas for their work;
- **c** select and sort images, objects and artefacts, and use this source material as a basis for their work;
- **d** experiment with a range of materials, tools and techniques for drawing, painting, printmaking, collage and work in three dimensions, including modelling;
- **e** use the range of media and experiment with artistic elements, *eg line, colour, shape*, to make images and artefacts;
- **f** review what they have done and describe what they might change or develop in future work;

## KNOWLEDGE AND UNDERSTANDING

- **develop knowledge** of art, craft and design;
- **respond to and evaluate** different kinds of art, including their own and others' work.

- **g** identify examples of art, craft and design in the school and the environment;
- **h** recognise how artistic elements, *eg colour, pattern, shape*, are used in images and artefacts;
- **i** recognise differences and similarities in art, craft and design from different times and places;
- **j** respond to the idea or theme of works of art, craft and design, making connections with their own work;
- **k** describe works of art, craft and design in simple terms and explain what they think and feel about them.

## KEY STAGE 2 PROGRAMME OF STUDY

1. Pupils should be encouraged to develop their creative, imaginative and practical skills through a balanced programme of art, craft and design activities working individually, in groups and as a whole class.
2. Activities should extend pupils' understanding of how ideas and feelings are communicated in visual form. They should investigate the use of artistic elements in practical work, including:
  - different qualities of line and tone;
  - how colour is experienced and applied in making images and designs;
  - the use of pattern and texture in designing and making;
  - how shape, form and space is presented in images and artefacts.
3. Pupils should be taught to give attention to the work of artists, craftworkers and designers, *eg painting, printmaking, sculpture, ceramics, textiles, graphic design, architecture*. Examples should include works of art, craft and design in the locality, contemporary work, and from a variety of periods and cultures, Western and non-Western. The selection should be made in order to broaden pupils' artistic experience and knowledge, and to develop an appreciation of the richness of our diverse cultural heritage.

## INVESTIGATING AND MAKING

### General Programme of Study

In all key stages, pupils should be given **opportunities** to:

- **record responses** to direct experience, memory and imagination;
- **gather and use** source materials to stimulate and develop ideas;
- **explore** and use materials, tools and techniques in practical work on a variety of scales;
- **review and modify** their work as it progresses;

### Key Stage-Specific Programme of Study

Pupils should be **taught** to:

- **a** select and record images and ideas from first-hand observation, and respond to memory and imagination;
- **b** use a sketchbook to record observations and ideas, and collect visual evidence and information for their work;
- **c** experiment with ideas for their work suggested by visual and other source material;
- **d** apply their knowledge and experience of materials and techniques for drawing, painting, printmaking, collage and work in three dimensions, including modelling, using them experimentally;
- **e** experiment with and apply their knowledge of the artistic elements, *eg colour, form, space*, to make images and artefacts for different purposes, using the range of media;
- **f** reflect on and adapt their work as needed, assessing the extent to which they have achieved what they intended and what ideas and methods they might develop in future work;

## KNOWLEDGE AND UNDERSTANDING

- **develop knowledge** of art, craft and design;

- **respond to and evaluate** different kinds of art, including their own and others' work.

- **g** identify the materials and methods used by artists, craftworkers and designers;
- **h** identify how images, symbols and objects are used in art, craft and design for different purposes;
- **i** recognise ways in which works of art, craft and design reflect the time and place in which they are made;
- **j** compare works from a variety of artistic styles and traditions, and apply knowledge of different methods and approaches in the context of their own work;
- **k** express ideas and opinions about works of art, craft and design, developing the ability to use knowledge and a specialist vocabulary to support views.

# END OF KEY STAGE STATEMENTS FOR ART

The following statements describe the types and range of performance which pupils should characteristically demonstrate by the end of a key stage. These statements are designed to help teachers judge the extent to which their pupils' attainment relates to this expectation.

## KEY STAGE 1

### ■ **Attainment Target 1: Investigating and Making**

Pupils record from observation, memory and imagination, selecting and using source material as a basis for their work. They work practically and imaginatively with different materials, tools and artistic elements, presenting their ideas in visual form.

### ■ **Attainment Target 2: Knowledge and Understanding**

Pupils respond to the idea or theme of works of art, craft and design, recognising differences in the use of artistic elements. They describe and compare images and artefacts.

## KEY STAGE 2

### ■ **Attainment Target 1: Investigating and Making**

Pupils select and record observations and ideas using a sketchbook to collect visual evidence and information for their work. They develop ideas and/or themes by using materials and techniques experimentally and expressively. They apply their knowledge and experience of artistic elements to communicate ideas and feelings, selecting appropriate media.

### ■ **Attainment Target 2: Knowledge and Understanding**

Pupils respond to and distinguish between works of art, craft and design, and identify differences in the materials, methods and approaches, using an art vocabulary. They show understanding of how an image or an artefact is affected by its purpose and by the time and/or place in which the work is made.

## MUSIC PROGRAMMES OF STUDY

Although the programmes of study have been set out in relation to each attainment target, there is no implication that teaching activities or learning opportunities should be designed to address them separately.

The examples printed in italics are non-statutory.

Pupils should be given opportunities to apply and develop their information technology (IT) capability in their study of music where appropriate.

The programme of study for each key stage should be taught to all or the great majority of pupils in the key stage, in ways appropriate to their abilities. However, for the small number of pupils who may need the provision, teachers may select material from earlier or later key stages where this is necessary to enable individual pupils to progress and demonstrate achievement. Such material should be presented in contexts suitable to the pupil's age.

Appropriate provision should be made for pupils who need to use:

- means of communication other than speech, including computers, technological aids, signing, symbols or lip-reading;
- non-sighted methods of reading, such as Braille, or need to acquire information in a non-visual or non-aural way;
- technological aids in producing written work;
- aids to allow access to practical activities within and beyond school.

### ■ Pupils with physical disabilities

Appropriate provision should be made for those pupils who need to use adapted musical instruments or technological aids in their performing and composing of music.

### ■ Pupils with hearing impairments

Appropriate provision should be made for those pupils who need to use equipment and resources which visually record and display sounds.

## KEY STAGE 1 PROGRAMME OF STUDY

1. Pupils should be helped to develop their understanding and enjoyment of music through a balanced programme of activities which provides opportunities for them to work individually, in groups and as a class and make appropriate use of information technology to create and record music.
2. When performing, composing, listening and appraising, pupils should be taught to listen with concentration, by exploring, recognising and internalising, *eg hearing in their head*, the musical elements of:
  - pitch – high/low;
  - duration – long/short; pulse; rhythm;
  - dynamics – loud/quiet; silence;
  - speed – fast/slow;
  - timbre – quality of sound;
  - texture – one sound/several sounds;
  - structure – pattern; repetition/contrast.
3. The repertoire chosen for performing and listening should extend pupils' musical experience and knowledge, and develop appreciation of the richness of our diverse cultural heritage. It should include music in a variety of styles from different times and places, and music by well-known composers and performers.

## PERFORMING AND COMPOSING

### General Programme of Study

In all key stages, pupils should be given **opportunities** to:

- **control sounds** made by the voice and a variety of tuned and untuned instruments;
- **perform with others**, and develop awareness of audience, venue and occasion;
- **compose** in response to a variety of stimuli and explore resources such as voices, instruments and sounds from the environment;
- **refine, record and communicate** musical ideas;

### Key Stage-Specific Programme of Study

Pupils should be **taught** to:

- **a** sing songs from memory and perform short musical patterns by ear and from symbols;
- **b** sing a variety of unison songs, developing control of breathing, dynamics, rhythm and pitch;
- **c** play simple pieces and accompaniments;
- **d** rehearse and share their music making;
- **e** improvise musical patterns;
- **f** explore, create, select and organise sounds in simple structures, *eg with a beginning, a middle, and an end*;
- **g** use sound to create musical effects, *eg to suggest a machine, a walk through a forest*;
- **h** record their compositions using symbols where appropriate, and communicate simple musical ideas to others;

## LISTENING AND APPRAISING

- **develop knowledge** of music from different times and places;
- **respond to and evaluate** live and recorded music including their own and others' compositions and performances.

- **i** recognise how sounds can be made in different ways, *eg by blowing, plucking, shaking*;
- **j** recognise how sounds are used in music to achieve particular effects, *eg to soothe, to excite*;
- **k** recognise differences and similarities in music from different times and places;
- **l** respond to musical elements, and the character and mood of a piece of music by means of movement, dance or other suitable forms of expression;
- **m** describe in simple terms the sounds they have made, listened to, performed, composed or heard, including everyday sounds.

## KEY STAGE 2 PROGRAMME OF STUDY

1. Pupils should build on and develop their achievements at Key Stage 1 through a balanced programme of activities which provides opportunities for them to work individually, in groups and as a class, and make appropriate use of information technology to create and record music.
2. When performing, composing, listening and appraising, pupils should be taught to listen with attention to detail, and identify musical ideas by investigating, distinguishing and internalising, *eg hearing in their head*, the musical elements of:
  - pitch – gradations of pitch; chords;
  - duration – pulse; metre and rhythm;
  - dynamics – different levels of volume; accents; silence;
  - speed – gradations of speed;
  - timbre – different qualities of sound;
  - texture – different ways sounds are put together; melody and accompaniment;
  - structure – different ways sounds are organised in simple forms; phrase; repetition; contrast; ostinato (a musical pattern which is repeated many times); melody.
3. The repertoire chosen for performing and listening should extend pupils' musical experience and knowledge, and develop appreciation of the richness of our diverse cultural heritage. It should include music in a variety of styles, taken from: the European 'classical' tradition; folk and popular music; the countries and regions of the British Isles; a variety of cultures; and should include music by well-known composers and performers.

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## PERFORMING AND COMPOSING

### General Programme of Study

In all key stages, pupils should be given **opportunities** to:

- **control sounds** made by the voice and a variety of tuned and untuned instruments;
- **perform with others**, and develop awareness of audience, venue and occasion;
- **compose** in response to a variety of stimuli and explore resources such as voices, instruments and sounds from the environment;
- **refine, record and communicate** musical ideas;

### Key Stage-Specific Programme of Study

Pupils should be **taught** to:

- **a** sing songs from memory and perform musical patterns, of increasing length, by ear and from notation(s), *eg symbols which define pitch, timbre, duration*;
- **b** sing a variety of unison and simple two-part songs and rounds, developing control of diction and musical elements, particularly phrasing, *eg giving shape to a song by breathing at the end of a phrase*;
- **c** perform pieces and accompaniments with increasing dexterity and control of sound;
- **d** rehearse, direct and present their own projects/performances;
- **e** improvise rhythmic and melodic ideas, and arrange music, *eg add percussion to song*;
- **f** explore, create, select, combine and organise sounds in musical structures, *eg using repeated sections or verse and chorus*;
- **g** use sounds and structures to achieve an intended effect, *eg to create a particular mood*;
- **h** review and refine their compositions and communicate musical ideas to others, using notation(s);

## LISTENING AND APPRAISING

- **develop knowledge** of music from different times and places;
- **respond to and evaluate** live and recorded music including their own and others' compositions and performances.

- **i** distinguish the sounds made by a variety of instruments, individually and in combination;
- **j** identify how musical elements and resources, *eg voices, instruments, performers*, can be used to achieve an intended effect;
- **k** recognise ways in which music reflects the time and place in which it is written;
- **l** compare music from contrasting musical traditions and respond to differences in character and mood, *eg through dance and other suitable forms of expression*;
- **m** express ideas and opinions about music, developing the ability to use musical knowledge and a musical vocabulary to support views.

## END OF KEY STAGE STATEMENTS FOR MUSIC

The following statements describe the types and range of performance which pupils should characteristically demonstrate by the end of a key stage. These statements are designed to help teachers judge the extent to which their pupils' attainment relates to this expectation.

### KEY STAGE 1

#### ■ **Attainment Target 1: Performing and Composing**

Pupils sing a variety of songs from memory and perform simple pieces and accompaniments. They relate symbols to sounds, and sounds to symbols. They explore, select and order sounds, making compositions which have a simple structure and illustrate an event, feeling or story.

#### ■ **Attainment Target 2: Listening and Appraising**

Pupils respond to short pieces of music, recognising changes within the musical elements. They describe and compare sounds and short excerpts of music using simple terms.

### KEY STAGE 2

#### ■ **Attainment Target 1: Performing and Composing**

Pupils sing two-part songs as a member of a group, and maintain an independent instrumental part. They perform from memory, use notation(s), and make some expressive use of elements. They improvise rhythmic and melodic patterns, and select and combine sounds to produce musical compositions which have a structure and achieve a planned effect.

#### ■ **Attainment Target 2: Listening and Appraising**

Pupils identify changes in character and mood within excerpts of music. They recognise how the use of elements and resources is affected by the intentions of the composer(s), and the time and place in which the music is created. They describe and compare music, using a musical vocabulary.

# THE HISTORY OF THE UNITED STATES

The history of the United States is a complex and multifaceted story. It begins with the early Native American civilizations, such as the Mayans, Aztecs, and Incas, who built great empires in Central and South America. In North America, the Iroquois and other tribes established sophisticated societies. The arrival of European explorers, including Christopher Columbus and John Cabot, marked the beginning of a new era. The British colonies in North America grew in number and influence, leading to the American Revolution and the birth of the United States as an independent nation.

The early years of the United States were marked by westward expansion and the search for new lands. The Louisiana Purchase of 1803 doubled the size of the country. The War of 1812 solidified the nation's independence. The Industrial Revolution brought significant changes to the economy and society. The Civil War (1861-1865) was a pivotal moment in American history, as it resolved the issue of slavery and preserved the Union. The Reconstruction period followed, aiming to rebuild the South and integrate African Americans into the nation.

The late 19th and early 20th centuries saw the United States emerge as a global power. The Spanish-American War (1898) resulted in the acquisition of territories such as Puerto Rico, Guam, and the Philippines. The Progressive Era (1890s-1920s) focused on social and political reforms. World War I (1914-1918) and World War II (1939-1945) were defining moments that shaped the modern world. The Cold War (1945-1991) saw the United States and the Soviet Union as superpowers, with a tense standoff between the two.

The late 20th and early 21st centuries have been characterized by rapid technological advancement, globalization, and significant social changes. The United States continues to play a major role in the world, facing new challenges and opportunities.

# PHYSICAL EDUCATION GENERAL PROGRAMME OF STUDY

Physical education involves pupils in the continuous process of planning, performing and evaluating. The following requirements should apply to the teaching of physical education across all key stages. They supplement the programmes of study for specific key stages. The examples printed in italics are non-statutory.

1. To promote physical activity and healthy lifestyles pupils should be taught:
  - to be physically active;
  - to adopt good posture and the appropriate use of the body;
  - to engage in activities that develop cardiovascular health, flexibility, muscular strength and endurance;
  - the increasing need for personal hygiene in relation to vigorous activity.
2. To develop positive attitudes pupils should be taught:
  - to observe the conventions of fair play, honest competition and good sporting behaviour as team members, individual participants and spectators;
  - how to cope with success and failure;
  - to try hard to consolidate their performances;
  - to be mindful of others and the environment.
3. To ensure safe practice pupils should be taught:
  - to respond readily to instructions and signals within established routines;
  - to recognise and follow relevant rules, laws, codes and safety procedures for different activities or events in practice or during competition;
  - why particular clothing, footwear and protection are worn for different activities;
  - the safety risks of wearing inappropriate clothing, footwear and jewellery;
  - how to lift, carry, place and use equipment safely.
4. Pupils should be given opportunities to apply and develop their information technology (IT) capability in their study of physical education, where appropriate.
5. The programme of study for each key stage should be taught to all or the great majority of pupils in the key stage, in ways appropriate to their abilities. However, for the small number of pupils who may need the provision, teachers may select material from earlier or later key stages where this is necessary to enable individual pupils to progress and demonstrate achievement. Such material should be presented in contexts suitable to the pupil's age.
6. Appropriate provision should be made for pupils who need to use:
  - means of communication other than speech, including computers, technological aids, signing, symbols or lip-reading;
  - non-sighted methods of reading such as Braille, or need to acquire information in a non-visual or non-aural way;
  - technological aids in producing written work;
  - aids to allow access to activities within and beyond the school.

## KEY STAGE 1 PROGRAMME OF STUDY

During Key Stage 1, pupils are active and enthusiastic, they learn by doing and they should be helped to gain confidence as they play and perform structured tasks. Initially their work will be largely individual as they explore ideas and experiment with a variety of simple and isolated movements, stimuli and equipment. Gradually they begin to link simple skills until short sequences or series of movements are formed. Towards the end of the key stage they plan and practise these and, with guidance, recognise improvement in performance. They begin to work with a partner and talk about what they and others have done. Some pupils move from description to making simple judgements about performance.

Pupils are aware that changes occur to their bodies as they exercise and over the key stage should recognise the short-term effects that happen to their bodies during exercise.

In Key Stage 1, pupils should pursue three areas of activity: Games (including competitive team games), Gymnastic Activities and Dance, using indoor and outdoor environments where appropriate. Schools may choose to teach Swimming in Key Stage 1 using the programme of study set out in Key Stage 2.

### AREAS OF ACTIVITY

#### 1. Games

Pupils should be taught:

- a to use a variety of games equipment;
- b to explore, practise and develop a variety of ways of sending (including throwing), receiving and travelling with a ball or other games equipment;
- c elements of games play that include running, chasing, dodging, avoiding and awareness of space and other players;
- d to make up and play competitive games with simple rules.

#### 2. Gymnastic activities

Pupils should be taught:

- a different ways of performing the basic actions of travelling, turning, rolling, jumping, balancing, swinging, climbing and taking weight on hands, both on the floor and using apparatus;
- b to link together a series of actions both on the floor and using apparatus, and how to repeat them.

#### 3. Dance

Pupils should be taught:

- a to develop control, coordination, balance, poise and elevation in basic actions, including travelling, jumping, turning, gesture and stillness;
- b to explore moods and feelings through spontaneous responses and through making dances using a variety of contrasting stimuli, including words and music;
- c to explore aspects of a variety of dance from different times and cultures;
- d to explore contrasts of rhythm, speed, shape, direction and level.

## KEY STAGE 2 PROGRAMME OF STUDY

During Key Stage 2, pupils' motor skills, control and coordination develop quickly and they are increasingly able to plan, perform and evaluate what they do across a number of areas of activity. They work alone and with others and engage in cooperative or competitive tasks which test their ability to solve problems and make decisions. They select effective and appropriate responses in changing situations and will comment on performance using given criteria.

Towards the end of the key stage some pupils will begin to take account of their own and others' levels of skill and understanding. Their ability to consolidate skills, sustain activity and move with coordination and control increases with physical maturity during Years 5 and 6. Increasingly they practise to improve and refine their performance and repeat series of movements they have performed previously. Using given criteria they will make judgements about their own and others' performance and some pupils will begin to suggest how to improve performance using simple, technical language.

Pupils should be encouraged to sustain energetic activity over appropriate periods of time in a range of physical activities and should understand the short-term effects of exercise on the body.

In Key Stage 2, pupils should pursue six areas of activity: Games (including competitive team games), Gymnastic Activities, Dance, Athletic Activities, Outdoor and Adventurous Activities, and Swimming, unless they have already completed the programme of study for Swimming during Key Stage 1. If aspects of the Swimming programme are taught during Key Stage 1, pupils should start the Key Stage 2 Swimming programme at the appropriate point.

### AREAS OF ACTIVITY

#### 1. Games

Pupils should be taught:

- a to explore and understand common skills and principles, including attack and defence in invasion, striking/fielding, net/wall and target games;
- b to improve the skills of sending (including throwing), receiving, striking and travelling with a ball in the above games;
- c to make up, play and refine their own games and practices within prescribed limits, considering and developing rules and scoring systems;
- d to develop an understanding of and to play small-sided games and simplified versions of recognised competitive team and individual games, covering the following types: invasion, *eg football, netball*; striking/fielding, *eg rounders*; net/wall, *eg tennis*.

#### 2. Gymnastic activities

Pupils should be taught:

- a to explore different means of rolling, jumping, swinging, balancing and taking weight on hands, and adapt, practise and refine these actions both on the floor and using apparatus;
- b to explore, select, develop, practise, refine and repeat a longer series of actions, making increasingly complex movement sequences both on the floor and using apparatus in response to set tasks;
- c to emphasise changes of shape, speed and direction through gymnastic actions.

### 3. Dance

Pupils should be taught:

- a to structure dances with clear beginnings, middles and ends, which involve improvising, exploring, selecting and refining content, and sometimes incorporate work from other aspects of the curriculum, in particular music, art and drama;
- b to express feelings, moods and ideas and create simple characters and narratives in movement in response to a range of stimuli;
- c to explore a number of dance forms from different times and cultures;
- d to enrich their movements by varying shape, size, direction, level, speed, tension and continuity and describe what they and others have done.

### 4. Athletic activities

Pupils should be taught:

- a to develop and practise basic actions in running (over short and longer distances and in relays), throwing for accuracy/distance and jumping for height/length using a variety of equipment;
- b to measure, compare and improve their own performance.

### 5. Outdoor and adventurous activities

Pupils should be taught:

- a outdoor and adventurous activities in one or more different environments, *eg school grounds and premises, parks, woodland or seashore*;
- b challenges of a problem-solving nature, using suitable equipment, which include planning, recording and evaluating whilst working in small groups;
- c the skills necessary for the activities undertaken.

### 6. Swimming

Pupils should be taught:

- a to develop confidence in water – to rest in water, to float and to adopt support positions;
- b to develop a variety of means of propulsion using either arms or legs or both, and develop effective and efficient swimming strokes on front and back;
- c to swim competently unaided at least 25 metres;
- d to practise and understand the principles and skills of water safety and survival.

## END OF KEY STAGE STATEMENTS

The following statements describe the types and range of performance which most pupils should characteristically demonstrate by the end of a key stage. These statements are designed to help teachers to judge the extent to which their pupils' attainment relates to this expectation.

### KEY STAGE 1

Pupils think about, plan and perform simple skills safely and begin to join them together with increasing control. They practise in order to improve performances as they work alone and with others. They talk about what they have done and, with guidance, describe what is happening. They are aware of and experience the short-term changes that happen to their bodies during exercise.

### KEY STAGE 2

Pupils make appropriate decisions quickly and plan their responses in different environments. They develop their skill by exploring and making up activities and by expressing themselves imaginatively. They practise, adapt, improve and repeat longer and increasingly complex sequences of movement. They measure and compare results of their own performance. They begin to show an awareness of the importance of taking account of different levels of skill and understanding in order to work safely, alone and with others. They make judgements of performance and suggest means of improvement in simple technical language. They sustain energetic activity over appropriate periods of time and show an understanding of what is happening to their bodies when they are exercising.



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