THE NORTHERN IRELAND CURRICULUM

# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGETS

English

Mathematics

Science

Technology and Design

History

Geography

Business Studies

Economics

Political Studies

Home Economics

Social and Environmental Studies

Physical Education

Art and Design

Music

Drama

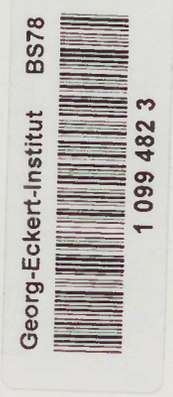
Modern Languages (French, German, Italian, Spanish, Irish)

The Northern Ireland curriculum : programmes of study and attainment targets / Department of Education Northern Ireland, DENI. - Bangor : DENI

GB Z-52(1,96)3/4

Key stages 3 and 4. English, mathematics, science, technology and design, history, geography, business studies, economics, political studies, home education, social and environmental studies, physical education, art and design, music, drama, modern languages (French, German, Italian, Spanish, Irish). - 1996. - Getr. Zählung
Einheitssacht.: Lehrplan <Great Britain> / Allgemein / 1996
ISBN 0-337-04307-8





**CIRCULAR 1996/21**

To: Education and Library Boards, Council for Catholic Maintained Schools, Principals, Teachers and Boards of Governors of Grant-aided Schools and Other Educational Bodies

29 July 1996

# NORTHERN IRELAND CURRICULUM: 1996 SUBJECT ORDERS FOR KEY STAGES 3 AND 4

## Introduction

1. In February 1996, following a review of the curriculum at key stages 3 and 4 by the Northern Ireland Council for the Curriculum, Examinations and Assessment (CCEA), the Minister announced his approval of revised programmes of study and attainment targets.

2. Accordingly, the Department, in accordance with Article 7 of the Education Reform (Northern Ireland) Order 1989 (the 1989 Order), which places a duty on the Department to set in place by statutory Order programmes of study and attainment targets for the compulsory contributory subjects, has made Orders for all the compulsory contributory subjects, and a number of non-compulsory subjects, of the curriculum at key stages 3 and 4.

3. All previous Orders relating to the compulsory contributory subjects of the curriculum at key stages 3 and 4 have been revoked.

## Commencement

4. The provisions of the Orders relating to the Key Stages 3 and 4 will come into operation as follows:

**AT KEY STAGE 3:** all Orders will come into effect for all years of the key stage on 1 September 1996;

**AT KEY STAGE 4:** all Orders will come into effect;

on 1 September 1996 for the first year of the key stage; and



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on 1 September 1997 for the second year of the key stage.

The phased introduction at Key Stage 4 is to allow pupils who have commenced a course of study which does not conform to the relevant programme of study to complete the course.

**Programmes of Study and Attainment Targets**

5. The Orders specify programmes of study and attainment targets for subjects as shown in the table below. The subjects are grouped by area of study: those printed in normal text are compulsory subjects; those in italics are non-compulsory subjects for which a programme of study is specified.

If a pupil opts to take a non-compulsory subject at either key stage 3 or 4, or more than one of the optional compulsory subjects in the Environment and Society area of study at key stage 4, then the specified programme of study must be followed in each case.

Where a subject is compulsory at both Key Stage 3 and 4, a single Order covers both.

**AT KEY STAGE 3:**

English

Mathematics

Science, Technology and Design

History, Geography, *Home Economics*

Physical Education, Art and Design, Music

Modern Languages

**AT KEY STAGE 4:**

English

Mathematics

Science

History or Geography or Business Studies or Home Economics or Economics or Political Studies or Social and Environmental Studies

Physical Education, *Art and Design, Music, Drama*

Modern Languages

6. The Orders specify that the programmes of study are those set out in a number of Documents published by Her Majesty's Stationery Office. These Documents largely take the form of replacement inserts for subject binders already held by schools. The exceptions are the 3 subjects Economics, Political Studies, Social and Environmental Studies, for which no binders were previously issued - the programmes are therefore bound together in a single Document.

A list of the Orders made and the corresponding Documents published is attached as an Annex to this Circular.

**Level Descriptions**

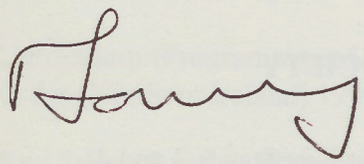
7. Level descriptions replace, at Key Stage 3, the levels of attainment previously contained in programmes of study and attainment targets as the basis of assessment. No level descriptions are provided at Key Stage 4. With the exceptions set out in paragraph 8 below, the level descriptions related to the attainment targets described in the documents are specified in relation to the Key Stage 3 at levels 1-8.

8. As the subjects in the Creative and Expressive area of study - Physical Education, Art and Design, Music and Drama - at both key stages, together with Home Economics at Key Stage 3 and Technology and Design at Key Stage 4, are not to be the subject of compulsory assessment, the level descriptions contained in the Documents specified for these subjects at these key stages are included for the guidance of teachers only.

9. The Orders provide that those contents of the Documents which are printed in italics or not printed on a tinted background do not form part of the statutory provisions.

10. Copies of the Orders of the Documents may be obtained from HMSO, 16 Arthur Street, Belfast, BT1 4GD.

**11. THE COPIES OF THE DOCUMENTS SUPPLIED FREE OF CHARGE TO SCHOOLS REMAIN THE PROPERTY OF SCHOOLS AND NOT THE PERSONS TO WHOM THEY MAKE THEM AVAILABLE.**



**P LOWRY**
**Curriculum Branch**

**ANNEX**

The Orders made and the Documents they specify are listed below by area of study.

## AREA OF STUDY: ENGLISH

Curriculum (Programme of Study and Attainment Targets in **English** at Key Stages 3 and 4) Order (Northern Ireland) 1996

Key Stages 3 and 4, Programme of Study and Attainment Targets, English
(ISBN 0 337 04293 4)

## AREA OF STUDY: MATHEMATICS

Curriculum (Programme of Study and Attainment Targets in **Mathematics** at Key Stages 3 and 4) Order (Northern Ireland) 1996

Key Stages 3 and 4, Programme of Study and Attainment Targets, Mathematics
(ISBN 0 337 04294 2)

## AREA OF STUDY: SCIENCE AND TECHNOLOGY

Curriculum (Programmes of Study and Attainment Targets in **Science** at Key Stages 3 and 4) Order (Northern Ireland) 1996

Key Stages 3 and 4, Programmes of Study and Attainment Targets, Science
(ISBN 0 337 04295 0)

Curriculum (Programmes of Study and Attainment Target in **Technology and Design** at Key Stages 3 and 4) Order (Northern Ireland) 1996

Key Stages 3 and 4, Programmes of Study and Attainment Target, Technology and Design
(ISBN 0 337 04302 7)

## AREA OF STUDY: THE ENVIRONMENT AND SOCIETY

Curriculum (Programmes of Study and Attainment Target in **History** at Key Stages 3 and 4) Order (Northern Ireland) 1996

Key Stages 3 and 4, Programmes of Study and Attainment Target, History
(ISBN 0 337 04297 7)

Curriculum (Programmes of Study and Attainment Target in **Geography** at Key Stages 3 and 4) Order (Northern Ireland) 1996

Key Stages 3 and 4, Programmes of Study and Attainment Target, Geography
(ISBN 0 337 04298 5)

Curriculum (Programme of Study in **Business Studies** at Key Stage 4) Order (Northern Ireland) 1996

Key Stage 4, Programme of Study, Business Studies (ISBN 0 337 04305 1)

Curriculum (Programmes of Study and Attainment Target in **Home Economics** at Key Stages 3 and 4) Order (Northern Ireland) 1996

Key Stages 3 and 4, Programmes of Study and Attainment Target, Home Economics (ISBN 0 337 04303 5)

Curriculum (Programmes of Study in **Economics, Political Studies** and **Social and Environmental Studies** at Key Stage 4) Order (Northern Ireland) 1996

Key Stage 4, Programmes of Study, Economics, Political Studies and Social and Environmental Studies (ISBN 0 337 04306 X)

## AREA OF STUDY: CREATIVE AND EXPRESSIVE STUDIES

Curriculum (Programmes of Study and Attainment Targets in **Physical Education** at Key Stages 3 and 4) Order (Northern Ireland) 1996

Key Stages 3 and 4, Programmes of Study and Attainment Targets, Physical Education (ISBN 0 337 04299 3)

Curriculum (Programmes of Study and Attainment Target in **Art and Design** at Key Stages 3 and 4) Order (Northern Ireland) 1996

Key Stages 3 and 4, Programmes of Study and Attainment Target, Art and Design (ISBN 0 337 04300 0)

Curriculum (Programmes of Study and Attainment Target in **Music** at Key Stages 3 and 4) Order (Northern Ireland) 1996

Key Stages 3 and 4, Programmes of Study and Attainment Target, Music
(ISBN 0 337 04301 9)

Curriculum (Programme of Study in **Drama** at Key Stage 4) Order (Northern Ireland) 1996

Key Stage 4, Programme of Study, Drama (ISBN 0 337 04304 3)

## AREA OF STUDY: LANGUAGE STUDIES

Curriculum (Programme of Study and Attainment Targets in **Modern Languages** at Key Stages 3 and 4) Order (Northern Ireland) 1996

Key Stages 3 and 4, Programme of Study and Attainment Targets, Modern Languages (French German Italian Spanish and Irish) (ISBN 0 337 04296 9)

THE NORTHERN IRELAND CURRICULUM

# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGETS

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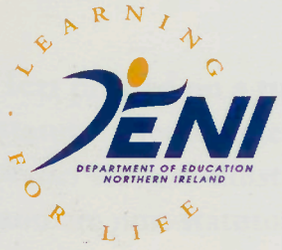

# KEY STAGES 3 and 4

## PROGRAMME OF STUDY and ATTAINMENT TARGETS

ENGLISH

Contents




LEARNING FOR LIFE

DENI

DEPARTMENT OF EDUCATION NORTHERN IRELAND


Text printed on a tinted background indicates statutory requirements. The examples printed in *italics* serve to illustrate the programmes of study and are non-statutory.

# Characteristics of the Curriculum at Key Stages 3 and 4

Pupils enter Key Stage 3 with the experiences gained from the study of a range of subjects in the primary school. These experiences should be recognised and built upon at Key Stages 3 and 4. The learning experiences which are provided should be enjoyable and include challenges which are achievable and motivating.

It is important to recognise the continuing development of pupils as individuals during Key Stages 3 and 4, particularly through their growing awareness of themselves and their capabilities. The whole curriculum for Key Stages 3 and 4 should promote the development of the individual pupil in terms of an increasing facility for self-evaluation and ability to take responsibility for his or her own learning and work practices. There should be ample opportunity for the pupil to apply learning to relevant contexts and purposes.

The range of knowledge, understanding and skills represented in the curriculum at Key Stages 3 and 4 should also help pupils to become aware of themselves in the wider world, to develop independence and make informed judgements and responsible decisions relating to their own lives and their relationships with others. In their continuing development, pupils should be guided towards targets which are suited to their abilities and aptitudes and should be encouraged to review these targets as part of their development towards adult and working life.

The Key Stage 3 curriculum should take account of a vocational dimension through recognition and application of work-related skills and personal qualities, interests and abilities. Pupils should also have opportunities to explore the implications for adult and working life of decisions they will take in relation to their study beyond fourteen.

The Key Stage 4 curriculum should include a strong emphasis on the vocational dimension which will relate to decisions taken both about courses and qualifications and the setting of individual targets. The National Record of Achievement (NRA) and the formulation of Personal Career Plans will promote the recognition of personal qualities, interests and abilities through the exploration of the implications of pupils' decisions for further study and for adult and working life.

Education at Key Stages 3 and 4 should continue to foster the intellectual, social, emotional, physical, moral, cultural and spiritual development of pupils by:

- encouraging a growing independence;
- guiding pupils to express their own individual needs, identifying targets which meet these needs, and assisting them to make informed choices and decisions;
- promoting the development of personal and inter-personal skills, so enabling them to participate as contributing members of groups;
- enhancing self-esteem and encouraging the growth of pupils' own sets of values;
- continuing to develop pupils' study skills, by providing opportunities for exploration, investigation, problem-solving and decision-making;
- enhancing the creativity of pupils by stimulating curiosity and imagination;
- developing increased versatility and confidence in communication across a range of media and for a variety of purposes;
- providing rich and varied contexts for the development of thinking and reasoning skills associated with observing, recording, interpreting, inferring and predicting.

# Using the Programme of Study for Key Stages 3 and 4

## Access to the Programme of Study

Teachers should ensure that pupils have access to the breadth and depth of this programme of study at levels and within contexts which are appropriate and relevant to their individual needs and abilities.

In order to meet the particular needs of some pupils and to ensure that learning experiences for these pupils are positive and meaningful, it may be necessary for teachers to select materials and/or activities from an earlier key stage. When this is the case, it is important that such material and/or activities be presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Equality of Opportunity

The programmes of study for all subjects within the Northern Ireland Curriculum are designed to ensure equal access to a broad and balanced curriculum for all pupils. Teachers should make every effort to ensure that equality of opportunity is provided for both girls and boys in order that all pupils should have equal access to the full range of experiences across all subjects in the Northern Ireland Curriculum.



## Referencing

The lettering used throughout the programme of study is for referencing purposes only. It does not necessarily identify strands, indicate a teaching sequence or hierarchy of knowledge, understanding and skills.

## Statutory Elements

Those elements which form part of the statutory requirements have been tinted. Other aspects which provide information or clarification have been left untinted. Examples are non-statutory and are printed in italics.

# Programme of Study for English at Key Stages 3 and 4



## TALKING AND LISTENING

### Introduction

Pupils should develop the ability to express and communicate meaning in spoken language, listening to and interpreting what others say and matching style and response to audience, context and purpose. Pupils unable to communicate by speech may use other means including the use of technology, signing, symbols or lip-reading as alternatives to talking and listening.

This programme of study covers both Key Stages 3 and 4. Some elements of the programme of study are likely be more suitable for pupils working at Key Stage 4. Teachers should use their professional judgement when constructing appropriate schemes of work.

English should be considered in an holistic way, taking account of the integral nature of the attainment targets. Talking, listening, reading and writing extend across all areas of the curriculum. Talking and listening should sometimes be ends in themselves while at other times they may arise as preparation for and/or responses to reading and writing.

Talking and listening are central to learning. The classroom environment should be non-threatening with a tolerant and supportive atmosphere in which teachers show genuine interest in pupils' experiences. Situations should be provided in which pupils are required to talk and listen to one another for worthwhile and defined purposes.

The range of stimuli for talking and listening can come from a variety of sources. It should include pupils' own written work and that of their peers and teachers, as well as work from their own and other cultures. Pupils should be encouraged to see that tentative and exploratory talk is part of learning, that talking and listening matter, are work and are entertaining and enjoyable. They should present their ideas in ways which reflect an increasing awareness of audience and purpose.

Talking and listening skills are unique personal qualities of individuals and play a role in the interpersonal and social skills which all of us bring to life, learning and work. Pupils should also experience the fun of language. They should be supported in valuing their own and others' dialects and accents and in using, in appropriate contexts, the forms of speech which come to them naturally.

### Presentation of the Programme of Study

This programme of study will consolidate and extend the experiences of the earlier programmes. While the requirements of the programme of study have been set out using headings, it should be recognised that the activities and processes identified within these headings inter-relate and interact and should not be seen as discrete.

## Progression

As pupils leave one key stage and enter another, teachers should take account of the attainment of pupils in talking and listening. The opportunities provided by teachers should enable pupils to progress throughout the key stage.

The progression statements below provide an outline framework to assist teachers in planning progression through Key Stage 3. The statements identify progression opportunities from Level 3 to Level 8. For those pupils working at Level 1 and Level 2 within Key Stage 3, teachers may refer to the progression statements within Key Stages 1 and 2. The progression statements are not a discrete checklist but are inter-related and interactive characteristics of attainment.

Within the context of this programme of study, pupils should progress:

- **from** asking questions and contributing in talk **towards** talking with increasing confidence **to** engaging in talk confidently in a sustained and interested manner;
- **from** responding to others' ideas **towards** discussing their own and others' contributions **to** using appropriate terminology to review the effectiveness of their own and others' talk;
- **from** beginning to adapt what they say and how it is said **towards** deliberately varying their use of register according to purpose and audience **to** consciously and successfully adapting to a range of talking and listening situations and audiences;
- **from** organising and sequencing talk sufficiently to make meaning clear **towards** structuring contributions logically and asking questions to develop ideas **to** organising and stating clearly their point of view using an apt vocabulary to express their ideas;
- **from** adopting a role, making a conscious use of movement, gesture and speech **towards** creating and developing a role in specific situations **to** developing the use of role-play or improvisation or simulation to explore themes and concepts encountered in a variety of learning situations.



## Contribution to the Educational (Cross-curricular) Themes

The English curriculum should, where appropriate, provide opportunities for pupils to use talking and listening to explore and reflect on the content and issues associated with the cross-curricular themes.

Through group work, role-plays, simulations etc, pupils should have opportunities to:

- recognise, explore and manage the expression of their feelings, *for example, issues relating to the family* (HE, EMU);
- discuss variations in accent and dialect (CH);
- show a critical awareness of how language and images can be employed to evoke certain reactions, *for example, advertising slogans and pictures* (EMU, CH, EA);
- analyse and interpret information and the way it is presented, *for example, agree on how a record company could make and present a case to justify the cost of compact discs* (EA);
- communicate with wider audiences, *for example, use audio tape, video tape or telephone* (IT).

## Context

Pupils should have opportunities, arising from classroom and first-hand experience, to develop their talking and listening in a variety of contexts, taking account of:

- time, *for example, speaking first or second;*
- place, *for example, in the classroom or in the street;*
- circumstances, *for example, accusing someone or being accused;*

and including

- engaging with members of a wider audience;
- interaction with teacher during classroom activities;
- role-play and drama;
- formal and informal discussion;
- interaction with other pupils in and out of the classroom.

## Audience

The audience in most situations will arise from the context for the task. The range of audiences should include:

- the teacher;
- a partner when working in pairs, *for example, talk about reactions to reading a magazine article;*
- other members of a group, *for example, in a small group, discuss aspects of bullying and report to the rest of the class;*
- members of a class;
- the wider school community;
- visitors to the school;
- people encountered on school visits, *for example, a guide in the Ulster American Folk Park.*

## Purpose

Pupils should take an active part in conversations and discussions, formally and informally, for a variety of purposes, including:

- relating stories, heard or read, to their peers using gestures and tone to support the telling;
- expressing thoughts, attitudes, feelings and opinions;
- preparing, asking and responding to questions in curricular and social contexts;
- formulating, giving and/or responding to instructions, explanations or directions;
- collaborating and negotiating to solve problems;
- talking about spoken language.

## Talking and Listening Activities

Pupils should have opportunities to engage in a wide range of talking and listening activities, including:

a listening to a range of fiction, poetry, drama and media texts for enjoyment and pleasure;

b listening to, discussing and voicing a response to a range of fiction, poetry, visual, audio-visual, media texts and music;

c improvising a scene based on experience, imagination, literature, media or curricular topics and beginning to develop themes and characters;

d using role-play and simulation to explore social and economic issues, *for example, adopt various roles such as that of a council representative and/or local resident and discuss proposals for a new landfill site near a local beauty spot;*

e listening and responding to the presentation or performance of fiction, poetry or plays including drama scripts written by themselves;

f discussing personal experiences, observations and interests with the teacher and peers;

g participating in activities which involve talk with people in the community;

h undertaking real transactions on behalf of others, *for example, use the school telephone on an official matter, introduce a class assembly or receive visitors to the class or the school;*

i describing and talking about real or imaginary experiences and identifying, describing and expressing personal feelings about a place, a person or an experience;

j discussing abstract issues from within and beyond their own experience, *for example, should court room trials be televised?*

k talking about the importance of language in establishing and maintaining relationships;

l talking about how language can be used to persuade and manipulate, *for example, make the case for attendance at school to younger pupils, a peer group and interested adults.*

## Expected Outcomes

In the context of these activities, pupils should develop the ability to:

a collaborate and negotiate with others to meet specific outcomes and solve problems, *for example, take part in a simulated meeting of a Youth Club Committee in order to decide how to spend a large sum of money donated to the club;*

b recognise and talk about the need to match content to audience and purpose, *for example, discuss how a school circular presents information about a trip abroad to younger pupils;*

c talk about their own and others' use of spoken language;

d use source materials and contemporary topics as the basis for hypothesis, reasoning, debate and argument, sorting out evidence and identifying bias, *for example, examine the same news story reported by different newspapers;*

e explore ideas, *for example, the length of the school day should be varied depending on various circumstances;*

f discuss issues, *for example, outline the advantages and/or disadvantages of single sex schools;*

g prepare and use a questionnaire to seek information, views and feelings;

h read aloud a text which they have prepared using tone, pace and other supporting features of speech to adapt presentation for the audience;

i discuss the use of variations in accents and dialects for deliberate effects;

j present information independently and on other occasions, as part of a group, to a familiar audience and support this, where appropriate, by evidence and audio-visual media, *for example, prepare a campaign which seeks to persuade young people to give up smoking;*

k interact with others in group discussion for a variety of curricular purposes, *for example, should pupils have a free choice of subjects in school or should certain subjects be compulsory?*

l interpret and explore the views of others;

m evaluate their own and other peoples' opinions and views, *for example, put forward an opinion and ask questions to clarify what others have said when discussing ideas such as advertising and road safety or when preparing role play and other activities in drama;*

n reflect on one another's participation in collaborative group work and review the success of the processes involved;

o study the forms and functions of spoken English;

p explore the formal aspect of 'public' talk including the use of Standard English where appropriate.

# READING

## Introduction

Pupils should develop the ability to read, understand and engage with various types of text for enjoyment and learning. Pupils who need to do so may use non-sighted methods of reading such as Braille. Pupils physically unable to read aloud may use other means such as signing.

English should be considered in an holistic way, taking account of the integral nature of the attainment targets. Talking, listening, reading and writing extend across all areas of the curriculum. Reading may be an end in itself and it may also be used as preparation for talking, listening and writing.

Reading should be an enjoyable experience. It is a dynamic, creative and active process involving the reader making meaning from texts. The classroom should signal that reading is a valued activity and should create an attractive environment where pupils may read independently or with others. It should provide an atmosphere in which pupils feel relaxed, accepted and affirmed and in which they succeed as readers.

Teachers-as-readers are a major source of encouragement to pupils-as-readers: it provides an enriching experience and increases motivation. When they share opportunities for silent reading with their classes, teachers become powerful examples of the link between reading for learning and reading for enjoyment. All pupils need support and confirmation with positive reading experiences and positive images of reading for pleasure.

It is important that pupils continue to have the opportunity for tentative, exploratory reading and to understand that interpretations are created between reader and text and are not available as objective knowledge.

For those pupils for whom the process of reading does not run smoothly, any additional help with the techniques of decoding should always be placed in a meaningful context. It is invaluable to listen to pupils reading in order to provide each pupil with personal guidance on the nature of additional cues and strategies to be employed, to encourage pupils to correct their own errors and to promote understanding and enjoyment of the text. This type of oral reading should not be confused with reading aloud for an audience which should always involve time for preparation.

Through a combination of listening, looking and talking, pupils should acquire significant concepts about the nature of print and the activity of reading. Listening to stories, engaging in shared reading and handling a range of picture, story and information texts will give pupils a wide range of experience.

Through a combination of shared reading, guided reading and independent reading, each pupil should:

- acquire a growing vocabulary of phrases and words which can be recognised on sight;
- use word identification strategies to cope with unfamiliar words in new texts.

Successful reading provides pupils with access to areas of study across the curriculum and should develop the individual's ability to empathise with others and to reflect on meaning both in the text and beyond.

## Presentation of the Programme of Study

This programme of study will consolidate and extend the experiences of the earlier programmes. While the requirements of the programme of study have been set out using headings, it should be recognised that the activities and processes identified within these headings inter-relate and interact and should not be seen as discrete.

## Progression

As pupils leave one key stage and enter another, teachers should take account of the attainment of pupils in reading. The opportunities provided by teachers should enable pupils to progress throughout the key stage.

The progression statements below provide an outline framework to assist teachers in planning progression through Key Stage 3. The statements identify progression opportunities from Level 3 to Level 8. For those pupils working at Level 1 and Level 2 within Key Stage 3, teachers may refer to the progression statements within Key Stages 1 and 2. The progression statements are not a discrete checklist but are inter-related and interactive characteristics of attainment.

Within the context of this programme of study, pupils should progress:

- **from** beginning to explore and appreciate meaning in texts **towards** recognising and expressing explicit and some implicit meanings and attitudes in texts **to** inferring, exploring and appreciating meaning and attitudes in texts;
- **from** showing some understanding of the way texts are structured **towards** an awareness of the writers' intentions and use of language and structure **to** analysing how writers achieve their effects;
- **from** using alphabetical knowledge to locate books and information **towards** retrieving and collating information from a range of sources **to** selecting, evaluating and synthesising independently, appropriate information from a range of sources;
- **from** beginning to give a personal response **to** communicating a personal, sensitive and imaginative response to texts.

## Contribution to the Educational (Cross-curricular) Themes

The English curriculum should, where appropriate, provide opportunities for pupils to use reading to explore and reflect on the content and issues associated with the cross-curricular themes.

Through reading, pupils should have opportunities to:

- read and enjoy the works of local/Irish authors (CH);
- discuss in the context of what is read, the cultural influences a text reflects and some of the changes which have occurred in language and people's attitudes to those changes (CH);
- explore the relationship between works of literature and the social, economic and historical environments in which they were written, *for example, a Dickens novel* (EMU, CH);
- consider how the personal qualities and behaviour of characters are affected by their relationships and cultural influences (EMU, CH);

- interpret and form reasoned and informed conclusions on topics, *for example, equality of opportunity, poverty, affluence* (EA);
- use sources, *for example, use a careers library to obtain information and guidance* (CE);
- develop, where appropriate, and apply their knowledge, understanding and skills of information technology to search for, sort and extract meaningful information (IT).

## Context

Pupils should have opportunities, arising from classroom and first-hand experience, to develop their reading in a variety of contexts, including working:

- as individuals – silently and aloud;
- in pairs – shared and paired reading;
- as members of a group;
- as members of a class.



## Range

All pupils should have opportunities to engage with a range of texts:

- which will challenge or extend them as readers;
- drawn from the main genres of prose, poetry, drama, diaries, biography and letters;
- which are ironical and satirical in their content and style;
- written by local/Irish writers;
- not written specifically for children;
- by male and female writers;
- from the rest of the English speaking world;
- in translation;
- by pre-twentieth century writers;
- including their own and others' work;
- of a non-literary nature, *for example, newspapers, magazines, guide books, text books, brochures, forms including those related to employment and unemployment, information leaflets (travel books and guides giving information about other environments and cultures), publicity materials, consumer reports, contracts, the highway code, sets of instructions and manuals, dictionaries, thesauri, atlases, encyclopaedias, teletext and other databases;*
- as presented in a variety of media other than print, *for example, television and radio, film and video, CD ROM and other electronic media.*

## Purpose

Pupils should have opportunities to become versatile and creative readers who can employ a repertoire of reading skills appropriate for a variety of purposes, including reading:

- for their own amusement and enjoyment;
- to learn about themselves, others and the society and world in which they live;
- to extend the range of their reading and develop their own preferences;
- to become autonomous and confident readers;
- to develop a sensitive response to what they have read;
- reference material of increasing complexity in terms of content, style and presentation, selecting, collating and interpreting relevant insights and information.

Pupils should be encouraged to discriminate and to persevere in their reading.

## Audience

Pupils should read for a variety of audiences, including:

- themselves;
- the teacher;
- other pupils;
- parents;
- adults whom they know well.

## Reading Activities

Pupils should have opportunities to engage in a wide range of reading activities, including:

a listening to and understanding stories, poems, songs, plays and non-fiction, read aloud or on tape, radio or television;

b exploring texts through drama, including role-play and improvisation;

c responding to drama as performance, live or recorded;

d reading aloud and highlighting meaning, *for example, through the sensitive and effective use of emphasis and tone;*

e exploring some of the forms and structures they have encountered in their reading by producing their own texts, *for example, use of the sonnet and other poetic forms;*

f exploring and discussing how texts are represented in a medium other than print, *for example, transforming a prose text into a stage or screen play;*

g organising information from texts in a range of ways, *for example, visual models, diagrams or flow charts;*

h discussing features of language, *for example, words, phrases and sentences* and investigating how words are spelled and constructed;

i speculating on situations read about, predicting what may happen or considering what might have happened had circumstances been different, *for example, discuss how a character encountered in the early part of a story might behave later on;*

j developing the ability to express views on the texts and to offer reasons for their views, sometimes in a sustained way, *for example, in pairs or a small group discuss and agree on some books to recommend to another class;*

k articulating and analysing their response to the craft of the writer for them as readers and developing an appropriate vocabulary for this purpose, discussing and considering aspects of stories, paying attention to what is written and how it is expressed, *for example, characterisation, places, plot, objects and events;*

l reading material which attempts to fulfil a particular purpose, *for example, persuasive material, material arguing a case, material conveying views or information - material from health education, consumer education and careers literature could provide relevant examples;*

m reconsidering initial response to texts in the light of insight and information which subsequently emerge in their reading;

n talking and writing informally about what they have been reading, *for example, in group discussion or by keeping a personal reading diary;*

o selecting information from texts and re-ordering and re-working it for a specific purpose and audience, *for example, re-write extracts in the form of a personal diary or as the front page story of a newspaper;*

p responding both creatively and critically to their reading, *for example, improvise an episode from a novel, or write alternative endings, an extra scene, the diary of a character, critical essays, letters between characters, or character studies;*

q analysing, through talking and writing about what they read, some of the changes which have occurred in language over time, and people's attitudes to these changes, *for example, the origins of phrases such as 'a square meal', 'keeping your powder dry';*

r making explicit how meaning emerges and how their responses have arisen, *for example, through an author's use of a recurring motif or image, or through a connection between the text and the reader's past experience or strongly felt beliefs.*



## Expected Outcomes

In the context of these activities, pupils should develop the ability to:

a respond with sensitivity to what they read, developing the ability to place themselves in someone else's position and extending their capacity for sympathy and empathy;

b use library and other resources including databases, making effective use of organisational devices to locate, select, evaluate and communicate information relevant to a particular task, *for example, a classification system, a catalogue, sub-headings, list of contents, indexes;*

c learn how the different media present events and texts in different ways, *for example, compare how a newspaper and TV news programme report a major news event;*

d learn that different reading purposes require a variety of reading skills, *for example, scanning to find a reference, skimming to pick out the main points of a text;*

e use a range of strategies to identify unfamiliar words in texts, *for example, use picture and contextual clues and phonic cues in reading new material;*

f become aware of form and genre, *for example, detective novels, poetry, drama, diaries, biography, journals and letters;*

g make comparisons between texts, *for example, two books by the same author, books on the same theme by different authors, cross-genre comparisons, the book and the film;*

h consider the writer's sense of audience, *for example, ability to manipulate reader through the use of language;*

i appreciate ambiguity in the texts they are reading;

j respond to and discuss with others what is implied in the texts they are reading.

## WRITING

### Introduction

Pupils should develop the ability to make and shape text in order to communicate meaning in written language, appropriate to the context, purpose, reader and audience. The use of technological aids to produce written work is acceptable for those pupils who are dependent on such aids.

English should be considered in an holistic way, taking account of the integral nature of the attainment targets. Talking, listening, reading and writing extend across all areas of the curriculum. Pupils should realise that writing carries meaning and is a process that is valuable in itself but may also be undertaken as a response to reading or as a result of talking and listening.

Writing should be an enjoyable experience. To foster this aspect, the classroom atmosphere should be one in which pupils feel relaxed, accepted and affirmed and in which they succeed as writers.

The process of writing involves the compositional aspect and the secretarial aspect. The compositional aspect includes the selection, ordering and organisation of ideas and the expression of feelings and beliefs while the secretarial aspect involves spelling, syntax, punctuation and handwriting. Whilst the meaning may be obscured if the secretarial aspect is neglected, ideas, expression and form are fundamental to writing.

The communication of meaning is central to writing. Success depends on the pupil having a clear understanding of the task in which they are engaged. Pupils must know why they are writing and for whom.

The pupil should be encouraged to appreciate that the writing process involves:

- decision-making – when the context (precise purpose and intended readership) is established;
- planning – when initial thoughts and a framework are recorded and sequenced;
- drafting – when initial thoughts are developed, evaluated and reshaped by expansion, addition or amendment.

Pupils should recognise that not all writing goes through all of these stages. Whilst it is not always appropriate to rework a piece of writing, opportunities should be given for drafting and redrafting, both independently and in groups. Successful drafting is dependent on the support, advice and encouragement offered by the teacher.

Pupils should be able to see their teacher writing and to share the writing process and the final outcome. They should have frequent and varied opportunities to write from their own experience for an agreed purpose and for a known readership. They should be helped to experience the enjoyment that comes from an increasing competence in their craft. Pupils should experience a positive response from their teacher to their writing, in conference when appropriate.

Pupils should recognise the differences between spoken and written language. They should be adding to their understanding of the mechanisms of their own and others' writing and acquiring the vocabulary to express that understanding.

The classroom environment should actively facilitate writing. Pupils should have access to:

- a variety of writing tools, including word processors;
- dictionaries;
- thesauri;
- electronic spell checks.

Every opportunity should be taken to provide a readership for a pupil's work:

- on display boards;
- in corridors;
- in booklets;
- in class and school magazines or newspapers;
- in anthologies;
- through external competitions.

## Presentation of the Programme of Study

This programme of study will consolidate and extend the experiences of the earlier programmes. While the requirements of the programme of study have been set out using headings, it should be recognised that the activities and processes identified within the headings inter-relate and interact and should not be seen as discrete.

## Progression

As pupils leave one key stage and enter another, teachers should take account of the attainment of pupils in writing. The opportunities provided by teachers should enable pupils to progress throughout the key stages.

These progression statements provide an outline framework to assist teachers in planning progression through Key Stage 3. The statements identify progression opportunities from Level 3 to Level 8. For those pupils working at Level 1 and Level 2 within Key Stage 3, teachers may refer to the progression statements within Key Stages 1 and 2. The progression statements are not a discrete checklist but are inter-related and interactive characteristics of attainment.

Within the context of this programme of study, pupils should progress:

- **from** writing with some independence **towards** writing in an independent and interesting way, conveying meaning clearly, **to** writing in a sustained, coherent and personal style which engages the reader;
- **from** writing with a sense of structure **towards** writing which is more clearly organised **to** writing which is logical and coherent;
- **from** writing which uses a basic vocabulary **towards** writing which uses a more imaginative and extensive vocabulary **to** writing which uses a varied vocabulary capable of expressing complex ideas, concepts and opinions;

- **from** writing which is punctuated with basic accuracy **towards** writing where punctuation is increasingly proficient in terms of syntax **to** writing in which syntax, punctuation and grammar are proficient and enhance meaning;
- **from** writing which is sometimes composed and revised independently **towards** writing which is improved and enhanced through more independent revisions and redrafts **to** writing in which expression, content and presentation are consistently improved through independent planning, revising and redrafting.

## Contribution to the Educational (Cross-curricular) Themes

The English curriculum should, where appropriate, provide opportunities for pupils to use writing to explore and reflect on the content and issues associated with the cross-curricular themes.

Through writing, pupils should have opportunities to:

- recognise, explore and manage the expression of their feelings, *for example, personal diaries based on family issues* (HE);
- recognise the uses and effects of features of language, words, phrases, sentences, spelling (CH);
- analyse how language and images can be employed to evoke certain reactions and appreciate how they can be used emotively, *for example, analyse how different advertisers produce different advertisements for similar products, analyse slogans and murals* (EMU, CH, EA);
- analyse and interpret information and the way it is presented, *for example, design a new book cover for a favourite book* (EA);
- develop, where appropriate, and apply their knowledge, skills and understanding of information technology and use appropriate communication tools for different tasks, *for example, compose, redraft and integrate text and graphics to communicate with wider audiences* (IT).



## Planning

Pupils should be encouraged, when it is appropriate to the task, to plan their written work. Such planning may be done through:

- determining the precise purpose and intended readership;
- outlining an initial framework;
- drafting when the initial thoughts are developed, evaluated and reshaped by expansion, addition or amendment.

## Purpose

Pupils should have opportunities to write for a variety of purposes, including:

- their own amusement and enjoyment;

and to

- express their thoughts, feelings and imaginings;

- inform and explain;
- describe;
- narrate;
- report;
- instruct;
- persuade;
- interpret and analyse data;
- argue a case;
- communicate opinions and beliefs;
- appreciate differences between spoken and written English.

## Context

Writing will arise from a variety of experiences and contexts, including:

- first-hand experience;
- a wide range of texts including literary, non-literary and media texts;
- the various areas of study and cross-curricular themes if appropriate;
- drama;
- audio-visual and visual aids, television and radio;
- artefacts, including paintings and sculpture;
- visitors to the classroom or school;
- visits;
- entry to external competitions;
- computer software packages.

## Audience

Pupils should be encouraged to recognise that the final product of public writing needs to be presented with attention to appearance, conventions and format. They should know for whom they are writing and should be encouraged to demonstrate a sense of readership by writing for a range of audiences, including:

- themselves;
- teachers;
- parents;
- adults whom they know well;
- peers;

- pupils in their own and other schools, *for example, a Year 8 pupil could correspond with a Year 7 pupil in his/her previous school;*
- audiences from outside the school, *for example, write a newspaper article on a local custom;*
- unknown audiences from outside the school, *for example, prospective employer, newspaper readership.*

## Range

Pupils should have opportunities to write in different forms and to develop control of the different conventions (layout, sequencing and structure) demanded by these forms. Their writing should include:

- stories;
- diaries;
- poems;
- comic strips;
- short plays;
- articles;
- interviews;
- book reviews;
- curriculum vitae;
- reports;
- letters;
- notes;
- descriptions;
- scripts;
- essays.

Within their writing, pupils should have opportunities to:

a experiment with rhymes, rhythms, verse structure, all kinds of verbal play and dialect;

b consolidate the use of paragraphing, *for example, amend paragraphs when re-drafting;*

c discuss various features of layout in texts which they are reading, *for example, headlines or sub-headings and presentation of text in columns, for example, through desk top publishing,* so that they can use these features, when appropriate, within their own writing, *for example, to add emphasis to key points or to create certain effects;*

d explore the use of words which have been assimilated into English from other languages, *for example, micro-, psych-, tele-, therm; ch - in French words like 'champagne' 'chauffeur', 'charade', and ch - in Greek words like 'chaos', 'chiropody', 'chorus', compared with the ch - in long established English words like 'chaff', 'chase', 'chin';*

e consolidate the use of appropriate connectives and pronouns and learn how to avoid or reduce repetition and ambiguity in their writing;

f spell, from memory, words that they use frequently in their writing. They should be helped to locate the correct spellings of words that they need to use in their writing through the efficient use of dictionaries and thesauri;

g consolidate the use of punctuation and syntax, *for example, use speech marks, commas and brackets with reasonable accuracy;*

h craft their work and demonstrate a sure and consistent personal style;

i experiment with the structure of their writing by using more complex forms, *for example, narrative with flash back or change of persona or descriptions which contain dialogue, interviews and polemic.*

## Expected Outcomes

Pupils should have opportunities, within a meaningful context and arising out of their own work, to develop the ability to:

a make expressive use of language when expressing thoughts, feelings and imaginings;

b present and structure coherently, ideas, information and opinions;

c match form and style to purpose and audience, *for example, express personal reactions to an issue in poetry or prose, write a formal letter of application for a job;*

d express meaning effectively through the use of a richer and more precise vocabulary;

e use a range of strategies to express their ideas and opinions, *for example, express, in writing, an opinion about school rules;*

f be objective about and analyse their writing;

g use an appropriate vocabulary to express their understanding of the writing process and to talk about their own writing, *for example, imaginary, repetition for effect, language variety, Standard English, opening, layout, rhythm, rhyme;*

h use secretarial skills to make meaning clear;

i use a personal handwriting style;

j apply strategies which enable them to spell familiar and unfamiliar words correctly;

k use Standard English where appropriate, *for example, write a brief guide to school routines and contrast with a spoken exposition on the same subject.*

# Attainment Targets and Level Descriptions for English



English has three attainment targets which relate directly to the sections of the programmes of study:

- Talking and Listening;
- Reading;
- Writing.

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the key stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## TALKING AND LISTENING

**Pupils should develop the ability to express and communicate meaning in spoken language, listening to and interpreting what others say, and matching style and response to audience, context and purpose. Pupils unable to communicate by speech may use other means including the use of technology, signing, symbols or lip-reading as alternatives to talking and listening.**

LEVEL 1
Pupils have something to say about matters of immediate and personal interest. In their talk they use a basic vocabulary and attempt to sequence words and ideas, conveying simple meaning adequately. They listen to what is being told or said to them by others and can usually respond appropriately.

LEVEL 2
Pupils engage in conversation and show a willingness to talk and to listen. In their response to others they use appropriate vocabulary to express their ideas and understanding. They show some awareness of the needs of the audience by beginning to organise their ideas and by beginning to vary their use of register according to situation and purpose. Their talk will also include some relevant detail.

LEVEL 3
Pupils listen with increasing concentration in a range of contexts. In discussion they make contributions and ask questions and show understanding of the main points. They begin to adapt what they say to the needs of the audience and to vary their use of register and detail. They structure and sequence their talk sufficiently to make their meaning clear.

LEVEL 4
Pupils talk with increasing confidence and listen attentively in a range of contexts. They develop ideas, describe events and show the beginnings of an ability to explain their views and opinions. They comment on their own and others' contributions. They express and structure their ideas, thoughts and feelings appropriately for their audience. In discussion, they explore, develop and communicate ideas with clarity. They are responsive to others' ideas and views.

## READING

**Pupils should develop the ability to read, understand and engage with various types of text for enjoyment and learning. Pupils who need to do so may use non-sighted methods of reading such as Braille. Pupils physically unable to read aloud may use other means such as signing.**

LEVEL 1
Pupils listen and respond to text with enjoyment and some understanding. Pupils show awareness that print and pictures carry meaning. They recognise letters, words and phrases, which have significance for them in a familiar text. Pupils recognise and name some of the letters of the alphabet. In all of these activities they will require support.

LEVEL 2
Pupils read both silently and aloud a range of simple texts with some independence and understanding. They make simple predictions. They use, with help, a range of strategies, *such as phonic, graphic, syntactic and contextual,* to identify unfamiliar words. They demonstrate some knowledge of the alphabet in using personal word books and simple dictionaries and use simple reference materials.

LEVEL 3
Pupils read aloud with some fluency from familiar material. They show some independence in using a range of strategies to identify unfamiliar words. They read silently and show understanding. In texts, they recognise some of the main points and can select some appropriate information to support what they say. In talking about texts they begin to use inference and deduction to explore and appreciate meaning. They use their knowledge of the alphabet to locate books and find information.

LEVEL 4
Pupils read, independently, a range of texts and talk about interests and preferences. They show understanding of significant ideas, themes, events and characters and begin to make use of an appropriate vocabulary when referring to texts. They recount narrative and attempt to reconstruct text. Pupils recognise and express explicit meaning and begin to be aware of some implicit meaning and attitudes when making inferences and deductions. They locate and use ideas and information.

## WRITING

**Pupils should develop the ability to make and shape text in order to communicate meaning in written language, appropriate to the context, purpose, reader and audience. At each level the use of technological aids by pupils who depend on them physically to produce their written work is acceptable.**

LEVEL 1
Under the guidance of the teacher, the pupils' writing conveys meaning through the use of pictures, symbols, words and phrases and some simple sentences. Pupils show some control over the size, shape and orientation of letters.

LEVEL 2
Pupils compose with help, in a limited range of forms in which separate ideas can be identified. In their writing they show a sense of simple structure and organisation, on occasion using complete sentences. Common and familiar words are spelt in a recognisable way or are phonetically plausible. There is evidence of the use of upper and lower case letters.

LEVEL 3
Pupils compose with some independence. Their writing is based on a range of experiences and uses a variety of forms. Writing shows a sense of structure appropriate to the chosen form and includes some supporting detail to make meaning clear to the reader. Their work is sometimes planned in collaboration with the teacher and/or their peers. Within the context of their writing, familiar and important words are spelt correctly and sentences are punctuated independently with basic accuracy. Handwriting is accurately formed and consistent in size.

LEVEL 4
Pupils compose independently. The ideas are often sustained and developed, making use of appropriate detail and vocabulary to enhance meaning. The writing demonstrates an ability to use appropriate form and style and shows an awareness of audience. The pupils are beginning to use correct sentence punctuation to make meaning clear. The writing begins to show an awareness of syntax. Most regularly used words are spelt accurately. Planning for revision and redrafting of writing is done with some independence. Handwriting is swift and legible.

# Attainment Targets and Level Descriptions for English



English has three attainment targets which relate directly to the sections of the programmes of study.

- Talking and Listening;
- Reading;
- Writing.

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the key stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## TALKING AND LISTENING

**Pupils should develop the ability to express and communicate meaning in spoken language, listening to and interpreting what others say, and matching style and response to audience, context and purpose. Pupils unable to communicate by speech may use other means including the use of technology, signing, symbols or lip-reading as alternatives to talking and listening.**

LEVEL 5
Pupils talk with confidence and listen in a range of contexts. Their talk holds the interest of the audience as they begin to vary appropriately their use of register. In discussion they pay close attention to what others say, ask questions to develop ideas and structure their contributions to take account of others' views. They begin to develop the ability to justify and sustain argument and opinions. They discuss their own and others' contributions.

LEVEL 6
Pupils are beginning to adapt their talk to the demands of a range of different contexts and audiences with increasing confidence. Their talk engages the interest of the audience 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 beginning to demonstrate an ability to plan, organise and present opinions, information and ideas competently. Pupils show an awareness of their own and others' use of register in their talk and in how they react to each other.

LEVEL 7
Pupils show confidence in the effective and appropriate use of register in a range of formal and informal situations. They use vocabulary precisely and organise their talk to communicate clearly and sustain interest. In discussion, pupils make significant contributions, varying how and when they participate. They respond constructively to the contributions of others. They can evaluate their own and others' contributions and discuss aspects of spoken and written language.

LEVEL 8
In a range of contexts and audiences, pupils maintain and develop their talk purposefully. Pupils use a variety of strategies to gain and sustain the interest of the audience. They structure what they say clearly, using apt vocabulary with appropriate intonation and emphasis. They make, and respond to, a range of contributions which show they have listened perceptively and sensitively to the development of discussion. They adapt as necessary their register to a range of situations and audiences. The pupils use appropriate terminology to review the effectiveness of their own and others' talk.

## READING

**Pupils should develop the ability to read, understand and engage with various types of text for enjoyment and learning. Pupils who need to do so may use non-sighted methods of reading such as Braille. Pupils physically unable to read aloud may use other means such as signing.**

LEVEL 5
Pupils read a range of texts, talk and write about their interests and preferences, drawing on an increasing range of appropriate vocabulary. They recognise and express explicit and some implicit meanings and attitudes when making inferences and deductions. Pupils begin to talk about the perceived intentions of authors in texts and to give personal responses, supporting these with reference to the text. They retrieve and collate information from a range of sources.

LEVEL 6
Pupils read a range of texts, talk or write about interests and preferences, drawing on an increasingly appropriate vocabulary. In reading and discussing a range of texts, pupils identify different layers of meaning and comment on their significance. They give personal responses to texts, referring to aspects of language, structure, style and themes in justifying their views. They locate, evaluate and manage information effectively for research and presentation.

LEVEL 7
Pupils read a range of texts, showing understanding of the ways in which meaning and information are conveyed. They articulate personal and critical responses to texts, showing an awareness of themes, structure and features of language. They show some understanding of the authors' use of style and technique to achieve effects. They select and synthesise a range of information from a variety of sources.

LEVEL 8
Pupils communicate sensitive and imaginative responses to a range of texts. They show an ability to infer, explore and appreciate meanings and attitudes in texts as well as a perceptive awareness of authors' intentions and use of language. They use an appropriate critical vocabulary to analyse how writers achieve their effects. They show the ability independently to select, evaluate and coherently synthesise information from texts.

## WRITING

**Pupils should develop the ability to make and shape text in order to communicate meaning in written language, appropriate to the context, purpose, reader and audience. At each level the use of technological aids by pupils who depend on them physically to produce their written work is acceptable.**

LEVEL 5
Pupils' writing is varied and interesting, conveying meaning clearly in a range of forms for different audiences and using a more formal style, where appropriate. Vocabulary choices are imaginative and words are used precisely. Syntax and punctuation are used with increasing proficiency and more complex words are spelt correctly. The pupils are increasingly independent in planning, revising and redrafting to improve accuracy and enhance meaning. Handwriting is swift and legible.

LEVEL 6
Pupils' writing often engages and interests the audience. Ideas are sustained, developed and show some originality. The use of vocabulary is varied and expressive. Language is used effectively across a range of forms, taking account of purpose, audience and task. Increasingly, syntax and punctuation are used to enhance meaning and most complex words are spelt correctly. Writing is logical and coherent, showing increasing confidence and competence. Independent planning, composing and revising of work improves accuracy, content and presentation. Handwriting is swift and legible.

LEVEL 7
Pupils' writing is coherent and competent, displaying the beginning of a personal style across a range of forms. The writing shows awareness of the need to match style to purpose and audience. Syntax and punctuation are used to enhance meaning and spelling is correct. Independent planning, composing and revising frequently enhance expression, content and presentation.

LEVEL 8
Pupils' writing is sustained, coherent and confident displaying a personal style which matches purpose and audience and engages the reader. Pupils use a varied vocabulary to express complex ideas and opinions logically; a range of explicit and implicit meanings and attitudes is recognised and developed. Syntax and punctuation are used proficiently to enhance meaning. Independent planning, composing and revising enhance expression, content and presentation.

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# KEY STAGES 3 and 4

## PROGRAMME OF STUDY and ATTAINMENT TARGETS

Contents



MATHEMATICS


LEARNING FOR LIFE

DENI

DEPARTMENT OF EDUCATION NORTHERN IRELAND


Text printed on a tinted background indicates statutory requirements. The examples printed in *italics* serve to illustrate the programmes of study and are non-statutory.

# Characteristics of the Curriculum at Key Stages 3 and 4

Pupils enter Key Stage 3 with the experiences gained from the study of a range of subjects in the primary school. These experiences should be recognised and built upon at Key Stages 3 and 4. The learning experiences which are provided should be enjoyable and include challenges which are achievable and motivating.

It is important to recognise the continuing development of pupils as individuals during Key Stages 3 and 4, particularly through their growing awareness of themselves and their capabilities. The whole curriculum for Key Stages 3 and 4 should promote the development of the individual pupil in terms of an increasing facility for self-evaluation and ability to take responsibility for his or her own learning and work practices. There should be ample opportunity for the pupil to apply learning to relevant contexts and purposes.

The range of knowledge, understanding and skills represented in the curriculum at Key Stages 3 and 4 should also help pupils to become aware of themselves in the wider world, to develop independence and make informed judgements and responsible decisions relating to their own lives and their relationships with others. In their continuing development, pupils should be guided towards targets which are suited to their abilities and aptitudes and should be encouraged to review these targets as part of their development towards adult and working life.

The Key Stage 3 curriculum should take account of a vocational dimension through recognition and application of work-related skills and personal qualities, interests and abilities. Pupils should also have opportunities to explore the implications for adult and working life of decisions they will take in relation to their study beyond fourteen.

The Key Stage 4 curriculum should include a strong emphasis on the vocational dimension which will relate to decisions taken both about courses and qualifications and the setting of individual targets. The National Record of Achievement (NRA) and the formulation of Personal Career Plans will promote the recognition of personal qualities, interests and abilities through the exploration of the implications of pupils' decisions for further study and for adult and working life.

Education at Key Stages 3 and 4 should continue to foster the intellectual, social, emotional, physical, moral, cultural and spiritual development of pupils by:

- encouraging a growing independence;
- guiding pupils to express their own individual needs, identifying targets which meet these needs, and assisting them to make informed choices and decisions;
- promoting the development of personal and inter-personal skills, so enabling them to participate as contributing members of groups;
- enhancing self-esteem and encouraging the growth of pupils' own sets of values;
- continuing to develop pupils' study skills, by providing opportunities for exploration, investigation, problem-solving and decision-making;
- enhancing the creativity of pupils by stimulating curiosity and imagination;
- developing increased versatility and confidence in communication across a range of media and for a variety of purposes;
- providing rich and varied contexts for the development of thinking and reasoning skills associated with observing, recording, interpreting, inferring and predicting.

# Using the Programme of Study for Key Stages 3 and 4

## Access to the Programme of Study

Teachers should ensure that pupils have access to the breadth and depth of this programme of study at levels and within contexts which are appropriate and relevant to their individual needs and abilities.

In order to meet the particular needs of some pupils and to ensure that learning experiences for these pupils are positive and meaningful, it may be necessary for teachers to select materials and/or activities from an earlier key stage. When this is the case, it is important that such material and/or activities be presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Language Across the Curriculum

Teachers should be aware of the key role of language in learning. They should use opportunities provided within the programme of study to encourage the development of all four modes of language: talking, listening, reading and writing. Teachers should give attention to the quality of language and take opportunities to reinforce good practice on the use of language.

## Equality of Opportunity

The programmes of study are designed to ensure equal access to a broad and balanced curriculum for all pupils. Teachers should make every effort to ensure that equality of opportunity is provided for both girls and boys in order that all pupils gain equal access to the full range of experiences across all subjects in the Northern Ireland Curriculum.



## Referencing

The lettering used throughout the programme of study is for referencing purposes only. It does not necessarily identify strands, indicate a teaching sequence or hierarchy of knowledge, understanding and skills.

## Statutory Elements

Those elements which form part of the statutory requirements have been tinted. Other aspects which provide information or clarification have been left untinted. Examples are non-statutory and are printed in italics.

# Programme of Study for Mathematics at Key Stages 3 and 4



## Introduction

A wide spread of attainment will be found among pupils entering each Key Stage. Whatever organisation of groups of pupils is adopted, each pupil should work at tasks suited to his or her individual ability, attainment and maturity.

Throughout both key stages, pupils should be given opportunities to develop their skills in estimation and approximation and encouraged to make and test predictions and generalisations, where appropriate, in all areas of mathematics.

The sections of the programme of study interrelate. Processes in Mathematics should pervade the entire mathematics programme involving pupils in using and applying mathematics in practical tasks, real-life problems and within mathematics itself.

The programme of study covers Key Stages 3 and 4. Content in **bold** is extension material intended for Key Stage 4 only where appropriate.

## Mathematical Activities

Throughout the mathematics programme, pupils should be engaged in a wide range of purposeful activities. These activities should:

- involve pupils in different modes of learning; doing; observing; talking and listening; discussing with other pupils and the teacher; reflecting; reading and recording;
- match the ability and stage of development of the pupil;
- develop pupils' personal qualities;
- include both independent and co-operative work;
- bring together different areas of mathematics;
- develop mental skills;
- use, where appropriate, pupils' own interests or questions, either as a starting point, or as further lines of development;
- be balanced between tasks which develop knowledge, skills and understanding and those which develop the ability to tackle problems;
- be balanced between those which are short in duration and those which have scope for development over an extended period;
- include those which have an exact answer or result and those which have many possible outcomes.

## Contexts for Learning

Pupils should have opportunities to develop their knowledge, skills and understanding of mathematics by engaging in activities within mathematics, in other subjects and in a range of

real-life contexts. They should work with money in a variety of real life situations, *for example, shopping, banking and travel.* They should have practical experience of measurement and carry out calculations in relevant contexts, *for example, gardening, decorating, cooking and travel.* They should collect, represent and interpret real data from a range of sources, *for example, road traffic statistics, health education, population census and environmental statistics.* They should have opportunities to develop an interest in the historical background to the mathematics which they encounter.

## Communication in Mathematics

Pupils should develop their ability to communicate their mathematics by:

- making sense of a task;
- interpreting mathematical information;
- understanding and using appropriate mathematical language and notation;
- talking about work while in progress and asking questions;
- presenting results to others in an intelligible way.

## Computation

Pupils should use mental methods to estimate for expected answers, check for reasonableness and interpret results irrespective of the method of calculation. They should also give answers to a given degree of accuracy using either decimal places or significant figures.

Pupils should be encouraged to use mental arithmetic as a first resort when a calculation is needed. They should have opportunities to:

- explore numbers and become familiar with the properties of, and relationships between, numbers;
- consolidate knowledge of addition, subtraction, multiplication and division facts through purposeful practice in recalling and using these facts in a variety of realistic contexts and classroom activities;
- develop, compare and discuss strategies for dealing with more complex calculations.

In developing skills in pencil and paper methods for calculations, pupils should have opportunities to:

- record the results of operating with numbers in a variety of contexts and in a variety of ways;
- develop informal personal methods of recording calculations;
- compare and discuss different approaches to calculations;
- refine and practise useful pencil and paper methods in the context of appropriate problems.

Pupils should use calculators to explore and enhance their understanding of mathematics by:

- exploring how a calculator works through a variety of number games and activities;
- becoming familiar with the number operations possible on a calculator;

- using a calculator as a powerful means of exploring numbers and to extend their understanding of the nature of numbers and number relationships;
- knowing how to interpret results on a calculator that has rounding errors;
- developing confidence in using the various facilities to work through calculations and being aware that an answer should lie within certain parameters;
- using a calculator in the analysis of real-life data.

## Contribution to Educational (Cross-curricular) Themes

### Education for Mutual Understanding

Pupils should have opportunities to:

- work collaboratively in mathematical activities;
- understand, interpret and analyse data drawn from a wide variety of contexts, *for example, data relating to employment, gender, disability, race, unemployment and religion; data showing social patterns and relationships, such as the trend in the number of adult smokers, population movements between rural and urban developments;*
- become aware of the international systems of time measurement and the importance of mutually agreed time zones.

### Cultural Heritage

Pupils should have opportunities to:

- develop an awareness of how mathematical symbols, and our current numerical and measurement systems, have evolved through the centuries;
- understand the use of the metric and Imperial systems of measurement in everyday life, *for example, interpretation of road distances, purchasing a pint/litre of milk;*
- learn about the work of some important mathematicians, *for example, Pythagoras, Napier and Descartes,* and the influence that these people have had on present day mathematics, science and technology.

### Health Education

Pupils should have opportunities to:

- consider statistical evidence about some of the major issues affecting health, *for example, diet, air pollution, disease, safety in the home and school environments;*
- explore and discuss statistics associated with controversial health issues, *for example, drugs, alcohol, smoking and gambling.*

### Information Technology

Pupils should have opportunities to develop and apply their knowledge, skills and understanding of information technology by:

- exploring, manipulating, representing and communicating mathematics through a variety of appropriate computer applications/packages;

- preparing data structures including spreadsheets and databases, entering information into them, investigating patterns and relationships, and framing and testing questions;
- creating and using procedures which include variables and using a programming language, *for example, LOGO;*
- becoming proficient in the use of a calculator.

### Economic Awareness

Pupils should have opportunities to:

- develop an awareness of personal and family finance through considering issues including saving, spending and budgeting, understanding the basic principles of banking and other financial services, and appreciating the effects that changes in taxation can have on individuals and families, *for example, a change in the rate of VAT or income tax;*
- explore the commercial consequences of changes in prices or incomes;
- develop an awareness of public spending issues, *for example, when interpreting a simple pie chart which shows how the government has allocated money to education, housing, health and security;*
- work with currency exchange rates and consider the effect changes in these may have, *for example, on the price of imported goods or foreign holidays;*
- understand the relevance of probabilities in relation to the cost of insurance premiums, *for example, car insurance is more expensive in Northern Ireland than in most parts of the United Kingdom due to the greater 'likelihood' of a car being stolen or involved in an accident.*



### Careers Education

Pupils should have opportunities to:

- understand the importance of developing the mathematical skills necessary for everyday life;
- understand the vocational importance of mathematics including the links between mathematics and access to post-16 educational provision, training and occupations.

## Resources

Throughout the key stage, pupils should use a variety of materials, instruments and games to develop their mathematical skills and concepts. They should meet new ideas in the context of practical activities, where appropriate. They should come to appreciate the special characteristics of the materials that they use and, as a result, become increasingly competent in selecting and using resources appropriate to a task.

## PROCESSES IN MATHEMATICS

### Making and Monitoring Decisions to Solve Problems

Pupils should have opportunities to:

a gather information for a task, initially with help; progress to identifying and obtaining information needed to pursue a line of enquiry, *for example, complete a data collection sheet;*

b take increasing responsibility for selecting and using appropriate resources and mathematics;

c plan and organise their work, learning to work systematically; outline steps to be taken to carry out a task; progress to giving reasons for the order of steps;

d select, trial and evaluate a variety of possible approaches; identify what further information may be required in order to pursue a particular line of enquiry;

e review progress in the course of their work; check their results and evaluate their solutions; consider whether these are reasonable;

f develop a range of mathematical strategies for solving problems, *for example, simplify the task, use trial and improvement methods, work backwards, make organised lists, look for patterns;* **review and evaluate the effectiveness of these strategies and suggest refinements;**

g **apply independently a range of appropriate mathematical techniques to challenging tasks and contexts.**

### Communicating Mathematically

Pupils should have opportunities to:

a explain, interpret and discuss their mathematics as they work; compare their ideas and methods with others; understand and use appropriate mathematical language and notation **accurately and efficiently to present a convincing and concise reasoned argument;**

b present their work and results clearly, initially with help, using writing and symbolic notation, *for example, diagrams, graphs and symbols;* choose the most appropriate format and use it to present information and results clearly, *for example, record results in tabular form to assist in identifying patterns;* explain the reasons for the choice of presentation;

c comment on results; summarise and explain the main findings, *for example, indicating trends,* presenting these in an appropriate format;

d examine critically, improve and justify their choice of mathematical presentation.

### Developing Skills of Mathematical Reasoning

Pupils should have opportunities to:

a recognise important variables; progress to controlling these variables, *for example, in considering the area of rectangles, vary length of one side while keeping the other constant;*

b use patterns and relationships arising from their work to make and test predictions; understand general statements; understand, make and test generalisations, initially in

words, later translating these into symbolic form where appropriate; appreciate the difference between mathematical explanation and experimental evidence; use **and understand the role of** counter examples in disproving;

c ask and respond to open-ended questions;

d use mathematical reasoning, *for example, if ... then; what would happen if ...,* initially when explaining, and then when following a line of **sufficiently rigorous** argument, recognising inconsistencies;

e synthesise information which is in a variety of mathematical forms;

f justify how they arrived at a conclusion or solution to a problem **considering conditions for validity.**

## NUMBER

### Understanding Number and Number Notation

Pupils should have opportunities to:

a understand and use the language of number, *for example, whole, decimal, fraction, percentage, prime, square, cube, root, factor, multiple, positive and negative, integer, natural, sum, difference, product, numerator, denominator, equivalent;*

b read, write and order whole numbers up to 1000; progress to work with numbers with up to three decimal places, initially in the context of measurement; understand and use the concept of place value in whole numbers and decimals and use this to multiply and divide numbers by 10, 100 and 1000;

c approximate numbers to the nearest 10 or 100; estimate within calculations, initially with numbers within 100 and extending to all whole numbers; estimate and approximate to gain a feeling for the size of a solution to a problem, *for example, understand that 32.45 x 9.75 is approximately 30 x 10;* approximate to specified degrees of accuracy including a given number of decimal places and significant figures; use trial and improvement methods; in the context of a problem, select an appropriate degree of accuracy;

d understand and use the conventional way of recording money;

e understand the four operations and the relationship between them;

f understand and use fractions, decimals, percentages and ratios in context; understand and use the relationship between fractions, decimals, ratios and percentages, square and square root, cube and cube root;

g understand and use index notation;

h **distinguish between rational and irrational numbers.**

### Number Operations and Applications

Pupils should have opportunities to:

a consolidate knowledge of number facts, including multiplication to 10 x 10; use this knowledge to find facts that they cannot recall;

b add, subtract, multiply and divide, initially with whole numbers and progressing to numbers with up to three decimal places; understand the effects of operations on numbers of any size; apply order of precedence, first without brackets and then with brackets; solve problems requiring application of order of precedence; check calculations including the use of inverse operations;

c calculate with fractions mainly in context, including fractions of quantities and fractional change; initially using simple percentages, calculate percentages of quantities and percentage change; express one number as a percentage of another; understand and use repeated proportional change including the calculation of compound interest restricted to a maximum of three iterations; use unitary ratios and calculate with ratios in a variety of situations;

d understand and use directed numbers starting with interpreting negative numbers in familiar contexts, *for example, temperature;* progress to addition, subtraction, multiplication and division of negative numbers in context;

e use square and cube numbers, and square and cube roots; express a positive integer as a product of primes; calculate using integer indices; express numbers in standard index form using integer powers of 10; express all powers **and roots** in index notation; calculate with numbers in standard index form using integer powers of 10;

f calculate with money; solve problems in the context of finance, *for example, currency exchange rates, profit and loss, discount, loans, school bank accounts, current and deposit accounts, cheques, statements, lodgements and withdrawals,* ***credit cards, hire purchase, general bank accounts including overdrafts, interest rates and mortgages, mail order sales, insurance, taxation, wages, salaries, unemployment benefit;***

g multiply and divide mentally single-digit multiples of any power of 10, and realise that, with a number less than 1, multiplication has a decreasing effect and division has an increasing effect.

## ALGEBRA

### Patterns, Relationships, Sequences and Generalisations

Pupils should have opportunities to:

a explore and explain and generalise number patterns and predict and check subsequent numbers; generalise, mainly in words, patterns which arise in various situations; *for example, through spatial arrangement;* follow sets of instructions to generate sequences and determine possible rules for generating a sequence; use symbolic notation to express rules of sequences (mainly linear and simple quadratic); **understand the role of counter example in the context of rules for sequences and in disproving hypotheses.**

### Algebraic Conventions and Manipulations

Pupils should have opportunities to:

a understand key concepts and terms, *for example, substitute, simplify, like terms, expand, factorise, subject, expression, equation, rule, generalisation, sequence, nth term, index/indices, power, reciprocal, inequation;*

b understand and use conventional notations of algebra, *for example:*

| | | | |
|---|---|---|---|
| $1a$ | *is written as* $a$ | $a \times b \times 2$ | *is written as* $2ab$ |
| $b + b + b$ | *is written as* $3b$ | $y \times y$ | *is written as* $y^2$ |
| $3c + 4c$ | *is written as* $7c$ | $2x^2 + 3x^2$ | *is written as* $5x^2$ |
| $7x - 2x + y$ | *is written as* $5x + y$ | $a \div b$ | *is written as* $^a/_b$ |

c formulate, interpret and evaluate algebraic expressions; manipulate simple expressions, simplifying, removing brackets and factorising as appropriate; **use these techniques with a range of more complex expressions;** use the rules of indices for integral and fractional values.

### Functions, Formulae, Equations and Inequalities

Pupils should have opportunities to:

a appreciate the use of letters to represent variables;

b use simple function machines where appropriate; understand and work with simple functions arising in a variety of situations; express a function in words, in tabular form, graphically and symbolically; interpret graphs that describe real-life situations including conversion graphs;

c explore the properties of standard mathematical functions including linear, simple quadratic, *for example* $f(x) = x^2 + c$ *where c is an integer,* and simple reciprocal functions; make tables of such functions, sketch and interpret their graphs using graphical calculators and computers to understand their behaviour; **interpret and use m and c in y = mx + c; know the form of graphs of quadratic and reciprocal functions; use growth and decay rates and display these graphically; interpret graphically the effect of transformations of functions, including y = f(x+a), y = f(ax) and y = f(x) + a applied to y = f(x);**

d appreciate the use of letters to represent unknowns;

e understand, construct and evaluate formulae related to mathematics or other subjects or real-life situations; change the subject of formulae where the subject appears in one term only, **progressing to cases where the subject appears in more than one term;**

f formulate, use, solve and draw graphs of linear equations; use algebraic and graphical methods to solve simultaneous linear equations in two unknowns; solve polynomial equations, *for example,* $x^2 + x = 5$, by 'trial and improvement' **or graphical methods; use factors, the quadratic formula or a graphical method to solve quadratic equations, selecting the most appropriate method for the problem concerned;**

g solve inequalities on a number line; use straight line graphs to locate regions representing linear inequalities **and use this method to solve simple linear programming problems;**

**h understand and use direct proportion, inverse proportion and inverse square law.**

## SHAPE, SPACE AND MEASURES

### Exploration of Shape

Pupils should have opportunities to:

a explore shape through drawing and practical work using a wide range of materials; recognise and describe 2-D and 3-D shapes, including squares, rectangles, triangles, hexagons, pentagons, circles, cubes, cuboids, cylinders, spheres, cones, triangular prisms, pyramids; recognise right-angled corners in 2-D and 3-D shapes; investigate tessellation of 2-D shapes, *for example, equal angles in diagrams and tessellations;*

b explore and investigate lines and angles, using appropriate language and notation including vertical, horizontal, perpendicular, parallel, acute, obtuse, right, reflex, vertically opposite, adjacent, alternate and corresponding angles;

c classify and define types of triangles including scalene, right angle, equilateral and isosceles; classify and define types of quadrilaterals including square, rectangle, parallelogram, rhombus, kite and trapezium; use the properties of triangles and quadrilaterals;

d know and use language associated with circles, including circumference, radius, diameter, **sector, segment,** arc and chord; **know and use angle and tangent properties of circles;**

e understand and apply Pythagoras' Theorem and apply sine, cosine and tangent to right angled triangles; **extend their understanding of trigonometry to angles of any size, the graphs of trigonometric functions, and the application of trigonometry to the solution of problems in two dimensions;**

f explore a range of regular and irregular 2-D and 3-D shapes; make 2-D and 3-D shapes from given information including 2-D representation of 3-D objects; use associated language including edge, face and vertex; draw nets; estimate, measure and calculate angles; construct triangles and simple scale drawings using protractor, ruler and compasses, as appropriate;

g understand the concepts of congruence and mathematical similarity; **for similar shapes know that angles remain unchanged and corresponding sides are in the same ratio; understand and use the conditions for triangles to be congruent; understand and use the relationship between the surface areas of similar 3-D shapes and between volumes of similar 3-D shapes.**

### Position, Movement and Direction

Pupils should have opportunities to:

a understand the notion of angle in the context of turning; give and understand instructions for moving through $^1/_4$, $^1/_2$ and $^3/_4$ turns;

b locate position; use clockwise and anticlockwise; use the 8 points of the compass; specify location by means of co-ordinates in the first and then the four quadrants; understand and use 3-figure bearings to define direction;

c recognise symmetry properties in a variety of shapes in two dimensions; recognise line symmetry; draw the axes of symmetry; reflect shapes in a mirror line; recognise rotational symmetry, its order and centre; know and use symmetry properties of triangles, quadrilaterals and other polygons; recognise planes of symmetry in practical situations;

d understand transformation of shapes; reflect shapes in a line, *for example, $x = 1$;* rotate shapes about a given centre; translate shapes; enlarge a shape through a given centre of enlargement, initially by a whole number scale factor and then a positive fractional scale factor; use transformations to create and analyse spatial patterns; **understand how transformations are related by combinations and inverses; use matrices to define transformations in 2-D.**

## Measures

Pupils should be given opportunities to:

a understand and use metric units of length, area, capacity and 'weight'/mass; understand the relationship between units; convert from one metric unit to another;

b choose and use appropriate metric units and measuring instruments in a variety of situations, interpreting numbers on a range of measuring instruments;

c make sensible estimates of length, area, capacity, 'weight'/mass and time;

d understand and use compound measures, including speed **and density;**

e know Imperial measures still in common use including foot, yard, mile, pound and pint and their approximate metric equivalents;

f read digital and analogue displays; use a calendar; understand and use the twelve and twenty four hour clock; use timetables involving the twenty four hour clock; interpret and display information on travel graphs;

g understand and use scale in the context of maps and drawings, *for example, calculate the actual distance as the crow flies between two places on a map;*

h develop an understanding of the continuous nature of measure and the approximate nature of measurement; **understand and calculate the upper and lower bounds of numbers expressed to a given degree of accuracy;**

i understand the concept of perimeter; calculate the perimeters of squares, rectangles, triangles and other straight-edged figures and circles; **calculate lengths of circular arcs and perimeters of composite shapes;**

j understand the concepts of area and volume; find areas and volumes, *for example, by counting and dissection methods;* progress to the derivation and use of standard formulae; calculate the areas of squares, rectangles, triangles, parallelograms, rhombuses, kites, trapezia, circles and **sectors;** calculate the surface areas of cubes and cuboids; **calculate areas of shapes whose perimeters include circular arcs; calculate surface areas of cylinders, cones and spheres;** calculate the volumes of cubes, cuboids, cylinders and other simple right prisms; **calculate the volumes of cones and spheres;**

**k distinguish between formulae for length, area and volume by considering dimensions.**

## HANDLING DATA

### Collect and Record Data

Pupils should have opportunities to:

a formulate questions that can be considered using statistical methods and undertake purposeful enquiries based on data analysis;

b access and retrieve data from a variety of sources and understand the purpose for which the data is required; collect, organise and record data by using and designing recording sheets, using tallying methods where appropriate; group data where appropriate, initially with given class intervals leading to choosing suitable class intervals; design and use an appropriate questionnaire to explore an issue, **taking possible bias into account;** use a given decision tree diagram to sort a collection of items.

### Represent, Analyse and Interpret Data

Pupils should have opportunities to:

a interpret and display information in a variety of ways, including

- bar charts with and without a given scale;
- pictograms using whole symbols only to represent one or more than one item;
- frequency tables and diagrams for ungrouped discrete data, grouped discrete data and continuous data;
- line graphs; understand that intermediate values may or may not have a meaning;
- pie charts;
- scatter graphs including line of best fit by inspection;

interpret information in flow diagrams and two-way tables;

b interrogate data in a database, which may be a computer database, initially using one criterion; use the facilities of the database to represent information graphically;

c extract and use information from tables and lists; answer straightforward questions, then draw more general inferences for a single distribution; calculate or estimate and use the mean and range of sets of discrete data; distinguish between and be able to find the mean, median and mode of discrete data; find the mean and the modal class of grouped data; consider the suitability of the mean, mode or median in different circumstances; compare sets of data by making appropriate use of mean, mode, median and range;

d **construct cumulative frequency tables; construct a cumulative frequency curve using the upper boundary of the class interval; find the median, the upper quartile, the lower quartile and the interquartile range; describe the dispersion of a set of data.**

## Probability

Pupils should have opportunities to:

a understand possible outcomes of random trials or experiments; understand that there is a degree of uncertainty about the occurrence of some events and that others are certain or impossible; place events in order of 'likelihood' and use appropriate words to identify chance; know that when repeating the same experiment, different outcomes may result and that the possible outcomes may not be equally likely; understand and use 0 and 1 as the limits of the probability scale; know that, for equally likely outcomes, the probability of an event is the number of desirable outcomes divided by the number of possible outcomes;

b recognise situations where probabilities can be based on equally likely outcomes and others where estimates must be based on sufficient experimental evidence and make these estimates; understand and use relative frequency as an estimate of probability;

c identify all the outcomes when dealing with a combination of two independent events using diagrams or tables and use these to find probabilities; know that if there are several possible outcomes of an event (exhaustive and mutually exclusive), the total of these probabilities is 1; understand that the probability of something happening is 1 minus the probability of it not happening; understand and apply the addition of probabilities for mutually exclusive events;

**d understand that when dealing with two independent events, the probability of them both happening is less than the probability of either of them happening (unless the probability is 0 or 1); calculate the probability of a combined event given the probability of two independent events and illustrate combined probabilities of several events using tabulation or a tree diagram; produce a tree diagram to illustrate the combined probability of several events which are not independent.**

# Attainment Targets and Level Descriptions for Mathematics at Key Stage 3



Mathematics at Key Stage 3 has five attainment targets which relate directly to the sections within the programme of study:

- Processes in Mathematics
- Number
- Algebra
- Shape, Space and Measures
- Handling Data

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the Key Stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## PROCESSES IN MATHEMATICS

**Pupils should develop mathematical processes through practical tasks, real-life problems and investigations within mathematics itself.**

LEVEL 1
Pupils use materials provided under direction. They use mathematics as an integral part of classroom activities. They talk about their work in response to questions. They represent their work with objects or pictures. They begin to make simple predictions.

LEVEL 2
Pupils select, with help, the materials and mathematics required for some classroom activities. They talk about their work, using appropriate mathematical language and represent their work using symbols and simple diagrams. They respond to open-ended questions.

LEVEL 3
Pupils select and use the materials and mathematics appropriate for their work. They find ways to overcome difficulties that arise when they are solving problems. They begin to organise their work and work systematically. They use and interpret mathematical symbols and diagrams. They represent their work in a variety of ways and check it themselves. They discuss their mathematics and begin to explain their thinking.

LEVEL 4
Pupils gather information required for a task. They begin to develop and use their own strategies for solving problems. They discuss their work and compare their ideas and methods with others. They present information and results in a clear and organised way, explaining the reasons for their choice of presentation. They understand general statements and investigate whether or not particular cases match them.

## NUMBER

**Pupils should understand number, number notation, number operations - addition, subtraction, multiplication and division - and make use of appropriate methods of calculation. They should estimate and approximate in number.**

LEVEL 1
Pupils count, read, write and order whole numbers up to at least 10. They understand the conservation of number. They begin to make sensible estimates of small numbers of objects. They add and subtract up to 10 using real objects and use these skills to solve simple problems.

LEVEL 2
Pupils read, write and order whole numbers up to at least 100 and begin to show some understanding of place value. They have good recall of number facts to 10 and add and subtract up to at least 20, using these skills to solve problems, including those that involve money.

LEVEL 3
Pupils read, write and order whole numbers up to at least 1000 and use the knowledge that the position of the digit indicates its value. They approximate to the nearest 10 or 100. They use mental recall of number facts up to 20 and of the majority of multiplication tables up to 10 x 10 in solving problems. They add and subtract money expressed in conventional notation up to £10. They solve problems involving addition, subtraction and multiplication (involving numbers up to 1000) and those that involve division in practical situations. They recognise and understand simple fractions which arise naturally, and their notation.

LEVEL 4
Pupils understand and use numbers with up to two decimal places in relevant contexts. They add mentally two two-digit numbers and subtract mentally one two-digit number from another. In solving problems, they use a range of mental, written and calculator methods of computation involving the four operations. They recognise approximate proportions of a whole and use simple fractions to describe these. They understand that addition and subtraction are inverse operations and use this to check their results when solving problems.

## ALGEBRA

**Pupils should recognise and use patterns, relationships and sequences and make generalisations. They should recognise and use functions, formulae, equations and inequalities, and represent algebraic functions graphically.**

LEVEL 1
Pupils copy, continue and devise repeating patterns using real objects or pictures.

LEVEL 2
Pupils explore and use addition and subtraction patterns up to 10 and use these patterns to understand the relationship between addition and subtraction.

LEVEL 3
Pupils explain and predict number patterns within 100, including those in the 2, 5 and 10 times tables. They use function machines with one operation.

LEVEL 4
Pupils explore and predict patterns and sequences of whole numbers, *such as doubling and halving numbers.* They understand number properties, *such as multiple and factor.* They understand and use simple rules expressed in words.

## SHAPE, SPACE AND MEASURES

**Pupils should recognise and use the properties of two-dimensional and three-dimensional shapes. They should recognise locations and use transformations in the study of space. They should estimate and measure quantities and appreciate the approximate nature of measurement.**

LEVEL 1
Pupils sort and make constructions with 2-D and 3-D shapes, using everyday language to describe their work. They use prepositions to state a position. They measure and order objects using direct comparison and use appropriate language associated with length, mass, capacity and area. They sequence events and recognise 'special' times on the clock.

LEVEL 2
Pupils sort 2-D and 3-D shapes in various ways and give reasons for sorting. They name common 2-D shapes. They understand right and left turns. They use non-standard units to measure length, mass, capacity and area and understand the need for standard units. They know the most commonly used units in length, mass, capacity and time.

LEVEL 3
Pupils name and describe common 2-D and 3-D shapes, using appropriate mathematical language. They identify lines of symmetry in simple 2-D shapes. They understand angle as a measurement of turn and recognise right angles in the environment. They use standard units to measure length, mass, capacity and time in a range of contexts. They read times on the analogue clock and the date from a calendar. They choose and use a range of units and instruments, interpreting, with reasonable accuracy, numbers on a range of measuring instruments.

LEVEL 4
Pupils make simple 2-D and 3-D shapes. They understand and use language associated with line and angle. They know the eight points of the compass and understand the terms clockwise and anticlockwise. They use co-ordinates to plot points and draw shapes in the first quadrant. They understand the relationship between metric units. They find perimeters of simple shapes, find areas by counting squares and find volumes by counting cubes. They begin to make sensible estimates using standard units in relation to everyday situations. They understand and use the twelve and twenty-four hour clocks.

## HANDLING DATA

**Pupils should collect, record, process, represent and interpret data. They should understand, estimate and calculate probabilities.**

LEVEL 1
Pupils sort and classify objects and talk about the criterion they have used. They record their work using real objects or drawings.

LEVEL 2
Pupils sort and classify objects for two criteria. They collect information and record it in simple tables, block graphs and diagrams. They interpret the information.

LEVEL 3
Pupils extract and interpret information presented in simple tables and lists. They collect, display and interpret data in pictograms and bar charts in order to communicate information.

LEVEL 4
Pupils collect, group and order discrete data with given class intervals. They represent and interpret data using a range of graphs, tables and diagrams. They construct and interpret pictograms where the symbol may represent a group of units. They interrogate a simple data base for one criterion. They understand and use simple vocabulary associated with probability, *such as certain, uncertain, impossible, likely, unlikely and fair.*

# Attainment Targets and Level Descriptions for Mathematics at Key Stage 3



Mathematics at Key Stage 3 has five attainment targets which relate directly to the sections within the programme of study:

- Processes in Mathematics
- Number
- Algebra
- Shape, Space and Measures
- Handling Data

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the Key Stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## PROCESSES IN MATHEMATICS

**Pupils should develop mathematical processes through practical tasks, real-life problems and investigations within mathematics itself.**

LEVEL 5
Pupils identify and obtain information required to carry through tasks and solve mathematical problems. They explain their approach to the task. They present their work using symbols, words and diagrams. They check their results and consider whether these are reasonable. They make general statements based on evidence and give an explanation of their reasoning.

LEVEL 6
Pupils carry through substantial tasks with some given structure, modifying and refining strategies as they work. They identify and carry out the associated sub-tasks. They recognise and control some variables in the task with help where appropriate. They interpret, discuss and synthesise information which is in a variety of mathematical forms. Their writing explains and complements their use of diagrams and other forms of mathematical communication. They make generalisations with supporting arguments and test them by checking particular cases.

LEVEL 7
Pupils carry through substantial tasks. Starting from problems or contexts that have been presented to them, they introduce questions of their own which generate fuller solutions and obtain further information if required. They examine critically and justify their choice of mathematical representation, considering alternative approaches and explaining improvements they have made. They justify their choice of sub-tasks and the sequence in which these are carried out. They justify their generalisations or solutions. They summarise and present their conclusions, which may be generalisations, in symbolic form. They appreciate the difference between mathematical explanation and experimental evidence.

LEVEL 8
Pupils develop, follow and refine alternative approaches, applying a range of efficient mathematical techniques. They convey mathematical meaning through consistent use of symbols. They recognise and control variables. They examine generalisations and evaluate solutions and make further progress in the activity as a result. Where appropriate they suggest extensions to their work.

## NUMBER

**Pupils should understand number, number notation, number operations - addition, subtraction, multiplication and division - and make use of appropriate methods of calculation. They should estimate and approximate in number.**

LEVEL 5
Pupils extend their understanding of the relationships between place values, using this to multiply and divide numbers with up to two decimal places by 10, 100 and 1000. They use the four operations with decimals to two places, multiplying and dividing by whole numbers only. Using their understanding of equivalence, they add and subtract simple fractions. They understand the relationship between simple fractions and percentages. They apply inverse operations or estimation using approximations in order to check solutions. They understand and use negative numbers in context.

LEVEL 6
Pupils understand and calculate with numbers with up to three decimal places and approximate to up to two decimal places as appropriate. They understand and use the equivalences between fractions, decimals and percentages, and calculate using ratios and percentages in relevant contexts. They understand and use order of precedence in numerical calculations, including the use of brackets.

LEVEL 7
Pupils solve multiplication and division problems involving numbers of any size, using a calculator efficiently and appropriately. They make mental estimates by rounding to one significant figure. They express one number as a percentage of another. They understand and use repeated proportional change including the calculation of compound interest to a maximum of three iterations.

LEVEL 8
Pupils calculate with fractions, using the four operations to solve problems. They use percentage to calculate the original quantity given the result of a proportional change. They express and can calculate with numbers in standard index form, using integral powers of ten. They understand and calculate with directed numbers in context.

## ALGEBRA

Pupils should recognise and use patterns, relationships and sequences and make generalisations. They should recognise and use functions, formulae, equations and inequalities, and represent algebraic functions graphically.

**LEVEL 5**
Pupils understand and use terms *such as square, cube and prime.* They use a letter to stand for an unknown number. They follow sets of instructions to generate a sequence and determine possible rules for generating sequences.

**LEVEL 6**
Pupils find and describe in symbols the next term or the nth term of a sequence where the rule is linear. They use index notation to express powers of whole numbers and understand and use the term square root. They represent and use simple functions and interpret graphs from real situations. They understand and use basic conventions, simplification and substitution with expressions, formulae and linear equations. They construct and use simple formulae and formulate and solve linear equations expressed in symbolic form with whole number coefficients.

**LEVEL 7**
Pupils solve linear equations with whole number coefficients algebraically and graphically. They express a function symbolically. They use graphical methods to solve simultaneous equations in two unknowns. They solve simple inequations and represent the solution using a number line *such as* $-2 \leq x < 3$. They remove brackets from and simplify when working with simple algebraic expressions, equations and formulae. They use 'trial and improvement' methods to solve simple polynomial equations.

**LEVEL 8**
Pupils formulate, use and solve linear equations. They use algebraic methods to solve simultaneous equations in two variables. They change the subject of a formulae where the subject appears in one term only and calculate one variable given the value of the others. When working with algebraic expressions they use the rules of indices for integral values. They remove and insert brackets in working with algebraic expressions, formulae and equations. Pupils find and describe in symbols the next term or the nth term in a sequence where the rule is quadratic. They sketch and interpret graphs of functions, including functions that model real situations.

## SHAPE, SPACE AND MEASURES

Pupils should recognise and use the properties of two-dimensional and three-dimensional shapes. They should recognise locations and use transformations in the study of space. They should estimate and measure quantities and appreciate the approximate nature of measurement.

**LEVEL 5**
Pupils understand congruence of 2-D shapes. They investigate properties of triangles and quadrilaterals and measure and draw angles up to 360° with reasonable accuracy. They draw nets to make simple 3-D shapes. They reflect a shape in a line. They understand and use scale in the context of maps and drawings. They calculate areas of squares, rectangles and right angle triangles and volumes of cubes and cuboids. They are familiar with the Imperial units still in common use. They convert one metric unit to another. They use timetables involving the twenty-four hour clock.

**LEVEL 6**
Pupils recognise and use rotational symmetry, its order and centre. They know and use angle properties and symmetry properties of triangles and quadrilaterals. They classify and define types of quadrilaterals. They specify location by means of co-ordinates in all four quadrants. They enlarge a shape by a whole number scale factor through a given centre of enlargement. They understand and use language associated with the circle, *such as circumference, radius, diameter, arc and chord.* They understand and use angle properties of intersecting and parallel lines. They construct triangles, using protractor, ruler and pair of compasses. They calculate composite areas and volumes involving squares, rectangles, triangles, cubes and cuboids. They calculate the surface area of cubes and cuboids.

**LEVEL 7**
Pupils understand and apply Pythagoras' Theorem. They understand and use three figure bearings to define direction. They enlarge a shape by a positive fractional scale factor, through a given centre of enlargement. They understand that a measurement expressed to a given unit is in possible error of half a unit. They understand and use compound measures. They carry out calculations involving length and area of parallelograms, rhombuses, kites and circles.

**LEVEL 8**
Pupils understand and use mathematical similarity in simple 2-D shapes. They use sine, cosine and tangent ratios in right-angled triangles in two dimensions. They construct scale drawings. They perform length and area calculations of composite shapes. They calculate the volume of triangular prisms and cylinders.

## HANDLING DATA

Pupils should collect, record, process, represent and interpret data. They should understand, estimate and calculate probabilities.

**LEVEL 5**
Pupils design and use a data collection sheet and interpret the results. They calculate and use the mean and range of discrete data. They construct and interpret simple line graphs. They interpret graphs and diagrams, including pie charts, and draw conclusions. They insert and interrogate data in a computer database. They place events in order of 'likelihood' and use appropriate words to identify chance, *such as fifty-fifty and evens.*

**LEVEL 6**
Pupils choose appropriate equal class intervals over a suitable range to create frequency tables. They distinguish between, and are able to find, the mean, median and mode of discrete data. They compare two distributions, using the range and one of the measures of average. They construct and interpret pie charts. They use the knowledge that the probability of an event is the number of desirable outcomes divided by the number of possible outcomes if these are all equally likely. They understand and use 0 and 1 as the limits of the probability scale. They interpret scatter diagrams and have a basic understanding of correlation.

**LEVEL 7**
Pupils test an issue by designing and using appropriate methods to collect data. They draw conclusions from the data. They understand and use relative frequency as an estimate of probability and use this to compare outcomes of experiments. They construct and interpret bar charts covering the range of a continuous variable. They know that if there are several possible outcomes of an event (exhaustive and mutually exclusive), the total of these probabilities is 1 and that the probability of something happening is 1 minus the probability of it not happening. When dealing with a combination of two independent experiments, they identify all the outcomes and calculate probabilities in the case of equally likely outcomes.

**LEVEL 8**
Pupils determine the modal class and estimate the mean, median, and range of sets of grouped data, selecting the statistic most appropriate to their line of enquiry. They understand and apply the addition of probabilities for mutually exclusive events.

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# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGETS

SCIENCE

Contents




LEARNING FOR LIFE

DENI

DEPARTMENT OF EDUCATION NORTHERN IRELAND


Text printed on a tinted background indicates statutory requirements. The examples printed in *italics* serve to illustrate the programmes of study and are non-statutory.

# Characteristics of the Curriculum at Key Stages 3 and 4

Pupils enter Key Stage 3 with the experiences gained from the study of a range of subjects in the primary school. These experiences should be recognised and built upon at Key Stages 3 and 4. The learning experiences which are provided should be enjoyable and include challenges which are achievable and motivating.

It is important to recognise the continuing development of pupils as individuals during Key Stages 3 and 4, particularly through their growing awareness of themselves and their capabilities. The whole curriculum for Key Stages 3 and 4 should promote the development of the individual pupil in terms of an increasing facility for self-evaluation and ability to take responsibility for his or her own learning and work practices. There should be ample opportunity for the pupil to apply learning to relevant contexts and purposes.

The range of knowledge, understanding and skills represented in the curriculum at Key Stages 3 and 4 should also help pupils to become aware of themselves in the wider world, to develop independence and make informed judgements and responsible decisions relating to their own lives and their relationships with others. In their continuing development, pupils should be guided towards targets which are suited to their abilities and aptitudes and should be encouraged to review these targets as part of their development towards adult and working life.

The Key Stage 3 curriculum should take account of a vocational dimension through recognition and application of work-related skills and personal qualities, interests and abilities. Pupils should also have opportunities to explore the implications for adult and working life of decisions they will take in relation to their study beyond fourteen.

The Key Stage 4 curriculum should include a strong emphasis on the vocational dimension which will relate to decisions taken both about courses and qualifications and the setting of individual targets. The National Record of Achievement (NRA) and the formulation of Personal Career Plans will promote the recognition of personal qualities, interests and abilities through the exploration of the implications of pupils' decisions for further study and for adult and working life.

Education at Key Stages 3 and 4 should continue to foster the intellectual, social, emotional, physical, moral, cultural and spiritual development of pupils by:

- encouraging a growing independence;
- guiding pupils to express their own individual needs, identifying targets which meet these needs, and assisting them to make informed choices and decisions;
- promoting the development of personal and inter-personal skills, so enabling them to participate as contributing members of groups;
- enhancing self-esteem and encouraging the growth of pupils' own sets of values;
- continuing to develop pupils' study skills, by providing opportunities for exploration, investigation, problem-solving and decision-making;
- enhancing the creativity of pupils by stimulating curiosity and imagination;
- developing increased versatility and confidence in communication across a range of media and for a variety of purposes;
- providing rich and varied contexts for the development of thinking and reasoning skills associated with observing, recording, interpreting, inferring and predicting.

# Using the Programmes of Study for Key Stages 3 and 4

## Access to the Programme of Study

Teachers should ensure that pupils have access to the breadth and depth of this programme of study at levels and within contexts which are appropriate and relevant to their individual needs and abilities.

In order to meet the particular needs of some pupils and to ensure that learning experiences for these pupils are positive and meaningful, it may be necessary for teachers to select materials and/or activities from an earlier key stage. When this is the case, it is important that such material and/or activities be presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Language Across the Curriculum

Teachers should be aware of the key role of language in learning. They should use opportunities provided within the programmes of study to encourage the development of all four modes of language: talking, listening, reading and writing. Teachers should give attention to the quality of language and take opportunities to reinforce good practice on the use of language.

## Equality of Opportunity

The programmes of study for all subjects within the Northern Ireland Curriculum are designed to ensure equal access to a broad and balanced curriculum for all pupils. Teachers should make every effort to ensure that equality of opportunity is provided for both girls and boys in order that all pupils should have equal access to the full range of experiences across all subjects in the Northern Ireland Curriculum.



## Referencing

The lettering used throughout the programme of study is for referencing purposes only. It does not necessarily identify strands, indicate a teaching sequence or hierarchy of knowledge, understanding and skills.

## Statutory Elements

Those elements which form part of the statutory requirements have been tinted. Other aspects which provide information or clarification have been left untinted. Examples are non-statutory and are printed in italics.

# Programme of Study for Science at Key Stage 3



## Introduction

During this key stage, pupils should have opportunities to apply scientific and technological knowledge and ideas, and to develop their awareness of the role and importance of science in everyday life. Building on their earlier experiences in science, their growing scientific knowledge and understanding and their increasing maturity, they should have opportunities to study how science is applied in a variety of contexts. Pupils should consider the benefits and drawbacks of applying scientific and technological ideas to themselves, industry, the environment and the community. They should begin to make personal decisions and judgements based on their scientific knowledge of issues concerning personal health and well being, safety and the care of the environment. Through this study, pupils should begin to develop an understanding of how science shapes and influences the quality of their lives.

The volume of words within the section of the programme of study relating to Attainment Target 2 (Living Organisms and Life Processes) is greater than the volume of words within either of the sections of the programme of study relating to Attainment Target 3 (Materials and their Uses) or Attainment Target 4 (Physical Processes). The greater volume of words within the section of the programme of study entitled 'Living Organisms and Life Processes' is to assist with clarification of the requirements for this section of the programme of study. It is important in planning schemes of work for science that equal time and emphasis is given to knowledge and understanding related to each of the sections within the programme of study. When planning schemes of work, therefore, teachers should ensure that a balance is achieved across each of the elements of science within the programme of study.



## The Nature of Science

Pupils should have opportunities to be involved in individual, group and whole class activities. They should be given opportunities to study ideas and theories used in other times to explain natural phenomena and to relate such ideas and theories to present scientific and technological knowledge and understanding.

## Communication

Pupils should be given opportunities to extend their use of scientific and mathematical conventions and symbols. They should be encouraged and helped to read actively and for a purpose through the use of an extended range of secondary sources. They should take increasing responsibility for selecting the resources on which they draw. Pupils should be encouraged to express their ideas by various means, respond to the ideas of others, and to record their work. They should begin to use, with increasing confidence, information and data accessed from a computer and be encouraged to consider the computer as a means of communication.

## Contribution to Educational (Cross-curricular) Themes

Throughout work relating to the programme of study, pupils should have opportunities to engage in discussion and to undertake activities which fulfil the objectives of the cross-

curricular themes. The opportunities listed in this section should not be treated as a check list to be covered but as illustrations of some of the ways in which the cross-curricular themes can be developed as an integral part of science.

### Education for Mutual Understanding/Cultural Heritage

Pupils should have opportunities to:

- appreciate that scientific methodology is international and that scientific laws transcend national boundaries;
- recognise that scientific knowledge and understanding has been accumulated through the work of people from many cultures and that scientists share an international culture and that no country can develop its science in isolation;
- refer, where appropriate, to the life and work of famous scientists, including Irish scientists, and to the historical development of important ideas in science.

### Health Education

Pupils should have opportunities to:

- develop positive attitudes to health in relation both to themselves and the community;
- understand the complexity of the human body and how it can be kept healthy;
- learn about the physical and emotional changes which occur during their adolescence and the need for them to develop a responsible attitude to sexual behaviour;
- adopt safe practice when undertaking scientific experiments and to be aware of potential hazards and the appropriate action to take to avoid risks.



### Information Technology (IT)

Pupils should have opportunities to:

- evaluate the impact of information technology on their science investigations and on their own lives and within our society;
- apply their knowledge, understanding and skills of information technology to store, process, retrieve and present information;
- use relevant software packages, including databases and spreadsheets and, where appropriate, sensors, to monitor or respond to changes occurring during their scientific investigations.

### Economic Awareness

Pupils should have opportunities to:

- make informed decisions on scientific issues, problems and events which have an economic dimension;
- appreciate that economic factors are important considerations in relation to making decisions about the exploitation of natural resources and the efficient use of energy.

**Careers Education**

Pupils should have opportunities to:

- recognise how scientific and technological advances have contributed to changes in work patterns;
- appreciate that science has a vital role in career opportunities and recognise the importance of understanding the application of scientific knowledge, understanding and skills outside the classroom.

## EXPERIMENTAL AND INVESTIGATIVE SCIENCE

Pupils should be encouraged to develop their experimental and investigative skills and their understanding of science through systematic experimentation and investigation. Work within Attainment Target 1 should be introduced through the knowledge and understanding covered within Attainment Targets 2, 3 and 4. This work should build upon pupils' everyday experiences and introduce wider contexts, *for example, those offered through field work.* Pupils should be encouraged to use previously encountered concepts and skills in order to solve practical problems.

Experimental and investigative work should form a major element of science activity at this key stage, however, there will be aspects of science knowledge and understanding that will not lend themselves to a practical approach. While there should be opportunities throughout the key stage for pupils to undertake complete investigations, it will be appropriate in some cases to focus on particular aspects of the investigative process. An important aspect of this is the development of skills which will allow pupils to handle, with confidence and familiarity, standard laboratory equipment for experimental purposes.

Pupils should be encouraged to adopt safe practices when undertaking scientific experiments. They should be made aware of potential hazards and the appropriate actions necessary to avoid risks.



### Planning

Pupils should have opportunities to:

a use their scientific knowledge and understanding to turn ideas into a form that can be investigated;

b make predictions where appropriate to do so;

c design a fair test;

d consider the factors, qualitative and/or quantitative, which need to be taken into account in investigations;

e draw up procedures for the investigation, taking into account the observations or measurements which need to be made;

f select appropriate apparatus, instruments and techniques for the investigation, taking into account criteria, *for example, the range and accuracy of the measurements and observations required, and the need for safe working procedures.*

### Carrying Out

Pupils should have opportunities to:

a use apparatus and materials in a safe and competent manner;

b use apparatus and instruments to make observations and measurements to an appropriate degree of accuracy;

c understand the need, where appropriate, to repeat observations or measurements;

d record observations or measurements systematically using methods appropriate to the information collected and to the purpose of the investigation, *for example, a computer database.*

## Presenting and Interpreting Results

Pupils should have opportunities to:

a present results in ways appropriate to the data collected and the purpose of the investigation, including, where appropriate, the use of graphs;

b interpret and evaluate results using, where appropriate, simple calculations;

c identify any trends, patterns and conclusions emerging from consideration of the results;

d draw valid conclusions and decide whether these conclusions agree with the original idea;

e explain the conclusions in the light of their scientific knowledge and understanding;

f consider their observations and measurements, including anomalies, and suggest, where appropriate, improvements that could be made if they were to repeat the investigation;

g produce a written report of their investigation, using appropriate scientific vocabulary.

## LIVING ORGANISMS AND LIFE PROCESSES

### Variation

Pupils should have opportunities to:

#### The Cell

a learn that plants and animals are composed of cells,

- use of the microscope and slide to study the structure and function of a typical plant and animal cell including nucleus, cytoplasm, cell membrane, nuclear membrane, cell wall, chloroplast, permanent vacuole and chromosomes;

#### Specialisation

b understand that cells become specialised to carry out different functions, including the root hair in plants, sperm cell and ciliated epithelium in animals;

#### Levels of Organisation

c understand that cells are the building units of tissues, organs, organ systems and organisms;

#### Genetics

d learn that genetic information is carried in the form of genes found on chromosomes in the nucleus of cells,

- genes as short lengths of DNA, *for example, eye colour and tongue rolling;*

e find out that variation can be measured in living organisms, including height as an example of continuous variation and tongue rolling as an example of discontinuous variation.

### Environment

Pupils should have opportunities to:

#### Habitat Study

a find out, by the study of a local habitat, that physical factors affect the distribution and type of living organisms found in a local habitat, including

- changes in seasonal temperature,
- availability of light,
- availability of water;

### Classification

b assign organisms to their major groups using keys and observable features, including

- flowering plants - root, stem and leaves, flowers and seed production,
- annelids - segmentation,
- arthropods (insects only) - exoskeleton, 3 pairs of jointed legs, two pairs of wings,
- vertebrates - animals with backbones,
- bony fish - gills, fins, scales,
- amphibians - lungs in adult, moist skin, eggs laid in water, tadpole,
- reptiles - scales, shelled eggs laid on land, parental care,
- birds - feathers, shelled eggs, parental care,
- mammals - mammary glands, hair, ear pinna, parental care;

### Life Cycles

c learn about the stages in the life cycle of some living things, including a plant, a butterfly and a frog;

### Adaptation

d learn that living organisms are adapted to survive in the environment, *for example, adaptations to life on land,* including

- waterproof covering,
- ability to breathe air,
- development of a skeleton,
- internal fertilization,
- shelled eggs;

e understand the components of food chains and food webs, including

- Sun as a primary source of energy,
- producers,
- consumers,
- decomposers,
- nature of energy flow;

### Pollution

f find out that human activity can damage the environment, both locally and in the wider world, and affect the plants and animals living there, including

- air - effects of pollution by soot and sulphur dioxide on plants,
- land - deforestation, household refuse, biodegradable and non-biodegradable materials,
- water - sewage, oil, effluent from water cooling processes;

### Conservation

g find out that humans may contribute to improving the environment for themselves and the plants and animals which live there, including

- air - catalytic convertors,
- land - reafforestation,
- water - sewage disposal (detail of plant treatment not required).

## Living Organisms

Pupils should have opportunities to:

### Life Processes

a extend their knowledge of the basic life processes of all living organisms, including knowledge of nutrition, respiration, movement, excretion, response to stimuli, growth and reproduction;

### Organ Systems

PLANTS

b learn the basic functions of the organs in a flowering plant, including

- the root - to absorb water and mineral salts and provide anchorage,
- the stem - to support and transport water and food in veins,
- the leaf - large surface area to absorb light energy for photosynthesis,
- the flower - to reproduce;

ANIMALS

c learn the basic functions of the major organ systems of the human body, including

- digestive system - where large molecules are broken down to simple soluble molecules which are absorbed into and transported by the blood,
- respiratory system - for gas exchange, oxygen for carbon dioxide in the lungs,
- skeletal system - support, movement and protection,

- circulatory system - transport of materials, protection, and maintaining body temperature,
- excretory systems - removal of toxic waste products at the kidneys;

**Nutrition**

PLANTS

d find out that photosynthesis is a key process which is essential to plant life, including

- oxygen and starch are produced by photosynthesis,
- the word equation for photosynthesis,
- plants require specific minerals for healthy growth (limited to calcium, magnesium and nitrogen);

DIET

e find out that food is an energy source, and compare the energy content of different foods, including

- the functions of food - energy, growth and protection,
- the roles of carbohydrates, fats, proteins, fibre, vitamins (C and D only) and minerals (calcium and iron only) in the diet,
- the comparisons of energy content of carbohydrates, fats and proteins in different foods,
- variation in energy required, depending on age, gender, activity;

f learn about the diet required to maintain healthy bodies, including

- a balanced diet,
- the relationship between diet and heart disease,
- the difference between malnutrition and starvation,
- dental care;

DIGESTIVE SYSTEM

g be introduced to the structure and functions of the component parts of the digestive system in humans, including

- identification of the parts of the human alimentary canal, in relation to ingestion, digestion, absorption, assimilation and egestion (no detail of enzymes required);

**Respiration**

PLANTS

h understand that plants respire, including the exchange of oxygen and carbon dioxide by the leaf;

ANIMALS

i understand the structure and function of the component parts of the respiratory system, including

- identification and function of the major organs of the respiratory system - nasal cavity, trachea, bronchus, bronchioles, lungs, alveolus, diaphragm and ribs,
- mechanism of breathing,
- investigate the composition of inhaled and exhaled air;

CELL RESPIRATION

j understand how the cells use oxygen to provide energy for other life processes to take place (limited to the word equation for respiration);

SMOKING AND HEALTH

k find out how cigarette smoke affects health, including

- tar as a trigger for lung cancer,
- nicotine contributing to heart disease,
- carbon monoxide,
- passive smoking;

**Transport**

PLANTS

l find out about the movement of substances in plants, including transpiration and translocation;

ANIMALS

m be introduced to the structure and functions of the component parts of the circulatory system in humans, including

- structure of the blood, red blood cells (transport of oxygen), white blood cells (defence), plasma (transport of food, waste in solution), platelets (blood clotting),
- the heart, limited to names of the four chambers and the direction of blood flow; double circulation,
- blood vessels - arteries, veins and capillaries;

HEART DISEASE

n find out the relationship between diet, fitness and circulatory disorders, including

- obesity and increased blood pressure,
- investigate the effects of exercise on heart rate,
- heart attack as reduced coronary circulation;

**Reproduction**

PLANTS

o learn about the structure and functions of the component parts of the flower (limited to a named dicotyledonous plant), including

- name the parts - sepals, petals, nectaries, stamens, (anthers and filaments), carpels (stigma, style and ovary) and receptacle,
- self and cross-pollination,
- insects and wind as agents of pollination,
- fruit and seed dispersal - wind, animals, water and explosive mechanisms,
- seed structure - radicle, plumule, cotyledon, testa, endosperm,
- seed germination (limited to a hypogeal seed),
- investigate the conditions which affect germination - temperature, adequate water, oxygen supply;

ANIMALS

p be introduced to the structure and functions of the component parts of the reproductive systems in humans, including

- naming the parts of the male system - testes, scrotum, sperm ducts, prostate gland, urethra and penis,
- naming the parts of the female system - ovaries, oviducts, uterus, cervix, vagina and vulva,
- fertilization in the oviduct,
- role of the placenta,
- birth (limited to contraction of the uterus and dilation of the cervix);

q find out about the requirements to maintain healthy bodies and healthy babies during pregnancy, including diet, Rubella, smoking, alcohol, and drugs;

PUBERTY

r learn about the physical and emotional changes which take place during adolescence, including

- girls - growth spurt, development of body hair, growth of breasts, and menstruation (no detail of hormonal control needed),
- boys - growth spurt, body hair, facial hair, voice deepening and growth of testes and penis;

s learn about the need for a responsible attitude to sexual behaviour, including interpersonal relationships, contraception and sexually transmitted diseases;

CHILDHOOD

t to learn about the needs of young children in the early stages of their development, including breast feeding, balanced diet, immunisation programme, parental care and a loving environment.

## MATERIALS AND THEIR USES

### Properties and Uses

Pupils should have opportunities to:

a understand the physical properties of gases and relate these to everyday uses, *for example, gases are often stored under pressure because they can be compressed;*

b prepare and identify common gases, including carbon dioxide, hydrogen, nitrogen and oxygen;

c investigate everyday materials, both natural and man-made, in terms of their physical properties, *for example, lustre, strength, hardness, elasticity, solubility in water, melting and boiling point, electrical and thermal conductivity, and density;*

d relate the uses of everyday materials to their physical properties, *for example, use of aluminium in aircraft manufacture because of its strength and density, diamond in cutting tools because of its hardness, and copper for making electrical cable because it conducts electricity;*

### Classification

e understand classifications used in chemistry, including

- substances as solids, liquids and gases,
- solutions as acidic, alkaline or neutral, and the use of the pH scale in the classification of solutions,
- elements, compounds and mixtures, and to compare the physical and chemical properties of mixtures and compounds;

f be introduced to the Periodic Table and use it in investigations about physical and chemical properties of elements in terms of their position in the periodic table, including

- physical state, appearance, trends in melting points and boiling points,
- chemical properties of metals and non-metals;

g investigate techniques for separating and purifying mixtures, including

- the preparation of pure salt from rock salt,
- the separation of dyes in inks,
- recovery of the solvent from solutions using simple distillation;

### Environment

h understand that some waste products can be recycled, including glass, paper and aluminium cans, and why this process is desirable;

i find out about the positive and negative effects of the exploitation of raw materials, *for example, the effect of quarrying on the local environment;*

j find out about the methods used to monitor water purity, including the measurement of pH and the presence of soluble and insoluble materials;

k learn about the effects of corrosive gas pollutants, *for example, sulphur dioxide on building materials.*

## Chemical Reactions

Pupils should have opportunities to:

### Chemical Change

a investigate that when permanent changes occur new substances are formed and that these new substances have distinctive properties, *for example, compare the properties of magnesium with those of magnesium oxide;*

b investigate how rusting can be controlled;

c learn that useful products can be manufactured from various raw materials, *for example, the production of lime from limestone, glass from sand or plastics from oil;*

d investigate different types of chemical reaction, including:

- oxidation, *for example, burning magnesium and rusting,*
- reduction, *for example, removal of oxygen from copper oxide,*
- thermal decomposition, *for example, effect of heat on calcium carbonate or copper carbonate,*
- neutralisation, *for example, reaction of dilute hydrochloric acid and sodium hydroxide;*

e investigate the relative reactivity of metals based on their reactions with water, oxygen, dilute acids and the results of displacement reactions;

f understand the applications of chemical reactions in everyday contexts, including the extraction of iron in the Blast Furnace (details of process not required), the liming of soil in agriculture, indigestion (acid neutralisation);

### Energy

g find out that some chemical reactions are exothermic while others are endothermic, *for example, that an increase in temperature occurs when water is added to calcium oxide;*

h be introduced to word equations and to represent chemical reactions using word equations.

## Kinetic Theory

Pupils should have opportunities to:

### Particles

a learn that all matter is made up of small particles;

### States of Matter

b learn that heat changes ice to water and water to water vapour, and to relate these changes to the water cycle;

c understand the differences between solids, liquids and gases in terms of the proximity and motion of particles, including that

- ice cubes have a fixed shape as the particles are held together strongly,
- water can change shape because the particles are held less strongly and are able to move around,
- steam can spread around the room because the particles are separate and move rapidly;

d understand changes of state, diffusion and dissolving in terms of simple kinetic theory, including that heat is required to increase the movement and separation of particles and that heat must be supplied to vaporise liquids and melt solids;

### Electronic Structure

e learn about the structure of atoms in terms of electrons, protons and neutrons, and to understand the structure of the first twenty elements of the Periodic Table.

## PHYSICAL PROCESSES

### Energy

Pupils should have opportunities to:

#### Transfer and Conservation

a learn about energy transfer in a range of domestic contexts and in familiar devices, *for example, in coiled springs, elastic bands and batteries;*

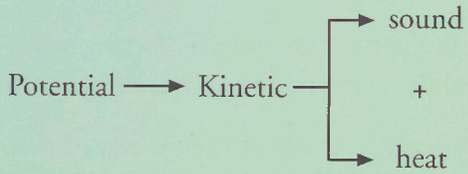
b understand the distinction between temperature and thermal energy, that is know that temperature is a measure of how hot an object is and is measured in °C, while thermal energy is a measure of how much energy is needed to change the temperature of an object and is measured in joules;

c investigate the process of heat transfer, including

- the difference between good thermal conductors and thermal insulators,
- convection in a liquid,
- the effect of the nature of surface on the emission, reflection and absorption of radiation;

d understand that energy is conserved;

e learn about some energy conversions in terms of the principle of conservation of energy, *for example, when a weight falls and hits the ground;*




f understand that energy may be dissipated and become less useful;

g know that there is a variety of energy sources, including, oil, gas, coal, nuclear, biomass, wind, wave and solar;

h learn that energy sources, *for example, wind or fossil fuels,* are ultimately dependent on the Sun's energy;

i know the difference between renewable energy sources, *for example, wind, wave, tidal, solar and biomass,* and non-renewable sources, *for example, fossil fuels and nuclear fuel (uranium);*

j know that global resources are limited and need to be shared, and understand why energy should be used efficiently.

## Forces

Pupils should have opportunities to:

### Linear

a know that forces can:

- change the shape of things,
- start objects moving,
- cause them to stop,
- change the direction of motion;

b learn that the movement of an object depends on the size and direction of the forces exerted on it;

c understand that change in movement or direction results from unbalanced forces and that balanced forces produce no change;

d calculate average speed from measurements of distance and time;

e investigate the effect of friction on moving objects, *for example, the effect of air resistance on a descending parachute and the effect of friction between a tyre and the road;*

### Turning

f know that forces can cause objects to turn;

g understand that the turning effect of a force depends on its size and where it is applied, *for example, use of force to loosen a wheel nut on a car wheel;*

h learn the principle of moments and describe some practical applications, *for example, the use of levers;*

### Pressure

i understand how the effect of a force over different areas results in different pressures (qualitative treatment only) and describe some practical applications, *for example, the use of snow shoes and the effect of stiletto heels.*

## Electricity and Magnetism

Pupils should have opportunities to:

### Circuits

a identify the role of conductors, insulators and switches in simple circuits;

b learn about the effects of varying current in a series circuit including changes in bulb brightness and temperature;

c measure current in series and parallel circuits and hence discover that current is not 'used up' in circuits;

### Static Charge

d know that insulating materials can be charged by friction;

e know that like-charged objects repel each other and unlike-charged objects attract each other;

### Charge Flow

f understand that current is a flow of charge;

### Magnetism

g find out about the properties of magnets including attraction and repulsion;

h find out about the magnetic field pattern produced by a bar magnet;

i investigate the properties of electromagnets and describe some practical applications, *for example, lifting of scrap metal and relay switches.*

## Sound and Light

Pupils should have opportunities to:

### Sound

a know that sounds are produced by vibrations;

b know that sound can travel through different materials at different speeds but cannot travel through a vacuum;

c know that the loudness of a sound is related to the amplitude of the vibration causing the sound;

d know that the pitch of a sound is related to the frequency of the vibration causing the sound;

e find out that different people have different audible ranges;

f know about the effects of loud sounds on the ear, including loss of hearing due to damage to the eardrum;

g understand the need to control noise levels in the environment;

### Light

h know that light comes from a variety of sources;

i find out about the formation of shadows;

j know that light travels in straight lines at a finite speed;

k find out how light is reflected from plane surfaces, including the relationship between the angle of incidence and the angle of reflection;

l know that light is refracted at the boundary between two materials;

m know that white light can be dispersed to give a range of colours.

## Earth in Space

Pupils should have opportunities to:

a know that the Sun, Moon and Earth are spherical bodies;

b learn that day and night can be explained in terms of the rotation of the Earth on its axis and that year length can be explained in terms of the movement of the Earth round the Sun;

c learn that changes in day length, seasonal changes and changes in the elevation of the Sun can be explained in terms of the tilt of the Earth's axis;

d use a simple model to learn about the changing phases of the Moon;

e learn about the position of the sun and planets within the solar system and how they move relative to each other including the use of terms, *for example, elliptical orbits, rotation and satellites;*

f learn that the solar system forms part of a galaxy which is part of a larger system called the Universe.

# Attainment Targets and Level Descriptions for Science at Key Stage 3



Science at Key Stage 3 has 4 attainment targets which relate directly to sections within the programmes of study:

- Experimental and Investigative Science;
- Living Organisms and Life Processes;
- Materials and their Uses;
- Physical Processes.

The programme of study at Key Stage 3 covers up to Level 8 of the attainment targets. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the key stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## EXPERIMENTAL AND INVESTIGATIVE SCIENCE

**Pupils should develop the intellectual and practical skills that would enable them to explore the world of science so as to gain an understanding of scientific phenomena and the procedures of scientific exploration and investigation. They should be able to use information technology appropriately and effectively in order to handle and communicate information in a variety of forms and for a variety of scientific purposes.**

LEVEL 1
Pupils observe familiar objects, materials and living things, and communicate their ideas about them. They talk about what they are going to do or have done.

LEVEL 2
Pupils observe and compare familiar objects, materials and living things. They ask questions related to their observations. They predict what might happen and make a simple record of their observations and conclusions.

LEVEL 3
Pupils suggest how ideas can be investigated and make predictions about what might happen. They use appropriate instruments to make measurements. They know when a test is fair and recognise why it is fair. They provide simple reasoned explanations for observations and measurements, and record these in a variety of ways, *such as writing, or using drawings or bar charts.* They describe in sequence what they did and begin to identify patterns which emerge from their observations. They describe the success of what they have done and suggest improvements.

## LIVING ORGANISMS AND LIFE PROCESSES

**Pupils should develop their knowledge and understanding of:**

- **the diversity and classification of living things;**
- **the relationships, energy flows, cycles of matter and human influences within ecosystems;**
- **ways in which human activities affect the Earth; and**
- **the organisation of living things and the processes which characterise their survival and reproduction.**

LEVEL 1
Pupils talk about a variety of living things and sort them into animals and plants. They recognise and name external parts of the body, using words *such as head or arm,* and of plants, using words *such as leaf or flower.*

LEVEL 2
Pupils sort living things into groups using observable features, *such as number of legs or shape of leaf.* They sequence the basic stages of human development and know what is required to keep healthy and safe.

LEVEL 3
Pupils use their knowledge of basic life processes, *such as growing, feeding, moving or using their senses,* to describe similarities and differences between living things. They provide simple explanations for changes affecting animal and plant behaviour, *such as seasonal changes or the use of colour in camouflage.*

## MATERIALS AND THEIR USES

**Pupils should develop their knowledge and understanding of:**

- **the properties of materials and the ways such properties determine their uses, and form the basis for their classification;**
- **the process of changing materials by chemical reaction and the ways this is used in the manufacture of new materials;**
- **ways in which human activities affect the Earth; and**
- **the use of models to explain the structure and properties of materials.**

LEVEL 1
Pupils talk about everyday materials, *such as paper, plasticine or sand.* They sort everyday objects into groups, *such as paper, plastic or wood.*

LEVEL 2
Pupils sort materials into groups giving reasons for their choice of groupings using everyday terms, *such as hard, smooth or shiny.* They describe what happens when some everyday substances are heated or cooled, *such as chocolate heated or jelly cooled.*

LEVEL 3
Pupils use their knowledge and understanding of materials to describe a variety of ways of sorting materials into groups according to their properties. They know that some everyday substances, *such as sugar or salt,* will dissolve in water. They know that there is a wide range of waste products and that materials, *such as wood,* decay naturally while others, *such as plastics,* do not.

## PHYSICAL PROCESSES

**Pupils should develop their knowledge and understanding of:**

- **the nature of energy, its transfer and control;**
- **the range of energy sources and the issues involved in their exploitation;**
- **the nature and application of forces;**
- **electric and electromagnetic effects in simple circuits, electric and domestic appliances;**
- **the properties and behaviour of sound and light; and**
- **the relative position and movement of the Earth, Moon, Sun and solar system within the universe.**

LEVEL 1
Pupils talk about some appliances in the classroom and at home which use electricity, *such as a television or a kettle.* They identify in their immediate environment a variety of sound sources, *such as a dog barking or footsteps,* and light sources, *such as the Sun or a light bulb.*

LEVEL 2
Pupils describe what happens when objects are pushed and pulled, using terms *such as 'speeds up' or 'stops'.* They describe how to make different sounds with a variety of objects. They know some colours are more easily seen in the dark.

LEVEL 3
Pupils know that there are different sources of energy, *such as oil, gas or coal.* They outline the dangers of misuse of mains electricity and know how to use electrical appliances safely. They explain that sounds are produced by vibrations. They know that light does not pass through all materials and when this happens shadows are formed.

# Attainment Targets and Level Descriptions for Science at Key Stage 3



Science at Key Stage 3 has 4 attainment targets which relate directly to sections within the programmes of study:

- Experimental and Investigative Science;
- Living Organisms and Life Processes;
- Materials and their Uses;
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When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## EXPERIMENTAL AND INVESTIGATIVE SCIENCE

**Pupils should develop the intellectual and practical skills that would enable them to explore the world of science so as to gain an understanding of scientific phenomena and the procedures of scientific exploration and investigation. They should be able to use information technology appropriately and effectively in order to handle and communicate information in a variety of forms and for a variety of scientific purposes.**

LEVEL 4

Pupils carry out a fair test, indicating factors which need to be kept constant. They make predictions about what they think will happen. They select and use appropriate apparatus and equipment to make a series of observations and measurements. They record and present their findings choosing appropriate methods, *such as diagrams, simple tables, graphs or a written record.* They use results to draw conclusions related to their knowledge and understanding. They evaluate what they have done, bearing in mind their original intentions.

LEVEL 5

Pupils design fair tests to answer questions that arise from their work in science. They identify factors that will need to be considered and, using their knowledge, make predictions about what they think will happen. They use a range of apparatus with appropriate precision and safety. They decide on appropriate methods for making observations and measurements, taking account of the required degree of accuracy. They begin to recognise the need for repeating observations and measurements and handle the data gathered in a systematic way. They select methods of recording appropriate to their observations or measurements including line graphs. They use spreadsheets packages, where appropriate. They interpret data in a variety of forms and from a variety of sources. They make written statements about patterns or conclusions derived from their own results and begin to explain these in terms of their own scientific knowledge and understanding.

LEVEL 6

Pupils apply the scientific knowledge they have gained from comparable situations to prepare plans in which they identify key factors that need to be considered. They make predictions for their own investigations. They use data from other sources, *such as database packages.* They describe procedures, using scientific vocabulary, and make measurements and observations appropriate to the task. They demonstrate a competence in practical skills, *such as in the selection of appropriate apparatus and in the precision with which they make their observations and measurements.* They use sensors to monitor or respond to changes occurring during their investigations. Pupils decide on the most appropriate ways to record and present their results and draw valid conclusions from these results. They explain these conclusions in terms of the evidence obtained and their knowledge and understanding of science.

## LIVING ORGANISMS AND LIFE PROCESSES

**Pupils should develop their knowledge and understanding of:**

- **the diversity and classification of living things;**
- **the relationships, energy flows, cycles of matter and human influences within ecosystems;**
- **ways in which human activities affect the Earth; and**
- **the organisation of living things and the processes which characterise their survival and reproduction.**

LEVEL 4

Pupils classify the animals and plants found in a local habitat using groupings, *such as number of legs or number of leaf parts* and describe the conditions necessary for their growth. They sequence the main stages of a life cycle, *such as that of a butterfly or a flowering plant.* They name the major organs of the human body, *such as brain, heart or lungs,* and identify the position of these organs in the human body. They know the conditions necessary to keep healthy.

LEVEL 5

Pupils assign organisms to their major groups and understand the main stages in a life cycle. They explain, in simple terms, the process of photosynthesis in green plants. They know the functions of food, the roles of nutrients in the diet and the reasons for maintaining a healthy diet. They describe, in simple terms, the parts and basic functions of the major organ systems in humans. They understand the ways by which human activity, *such as deforestation,* can change the environment and affect the plants and animals living there, and suggest suitable conservation strategies.

LEVEL 6

Pupils know and understand the differences between plant and animal cells. They know that living organisms show variation. They explain how cells become specialised in multicellular organisms, leading to varying levels of organisation in plants and animals. They understand why food chains and food webs exist in the environment. They explain that the distribution and abundance of organisms in habitats are affected by environmental factors, *such as the availability of light or water.* Pupils extend their knowledge and understanding of the circulatory digestive and respiratory systems in humans, using appropriate scientific terminology. They describe the reproductive parts in both plants and humans. They understand pollination and fertilization in plants, leading to germination and dispersal. They know the requirements to maintain a healthy body and identify the health issues which are associated with diet, drugs and the need for responsible attitudes to sexual behaviour.

## MATERIALS AND THEIR USES

**Pupils should develop their knowledge and understanding of:**

- **the properties of materials and the ways such properties determine their uses, and form the basis for their classification;**
- **the process of changing materials by chemical reaction and the ways this is used in the manufacture of new materials;**
- **ways in which human activities affect the Earth; and**
- **the use of models to explain the structure and properties of materials.**

LEVEL 4
Pupils describe differences between the properties of a range of materials and suggest why certain materials are suitable for specific purposes. They know that products made from paper, glass or aluminium can be recycled. They describe the changes in state in heating and cooling water.

LEVEL 5
Pupils understand the physical properties of gases and relate these to everyday uses. They know how to prepare and identify common gases. They use the pH scale when classifying solutions as acidic, alkaline or neutral. They understand that when new materials are formed, the change is permanent. They explain rusting in terms of oxidation and know how rusting can be controlled. They understand that there are limited amounts of raw materials in the environment. They discuss the positive and negative effects of obtaining and using the raw materials from the Earth. They relate changes in state to the water cycle.

LEVEL 6
Pupils use their knowledge and understanding of the nature and behaviour of materials to describe chemical and physical changes and how new materials can be made. They use their knowledge and understanding of particles to explain the differences in the three states of matter. Pupils extend their knowledge of classification to explain the differences between elements, compounds and mixtures. They describe some methods of separation to obtain pure substances from mixtures. They recover a solvent from solution using simple distillation. They know about the methods of monitoring water purity. They explain what happens in a range of chemical reactions and relate these to everyday contexts giving word equations where appropriate. They use the reactivity series to make predictions about reactions of metals.

## PHYSICAL PROCESSES

**Pupils should develop their knowledge and understanding of:**

- **the nature of energy, its transfer and control;**
- **the range of energy sources and the issues involved in their exploitation;**
- **the nature and application of forces;**
- **electric and electromagnetic effects in simple circuits, electric and domestic appliances;**
- **the properties and behaviour of sound and light; and**
- **the relative position and movement of the Earth, Moon, Sun and solar system within the universe.**

LEVEL 4
Pupils describe how forces can affect the movement and shape of objects. They identify a range of energy sources, *such as a battery for a torch.* They describe how to construct simple circuits using terms, *such as switches, bulbs or batteries,* and identify materials as insulators or conductors. They know how shadows are formed.

LEVEL 5
Pupils understand the meaning of temperature. They identify a variety of energy sources and know the difference between renewable and non-renewable sources. They describe the effect of friction on moving objects. They know the properties of magnets and the magnetic field pattern produced by a bar magnet. They describe how light is reflected from plane surfaces. They explain the relationship between loudness and amplitude, and pitch and frequency of a sound. They describe the affect of changing current in an electric circuit and explain what happens in series and parallel circuits. They use models to explain the changing phases of the Moon and to describe how day, night and year length are caused by the movement of the Earth.

LEVEL 6
Pupils understand the relationship between applied force, the area over which it acts and the resulting pressure. They calculate average speed from measurements made of distance and time. They distinguish between temperature and thermal energy. They describe energy conversions in terms of the principle of the conservation of energy. They know that energy sources are ultimately dependent on the Sun's energy. They understand how light is reflected from plane surfaces and that white light can be dispersed to give a range of colours. They explain the need to control noise levels in the environment. They know the properties of electromagnets. Pupils explain changes in day length, seasonal changes and changes in the elevation of the Sun.

# Attainment Targets and Level Descriptions for Science at Key Stage 3



Science at Key Stage 3 has 4 attainment targets which relate directly to sections within the programmes of study:

- Experimental and Investigative Science;
- Living Organisms and Life Processes;
- Materials and their Uses;
- Physical Processes.

The programme of study at Key Stage 3 covers up to Level 8 of the attainment targets. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the key stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## EXPERIMENTAL AND INVESTIGATIVE SCIENCE

**Pupils should develop the intellectual and practical skills that would enable them to explore the world of science so as to gain an understanding of scientific phenomena and the procedures of scientific exploration and investigation. They should be able to use information technology appropriately and effectively in order to handle and communicate information in a variety of forms and for a variety of scientific purposes.**

LEVEL 7

With guidance, pupils prepare systematic plans for investigations in which they identify key factors that need to be considered. They make use of their scientific knowledge and understanding to make predictions. Pupils make decisions about the type, range and precision of observations and measurements to be taken. They identify when they need to repeat measurements and observations in order to obtain reliable data. They present qualitative observations clearly and concisely. They present quantitative data in graphs and use, where appropriate, lines of best fit. They draw valid conclusions and explain these using scientific knowledge and understanding including relevant data from other sources. They begin to consider further their scientific procedures and suggest ways of improving their investigations.

LEVEL 8

Pupils apply their knowledge and understanding in a range of contexts including unfamiliar situations. They recognise that investigations of different kinds can require different approaches. They select a strategy or strategies appropriate to the specific investigation. Unaided, they prepare systematic and precise plans for their investigations including a strategy for dealing with results. They offer more detailed predictions based on reasoned scientific models. They decide on the observations and measurements that need to be taken and the degree of accuracy that is required. They set up and use scientific apparatus with precision and skill. They repeat observations and measurements, where appropriate, and identify and explain anomalies in their results, allowing for these when they represent their results graphically. Pupils evaluate the designs of their investigations and produce systematic and structured reports.

## LIVING ORGANISMS AND LIFE PROCESSES

**Pupils should develop their knowledge and understanding of:**

- **the diversity and classification of living things;**
- **the relationships, energy flows, cycles of matter and human influences within ecosystems;**
- **ways in which human activities affect the Earth; and**
- **the organisation of living things and the processes which characterise their survival and reproduction.**

LEVEL 7

Pupils show an increasing knowledge of cell structure which incorporates an understanding that genetic information is carried in the form of chromosomes and genes. They explain how cells are adapted to their function. They show an understanding of the processes of cell respiration and photosynthesis in terms of the main underlying chemical changes. They realise that plants need additional elements for healthy growth. They compare the energy content of different foods and understand that energy requirements vary according to age, gender and activity. They extend their knowledge of reproduction in humans to include the processes of fertilization, the role of the placenta and the process of birth. They know the requirements to maintain a healthy body and a healthy baby during pregnancy, and the needs of young children in the early stages of their development. They demonstrate a knowledge of physical and emotional changes which occur during adolescence and of contraception and sexually transmitted diseases.

LEVEL 8

Pupils explain how a range of physical factors affect the type and distribution of organism in a local habitat. Pupils construct models, *such as food webs* to represent feeding relationships. They explain how substances are transported in plants. They explain how digested food is absorbed in the small intestine, how gas exchange occurs at the lung surface and how blood carries out several functions in the body. They explain the consequences of harmful substances *such as tobacco and drugs* for organ systems. They understand the relationship between diet, fitness and circulatory disorders. They can describe different forms of variation and carry out appropriate measurements.

## MATERIALS AND THEIR USES

**Pupils should develop their knowledge and understanding of:**

- **the properties of materials and the ways such properties determine their uses, and form the basis for their classification;**
- **the process of changing materials by chemical reaction and the ways this is used in the manufacture of new materials;**
- **ways in which human activities affect the Earth; and**
- **the use of models to explain the structure and properties of materials.**

LEVEL 7

Pupils use their knowledge and understanding to relate the properties and uses of everyday materials. They apply their knowledge of particles to explain changes of state, diffusion and dissolving. They recognise the Periodic Table as a means of arranging elements and describe the physical and chemical properties of elements in terms of their position. They explain the differences between mixtures and compounds in terms of their physical and chemical properties. They describe the effects of corrosive gas pollutants. They describe the positive and negative effects of the exploitation of raw materials.

LEVEL 8

Pupils describe the physical and chemical properties of metals and non-metals and their compounds. They extend their understanding of the Periodic Table to explain the atomic structure of the first twenty elements. They recognise and classify a range of chemical reactions, *such as reduction or thermal decomposition.* They apply their knowledge of patterns in a chemical reaction to suggest how substances, *such as salts,* could be made. They understand the applications of chemical reactions in everyday contexts, *such as the extraction of iron in the blast furnace.* They explain the differences between chemical reactions which are exothermic and those which are endothermic.

## PHYSICAL PROCESSES

**Pupils should develop their knowledge and understanding of:**

- **the nature of energy, its transfer and control;**
- **the range of energy sources and the issues involved in their exploitation;**
- **the nature and application of forces;**
- **electric and electromagnetic effects in simple circuits, electric and domestic appliances;**
- **the properties and behaviour of sound and light; and**
- **the relative position and movement of the Earth, Moon, Sun and solar system within the universe.**

LEVEL 7

Pupils use the principle of moments in practical situations. They explain the process of energy transfer by conduction, convection and radiation. They know that global resources are limited and explain why energy should be used efficiently. They describe, in simple terms, the relationship between the angle of incidence and the angle of reflection. They describe common electrostatic phenomena and understand that electric current is a flow of charge. They describe simple applications of electromagnets. Pupils describe the relative movement of the Sun and planets within the solar system.

LEVEL 8

Pupils use models to describe and explain phenomena, *such as the flow of charge in parallel circuits.* They consider physical phenomena from different perspectives, *such as relating the dissipation of energy during energy transfer to the need to conserve limited energy resources.* They give detailed interpretations of graphs, *such as speed/time graphs.* They extend their understanding of the principle of moments to situations involving stability. They explain the heating effect of a current in terms of vibration of particles.

# Programme of Study for Key Stage 4 Science (Double)



## Science Options at Key Stage 4

Pupils may study either Double or Single Science at Key Stage 4. The requirements of either option would also be met by pupils taking approved courses in all three of the separate sciences of biology, chemistry and physics. Double Science or the three separate sciences should be taken by the great majority of pupils. Single Science is intended for a minority of pupils who have good reason to spend more time on other subjects.

## The Application of Science

During this key stage, pupils should have opportunities to apply scientific and technological knowledge and ideas. They should be given opportunities to develop their awareness of the role and importance of science in everyday life and study how science is applied in a variety of contexts. Pupils should use their scientific knowledge and skills to make decisions and judgements and consider the effects of scientific and technological developments on individuals, communities, and environments. Through this study, they should begin to understand the power and the limitations of science in solving industrial, social and environmental problems and to recognise the competing priorities and risks involved.

## The Nature of Science

Pupils should have opportunities to be involved in individual, group and whole class activities. They should be encouraged to further their understanding of the development of important ideas in science. Pupils should have opportunities to consider how the development of particular scientific ideas and theories relate to their historical and cultural contexts. They should study examples of scientific controversies and the ways in which scientific ideas developed. Pupils should be encouraged to distinguish between claims and arguments which are based on scientific considerations and those which are not, and to recognise the provisional nature of scientific explanations.

Pupils should have opportunities to recognise how scientific and technological advances have contributed to changes in work patterns, and to gain an understanding of the importance of science for post-16 study and for career opportunities.

## Communication

Pupils should have opportunities to develop further their skills of reporting and recording. They should be encouraged to articulate their own ideas both when working independently and contributing within groups. Pupils should develop research skills through selecting and using reference materials, and gathering and organising information from a number of sources and perspectives. Pupils should have opportunities to communicate scientific information from one form to another to suit the audience and the purpose, and to use databases and spreadsheets in their work.

### Information Technology

Pupils should use, where appropriate, information technology to store, process, retrieve and present information. They should have opportunities to use databases and spreadsheets in their work and to use, where appropriate, sensors to monitor changes occurring during their investigations.

### Safety

Pupils should maintain safe and organised areas for scientific investigations and adopt safe working practices when handling scientific apparatus. They should be aware of potential hazards and the appropriate actions to take to avoid risks.

## EXPERIMENTAL AND INVESTIGATIVE SCIENCE

Pupils should be encouraged to develop their experimental and investigative skills and their understanding of science through systematic experimentation and investigation. Work within this section of the programme of study should be introduced through the knowledge and understanding covered within the sections of the programme of study related to: 'Living Organisms and Life Processes'; 'Materials and their Uses'; and 'Physical Processes'. They should have opportunities to participate in increasingly complex activities which involve the application of scientific knowledge, understanding and skills.

While there should be opportunities throughout the key stage for pupils to undertake complete investigations, it will be appropriate, in some cases, to focus on particular aspects of the investigative process. On some occasions, the whole process of investigating an idea should be carried out by the pupils working on their own. Experimentation and investigation should form a major element of scientific activities at this key stage. However, there will be aspects of scientific knowledge and understanding that will not lend themselves to a practical approach.

### Planning

Pupils should have opportunities to:

a use their scientific knowledge and understanding to turn ideas into a form that can be investigated;

b make predictions where appropriate to do so;

c consider the factors, qualitative and/or quantitative, which need to be taken into account in investigations;

d draw up procedures for the investigation taking into account the observations or measurements which need to be made and how these are to be used;

e select appropriate apparatus, instruments and techniques for the investigation, taking into account criteria, *for example, the range and accuracy of the measurements and observations required, and the need for safe working procedures.*

### Carrying Out

Pupils should have opportunities to:

a use apparatus and materials in a safe and competent manner;

b use apparatus and instruments to make observations and measurements to an appropriate degree of accuracy;

c understand the need, where appropriate, to repeat observations or measurements;

d record observations or measurements systematically using methods appropriate to the information collected and to the purpose of the investigation.

### Presenting and Interpreting Results

Pupils should have opportunities to:

a present results in ways appropriate to the data collected and the purpose of the investigation, including, where appropriate, the use of graphs;

b interpret and evaluate results using, where appropriate, mathematical relationships;

c identify any trends, patterns and conclusions emerging from consideration of the results;

d draw valid conclusions and decide whether these conclusions agree with the original idea;

e explain the conclusions in the light of their scientific knowledge and understanding;

f consider their observations and measurements, including anomalies and sources of error, and suggest, where appropriate, improvements that could be made if they were to repeat the investigation;

g produce a written report of their investigation, using appropriate scientific vocabulary.

## LIVING ORGANISMS AND LIFE PROCESSES

### Variation

Pupils should have opportunities to:

#### Genetics

a understand how genetic information is passed from cell to cell and generation to generation, including

- mitosis,
- meiosis,
- fertilization as a means of restoring the diploid number;

b know that cloning results in genetically identical offspring, *for example, cuttings and runners in asexual reproduction in plants, tissue culture;*

c understand the principles of a simple monohybrid cross. Use of Punnett squares to determine genotype frequencies. Use of testcross/backcross to determine genotype. (Co-dominance not required);

d explain the way in which sex is determined in humans. (No detail of sex linked characters required);

e know that some diseases can be inherited (limited to cystic fibrosis and Down's Syndrome);

f know that radiation can cause genetic mutation (to include the role of U-V light and skin cancer);

g understand how DNA controls protein synthesis (limited to DNA as a double helix linked by base pairs and to lengths of DNA which code for specific proteins);

h understand how proteins can be obtained from genetically engineered bacteria, *for example, human insulin;*

#### Selection

i know that variation in living organisms has both a genetic and environmental basis, (limited to height in humans);

j understand that sexual reproduction is a source of genetic variation, while asexual reproduction produces clones;

k understand how variation and selection may lead to evolution or extinction;

l understand the use of artificial selection in plant and animal breeding, and how this leads to increased yield, food value, hardiness and disease resistance.

## Environment

Pupils should have opportunities to:

a explain how materials for growth and energy are transferred through an ecosystem, including assigning organisms to their trophic level;

b explain the meaning of the terms pyramid of numbers and pyramid of biomass;

c understand that materials are recycled to maintain the balance in the environment, including

- carbon cycle - photosynthesis, respiration, combustion and fossilization,
- nitrogen cycle - cycling of protein to include decay, nitrification, nitrogen fixation and denitrification. (No specific name of bacteria required);

d understand how food production involves the management of ecosystems, *for example, fish stocks;*

e understand how population growth and decline are related to environmental resources including the effects of birth rate, death rate, emigration, immigration, food supply, predation and diseases.



## Living Organisms

Pupils should have opportunities to:

### Nutrition

a understand that light, carbon dioxide and chlorophyll are needed for photosynthesis to take place;

b explain how the products of photosynthesis are used by a plant;

c find out the economic implications in crop production of enhancing environmental factors, *for example, carbon dioxide, light intensity, temperature and fertiliser application;*

d understand the properties of enzymes;

e extend their knowledge of the digestive system to include the action of digestive enzymes, including amylase, lipase and protease, and understand the processes of absorption and assimilation of the products of digestion;

### Respiration

f understand that respiratory surfaces are adapted for their function in both plants and animals, including large surface area, thin, moist and permeable;

g understand that respiration may be aerobic or anaerobic depending on the availability of oxygen;

### Transport

h understand that substances pass into and out of cells in a number of ways, including

- diffusion,
- osmosis,
- active uptake;

i understand the role of water in plants, including transport and support;

j extend their knowledge of the circulatory system in humans to include the names of the main blood vessels entering and leaving the heart, and the main organs of the body (limited to the lungs, kidney, liver and intestine);

k understand the defence mechanisms of the body including the role of the

- skin,
- blood – clotting; antibodies and antigens; and types of active and passive immunity,
- mucous membranes in the respiratory system;

### Reproduction

l extend their knowledge of the reproductive system to explain the process of implantation and the role of the placenta, umbilical cord, amnion and amniotic sac;

m learn about the need for a responsible attitude to sexual behaviour, including

- interpersonal relationships,
- prevention of sexually transmitted diseases, *for example, the cause, transmission and prevention of AIDS,*
- contraception - natural, mechanical and surgical methods;

### Excretion

n learn the structure and functions of the component parts of the excretory system in humans, including

- the breakdown of excess amino acids to urea in the liver,
- removal of these toxic products of metabolism from the blood at the kidneys. (No detail of nephron required);

o learn that the kidney has a role in maintaining the internal environment in humans limited to water balance. (No detail of ADH required);

p understand that dialysis is a life supporting mechanism, using an artificial method of filtration, in cases of kidney failure;

q understand the role of hormones in plants, including

- response to light,
- commercial use of hormones in weed control;

### Nervous System

r find out that behaviour can be explained in terms of receptors, co-ordinators and effectors, including

- receptors - the eye and the skin,
- co-ordinators - the simple function of the brain and spinal cord in co-ordinating responses; a reflex arc,
- effectors - the antagonistic action and function of muscles at a joint (limited to the elbow joint);

s understand the function and role of hormones in co-ordination in humans, including

- insulin control of blood sugar levels,
- adrenaline in preparation for flight or fight;

### Drugs

t discuss the effects of alcohol, drug and solvent abuse on society.

## MATERIALS AND THEIR USES

### Properties and Uses

Pupils should have opportunities to:

a investigate the quantitative relationship between the volume of a gas and its temperature and pressure;

b explain the properties of typical ionic, covalent and metallic substances in terms of models based on chemical bonding and use symbolic representation of these models in three-dimensional form, diagrams and equations;

c investigate the physical and chemical properties of simple organic compounds, including methane, ethane, ethene, ethanol and ethanoic acid;

d learn about composite materials, illustrated by some common composite materials, *for example, reinforced concrete, glass-reinforced plastic and bone,* and make reasoned judgements about the choice of materials for particular uses;

e use scientific knowledge and information to evaluate the social, economic and environmental factors associated with the manufacturing processes, *for example, in the cracking of oil, the chlor-alkali industry or the production of fertilisers;*

#### Environment

f explain that pollution control is an national and international responsibility;

#### Classification

g explain the physical processes by which different chemicals are obtained from oil;

h carry out a more detailed study of a range of metals and non-metals and their compounds, and investigate the different ways in which they can be classified as metallic, ionic, covalent molecular or giant covalent;

i understand simple trends in the properties of elements within groups and across periods of the Periodic Table;

j understand that there are limitations to different systems of classification, *for example, oxide classification in terms of acid/base behaviour.*

### Chemical Reactions

Pupils should have opportunities to:

#### Chemical Change

a relate important oxidation and reduction reactions and electrolytic decomposition to everyday examples and manufacturing processes;

b explain electrolysis in terms of ions and ionic equations, and predict the products of simple electrolysis reactions;

c explain precipitation in terms of interaction of ions and relate this to processes of separation, purification and ion identification;

d explain, in terms of ions, the causes and effects of water hardness and outline methods of softening water including boiling, addition of sodium carbonate and ion exchange;

e learn how chemicals are obtained from oil by cracking;

f understand the process of addition polymerisation and esterification;

### Equations

g use symbolic equations qualitatively to describe chemical reaction;

h carry out simple calculations based on the quantitative interpretation of chemical reactions;

i investigate quantitatively the different factors that effect the rates of chemical reactions and relate these factors to the practical problems associated with manufacturing processes in industry;

### Energy

j relate the resultant energy change in a chemical reaction to the breaking and making of bonds.

## Kinetic Theory

Pupils should have opportunities to:

### Particles

a explain changes of state and a range of other phenomena in terms of the kinetic theory;

b understand isotopes in terms of atomic structure;

c describe the properties of different types of ionising radiation and relate these to their uses;

d describe radioactivity and nuclear fission in terms of the atomic model and demonstrate an understanding of half-life;

e explain the concept of half-life in terms of radio-active elements.

## PHYSICAL PROCESSES

### Energy

Pupils should have opportunities to:

#### Transfer and Conservation

a understand how energy is transferred by the movement of particles in conduction and convection;

b learn how energy is transferred by radiation;

c know about methods of controlling energy transfer in domestic contexts;

d know that efficiency is a measure of how much energy is transferred in an intended way;

e consider the economic and environmental implications of the use of energy resources;

f learn and use the quantitative relationships between force, distance, work, kinetic energy, gravitational potential energy, time and power;

g consider the longer term implications of world-wide patterns of distribution and use of energy resources.

### Forces

Pupils should have opportunities to:

#### Linear

a learn and use the quantitative relationships between:

- initial speed, final speed, acceleration and time, and
- distance, time and average speed;

b use graphical methods to determine velocity, acceleration and distance travelled;

c learn and use the quantitative relationships between force, mass and acceleration;

d distinguish between mass and weight;

e understand the concept of momentum;

#### Turning

f apply the concept of centre of mass in practical situations, *for example, stability;*

#### Circular

g understand that circular motion requires a centripetal force;

#### Effects

h find out how extension varies with applied force for a range of materials.

## Electricity and Magnetism

Pupils should have opportunities to:

### Circuits

a measure voltage in series circuits;

b learn and use the quantitative relationship between voltage, resistance and current;

c find out how current varies with voltage in a range of devices including resistors, filament bulbs and thermistors;

d understand that voltage is the energy transferred per unit charge;

e learn and use the quantitative relationships between power, energy, current, voltage and time;

f know the difference between a.c. and d.c.;

g understand the function of live, neutral and earth wires in the domestic mains supply and the use of insulation, earthing, fuses and circuit breakers to protect users of electrical equipment;

h calculate the costs of using common electrical appliances;

### Static Charge

i learn about the dangers and uses of electrostatic charge generated in everyday contexts;

j interpret common electrostatic phenomena in terms of unbalanced changes, *for example explain that cling film sticks to your hand because of the transfer of charge;*

k explain the behaviour of a circuit and its components in terms of a model of charge flow;

l learn and use the quantitative relationship between current, charge and time;

### Electromagnetism

m find out that current may be induced in a conductor by its motion relative to a magnet or by changing the current in a neighbouring conductor;

n understand how transformers and simple a.c. generators work;

o learn how electricity is generated and transmitted.

## Sound, Light and Waves

Pupils should have opportunities to:

### Waves

a understand that when waves travel from one point to another they transfer energy;

b find out about longitudinal and transverse waves in springs or water;

c find out that waves can be reflected, refracted and diffracted;

d find out how light is dispersed by prisms and understand that a spectrum can be produced because different colours of light are refracted by different amounts;

e know the meaning of frequency, wavelength and amplitude of a wave;

f learn and use the quantitative relationship between frequency, wavelength and speed of a wave;

g use a wave model to explain refraction of light at a plane surface;

### Sound

h find out about some practical applications of echoes;

i find out about the characteristics and effects of vibration, including resonance;

j relate pitch, loudness and quality of sound to the characteristics of the sound wave;

k learn about ultrasound waves and some applications of ultrasound in industry and medicine;

### The Electromagnetic Spectrum

l learn that the electromagnetic spectrum includes radio waves, microwaves, infrared, visible light, ultraviolet waves, X-rays and gamma-rays;

m know some uses and dangers of microwaves, infrared and ultraviolet waves in domestic situations;

n know some uses of radio waves, microwaves, infrared and visible light in communications;

o know some uses of X-rays and gamma-rays in medicine.

## Earth in Space

Pupils should have opportunities to:

a know that gravitational force acts towards the centre of every astronomical body;

b know that gravitational forces act between all masses and that the magnitude diminishes with distance;

c know that gravitational forces determine the motion of planets, moons, satellites and comets;

d consider the possibilities and limitations of space travel;

e learn how stars evolve over a long time scale;

f learn about ideas which have been used to explain the character and origin of the Earth and the Universe.

# Programme of Study for Key Stage 4 Science (Single)



## Science Options at Key Stage 4

Pupils may study either Double or Single Science at Key Stage 4. The requirements of either option would also be met by pupils taking approved courses in all three of the separate sciences of biology, chemistry and physics. Double Science or the three separate sciences should be taken by the great majority of pupils. Single Science is intended for a minority of pupils who have good reason to spend more time on other subjects.

## The Application of Science

During this key stage, pupils should have opportunities to apply scientific and technological knowledge and ideas. They should be given opportunities to develop their awareness of the role and importance of science in everyday life and study how science is applied in a variety of contexts. Pupils should use their scientific knowledge and skills to make decisions and judgements and consider the effects of scientific and technological developments on individuals, communities, and environments. Through this study, they should begin to understand the power and the limitations of science in solving industrial, social and environmental problems and to recognise the competing priorities and risks involved.

## The Nature of Science

Pupils should have opportunities, where appropriate, to be involved in individual, group and whole class activities. They should be encouraged to further their understanding of the development of important ideas in science. Pupils should have opportunities to consider how the development of particular scientific ideas and theories relate to their historical and cultural contexts. They should study examples of scientific controversies and the ways in which scientific ideas developed. Pupils should be encouraged to distinguish between claims and arguments which are based on scientific considerations and those which are not, and to recognise the provisional nature of scientific explanations.

Pupils should have opportunities to recognise how scientific and technological advances have contributed to changes in work patterns, and to gain an understanding of the importance of science for post-16 study and for career opportunities.

## Communication

Pupils should have opportunities to develop further their skills of reporting and recording. They should be encouraged to articulate their own ideas both when working independently and contributing within groups. Pupils should develop research skills through selecting and using reference materials, and gathering and organising information from a number of sources and perspectives. Pupils should have opportunities to translate information from one form to another to suit audience and purpose, and to use databases and spreadsheets in their work.

### Information Technology

Pupils should use, where appropriate, information technology to store, process, retrieve and present information; and should use, where appropriate, sensors to monitor changes occurring during their investigations.

### Safety

Pupils should maintain safe and organised areas for scientific investigations and adopt safe working practices when handling scientific apparatus. They should be aware of potential hazards and the appropriate actions to take to avoid risks.

## EXPERIMENTAL AND INVESTIGATIVE SCIENCE

Pupils should be encouraged to develop their experimental and investigative skills and their understanding of science through systematic experimentation and investigation. Work within this section of the programme of study should be introduced through the knowledge and understanding covered within the sections of the programme of study related to: 'Living Organisms and Life Processes'; 'Materials and their Uses'; and 'Physical Processes'. They should have opportunities to participate in increasingly complex activities which involve the application of scientific knowledge, understanding and skills.

While there should be opportunities throughout the key stage for pupils to undertake complete investigations, it will be appropriate, in some cases, to focus on particular aspects of the investigative process. On some occasions, the whole process of investigating an idea should be carried out by the pupils working on their own. Experimentation and investigation should form a major element of scientific activities at this key stage. However, there will be aspects of scientific knowledge and understanding that will not lend themselves to a practical approach.

### Planning

Pupils should have opportunities to:

a use their scientific knowledge and understanding to turn ideas into a form that can be investigated;

b make predictions where appropriate to do so;

c consider the factors, qualitative and/or quantitative, which need to be taken into account in investigations;

d draw up procedures for the investigation taking into account the observations or measurements which need to be made and how these are to be used;

e select appropriate apparatus, instruments and techniques for the investigation, taking into account criteria, *for example, the range and accuracy of the measurements and observations required, and the need for safe working procedures.*

### Carrying Out

Pupils should have opportunities to:

a use apparatus and materials in a safe and competent manner;

b use apparatus and instruments to make observations and measurements to an appropriate degree of accuracy;

c understand the need, where appropriate, to repeat observations or measurements;

d record observations or measurements systematically using methods appropriate to the information collected and to the purpose of the investigation.

## Presenting and Interpreting Results

Pupils should have opportunities to:

a present results in ways appropriate to the data collected and the purpose of the investigation, including, where appropriate, the use of graphs;

b interpret and evaluate results using, where appropriate, mathematical relationships;

c identify any trends, patterns and conclusions emerging from consideration of the results;

d draw valid conclusions and decide whether these conclusions agree with the original idea;

e explain the conclusions in the light of their scientific knowledge and understanding;

f consider their observations and measurements, including anomalies and sources of error, and suggest, where appropriate, improvements that could be made if they were to repeat the investigation;

g produce a written report of their investigation, using appropriate scientific vocabulary.

## LIVING ORGANISMS AND LIFE PROCESSES

### Variation

Pupils should have opportunities to:

#### The Cell

a learn that plants and animals are composed of cells,

- use of the microscope and slide to study the structure and function of a typical plant and animal cell including nucleus, cytoplasm, cell membrane, nuclear membrane, cell wall, chloroplast, permanent vacuole and chromosomes;

#### Genetics

b understand how genetic information is passed from cell to cell and generation to generation, including

- mitosis,
- meiosis,
- fertilization as a means of restoring the diploid number;

c understand the principles of a simple monohybrid cross. Use of Punnett squares to determine genotype frequencies. Use of testcross/backcross to determine genotype. (Co-dominance not required);

d explain the way in which sex is determined in humans. (No detail of sex-linked characters required);

e know that variation in living organisms has both a genetic and environmental basis (limited to height in humans);

f find out that variation can be measured in living organisms including height as an example of continuous variation and tongue rolling as an example of discontinuous variation;

g understand how variation and selection may lead to evolution or extinction;

#### Specialisation

h understand that cells become specialised to carry out different functions, including the root hair in plants, sperm cell, ciliated epithelium in animals;

#### Levels of Organisation

i understand that cells are the building units of tissues, organs, organ systems, and organisms in a flowering plant and a mammal.

## Environment

Pupils should have opportunities to:

a assign organisms to their major groups using keys of observable features;

b understand the components of food chains and food webs, including

- Sun as a primary source of energy,
- producers,
- consumers,
- decomposers,
- nature of energy flow;

c understand that materials are recycled to maintain the balance in the environment, including

- carbon cycle - photosynthesis, respiration, combustion and fossilization,
- nitrogen cycle - cycling of protein to include decay, nitrification, nitrogen fixation and denitrification (no specific name of bacteria required);

d understand how food production involves the management of ecosystems, *for example, fish stocks;*

e understand how population growth and decline are related to environmental resources including the effects of birth rate, death rate, emigration, immigration, food supply, predation and diseases.

## Living Organisms

Pupils should have opportunities to:

### Nutrition

a find out that photosynthesis is a key process which is essential to plant life, including

- that oxygen and starch are produced by photosynthesis,
- the word equation for photosynthesis;

b find out that food is an energy source, and to compare the energy content of different foods, including

- the functions of food - energy, growth and protection,
- the roles of carbohydrates, fats, proteins, fibre, vitamins (C and D only) and minerals (calcium and iron only) in the diet,
- the comparisons of energy content of carbohydrates, fats and proteins in different foods,
- variation in energy required, depending on age, gender, activity;

c learn about the diet required to maintain healthy bodies, including

- a balanced diet,
- the relationship between health, diet and heart disease,
- the difference between malnutrition and starvation,
- dental care;

d be introduced to the structure and functions of the component parts of the digestive system in humans, including

- identification of the parts of the human alimentary canal, in relation to ingestion, digestion and egestion. (No detail of enzymes required);

e extend their knowledge of the digestive systems to include amylase, lipase and protease in saliva, gastric, pancreatic and intestinal juice;

f understand the processes of absorption and assimilation of the products of digestion;

**Respiration**

g understand the structure and function of the component parts of the respiratory system, including

- identification and function of the major organs of the respiratory system - nasal cavity, trachea, bronchus, bronchioles, lungs, alveolus, diaphragm and ribs;

h understand how the cells use oxygen to provide energy for other life processes to take place (limited to the word equation for respiration);

i find out how cigarette smoke affects health;

j be introduced to the structure and functions of the component parts of the circulatory system in humans, including

- structure of the blood - red blood cells (transport of oxygen), white blood cells (defence), plasma (transport of food and waste in solution), platelets (blood clotting),
- the heart, including the names of the 4 chambers and the direction of blood flow,
- blood vessels - arteries carrying blood away from the heart and veins carrying blood to the heart;

k find out the relationship between diet, fitness and circulatory disorders;

**Reproduction**

l learn about the structure and functions of the component parts of the flower (limited to a named dicolyledonous plant), including

- name the parts - sepals, petals, nectaries, stamens, (anther and filament), carpels (stigma, style, ovary) and receptacle,
- self and cross-pollination,
- insects and wind as agents of pollination,

- fruit and seed dispersal - wind, animals, water and explosive mechanisms,
- seed structure (radicle, plumule, cotyledon, testa, endosperm),
- seed germination (a hypogeal seed),
- investigate the conditions which affect germination (temperature, adequate water, oxygen supply);

m be introduced to the structure and functions of the component parts of the reproductive systems in humans, including

- naming the parts of the male system - testes, scrotum, sperm ducts, prostate gland, urethra and penis,
- naming the parts of the female system - ovaries, oviducts, uterus, cervix, vagina and vulva,
- fertilization in the oviduct,
- role of the placenta,
- birth (limited to the contraction of the uterus and dilation of the cervix);

n find out about the requirements to maintain healthy bodies and healthy babies during pregnancy, including diet, Rubella, smoking, alcohol and drugs;

o learn about the need for a responsible attitude to sexual behaviour, including

- interpersonal relationships,
- prevention of sexually transmitted diseases, *for example, the cause, transmission and prevention of AIDS,*
- contraception - natural, mechanical and surgical methods;



**Nervous System**

p find out that behaviour can be explained in terms of receptors, co-ordinators and effectors, including

- receptors - the eye; skin, including temperature control,
- co-ordinators - the simple function of the brain and spinal cord in co-ordinating responses; a reflex arc,
- effectors - the antagonistic action and function of muscles at a joint (limited to the elbow joint);

q understand the functions and the role of hormones in co-ordination in humans, including

- insulin control of blood sugar levels,
- adrenaline in preparation for flight or fight;

### Life Processes

r know the basic life processes of all living organisms;

### Organ Systems

s learn the basic functions of the organs in a flowering plant, including

- the root - to absorb water and mineral salts and provide anchorage,
- the stem - to support and transport water and food in veins,
- the leaf - large surface area to absorb light energy for photosynthesis,
- the flower - to reproduce;

t learn the basic functions of the major organ systems of the body, including

- digestive system,
- respiratory system - for gas exchange, oxygen for carbon dioxide in the lungs,
- skeletal system - support, movement and protection,
- circulatory system,
- excretory systems – removal of toxic waste products at the kidneys, and water balance as an example of homeostasis.

## MATERIALS AND THEIR USES

### Properties and Uses

Pupils should have opportunities to:

a investigate the physical properties of gases and relate these to everyday uses, *for example, gases are often stored under pressure because they can be compressed;*

b prepare and identify common gases, including carbon dioxide, hydrogen, nitrogen and oxygen using their chemical properties;

c investigate everyday materials, both natural and man-made, in terms of their physical properties, *for example, lustre, strength, hardness, elasticity, solubility, melting and boiling point, electrical and thermal conductivity, and density;*

d relate the use of everyday materials to their physical properties, *for example, use of aluminium in aircraft manufacture because of its strength and density, diamond in cutting tools because of its hardness, and copper for making electrical cable because it conducts electricity;*

e investigate the properties of industrially important substances, *for example, metals, ceramics, glass, plastics and fibres,* and relate properties to simple models of their structures;

f learn about composite materials, illustrated by some common composite materials, *for example, reinforced concrete, glass-reinforced plastic and bone,* and make reasoned judgements about the choice of materials for particular uses;

### Environment

g understand that some waste products can be recycled, including glass, paper and aluminium cans, and why this process is desirable;

h find out about the positive and negative effects of the exploitation of raw materials, *for example, the effect of quarrying on the local community;*

i find out about the methods used to monitor water purity, including the measurement of pH, oxygen content, soluble and insoluble materials;

j learn about the effects of corrosive gas pollutants, *for example, sulphur dioxide on building materials;*

k explain that pollution control is a national and international responsibility;

### Classification

l understand classifications used in chemistry, including

- substances as solids, liquids and gases,
- solutions as acidic, alkaline or neutral, and the use of the pH scale in the classification of solutions,
- elements, compounds and mixtures, and to compare the physical and chemical properties of mixtures and compounds, *for example, differences in physical and chemical properties between iron (II) sulphide and a mixture of iron and sulphur;*

m be introduced to the Periodic Table and use it to investigate the physical and chemical properties of elements in terms of their position in the period table, *for example, to undertake a comparison of the properties of Group 1 and Group 7 elements, including physical state, appearance, trends in melting points and boiling points, and trends in reactivity of halogens with metals and hydrogen;*

n carry out a more detailed study of a range of metals and non-metals and their compounds, and investigate the different ways in which they can be classified as metallic, ionic, covalent molecular or giant covalent;

o understand simple trends in the properties of elements within groups and across periods of the Periodic Table;

p investigate techniques for separating and purifying mixtures, including

- the preparation of pure salt from rock salt,
- the separation of dyes in inks,
- the recovery of the solvent from solution using simple distillation.

## Chemical Reactions

Pupils should have opportunities to:

### Chemical Change

a investigate that when permanent changes occur new substances are formed and that these new substances have distinctive properties, *for example, compare the properties of magnesium with those of magnesium oxide;*

b investigate how rusting can be controlled;

c learn that useful products can be manufactured from various raw materials, *for example, the production of lime from limestone, glass from sand and plastics from oil;*

d investigate different types of chemical reaction, including

- oxidation, *for example, burning magnesium and rusting,*
- reduction, *for example, removal of oxygen from copper oxide,*
- chemical decomposition, *for example, effect of heat on calcium carbonate or copper carbonate,*
- neutralisation, *for example, reaction of dilute hydrochloric acid and sodium hydroxide;*

e relate important oxidation and reduction reactions and electrolytic decomposition to everyday examples and manufacturing processes;

f explain, in terms of ions, the causes and effects of water hardness, and outline methods of softening water, including boiling, addition of sodium carbonate and ion exchange;

g learn how chemicals are obtained from oil cracking;

h investigate quantitatively the different factors that effect the rates of chemical reactions and relate these factors to the practical problems associated with the manufacturing processes in industry;

i find out that some chemical reactions are exothermic while others are endothermic, *for example, that an increase in temperature occurs when water is added to calcium oxide;*

### Equations

j use symbolic equations qualitatively to describe chemical equations;

### Electronic Structure and Chemical Formulae

k learn about the structure of atoms in terms of electrons, protons and neutrons, in order to understand the structure of the first twenty elements of the Periodic Table;

l learn about the formation of ions in terms of the addition or removal of electrons, and to work out the formula of simple ionic compounds, *for example, NaCl, MgO and $CaCl_2$.*

## Kinetic Theory

Pupils should have opportunities to:

### Particles

a investigate the Kinetic Theory as a model to explain changes of state and a range of other phenomena;

b explain the properties of typical ionic, covalent and metallic substances in terms of models based on chemical bonding and use symbolic representation of these models in three-dimensional form, diagrams and equations.

## PHYSICAL PROCESSES

### Energy

Pupils should have opportunities to:

#### Transfer and Conservation

a understand how energy is transferred by the movement of particles in conduction and convection;

b learn how energy is transferred by radiation;

c know that efficiency is a measure of how much energy is transferred in an intended way;

d consider the longer term implications of worldwide patterns of distribution and use of energy resources.

### Forces

Pupils should have opportunities to:

#### Turning

a apply the concept of centre of mass in practical situations, *for example, stability;*

#### Circular Effects

b understand that circular motion requires a centripetal force;

c find out how extension varies with applied force for a range of materials.

### Electricity and Magnetism

Pupils should have opportunities to:

#### Circuits

a measure voltage in series circuits;

b learn and use the quantitative relationship between voltage, resistance and current;

c know the difference between a.c. and d.c.;

d calculate the costs of using common electrical appliances;

#### Electromagnetism

e learn how electricity is generated and transmitted.

## Sound, Light and Waves

Pupils should have opportunities to:

### Waves

a understand that when waves travel from one point to another they transfer energy;

### The Electromagnetic Spectrum

b learn that the electromagnetic spectrum includes radio waves, microwaves, infrared, visible light, ultraviolet waves, X-rays and gamma-rays;

c know some uses and dangers of microwaves, infrared and ultraviolet waves in domestic situations;

d know some uses of radio waves, microwaves, infrared and visible light in communications;

e know some uses of X-rays and gamma-rays in medicine.

## Earth in Space

Pupils should have opportunities to:

a know that gravitational forces act between all masses and that the magnitude diminishes with distance;

b know that gravitational forces determine the motion of planets, moons, satellites and comets;

c consider the possibilities and limitations of space travel;

d learn how stars evolve over a long time scale;

e learn about ideas which have been used to explain the character and origin of the Earth and the Universe.



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# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGET

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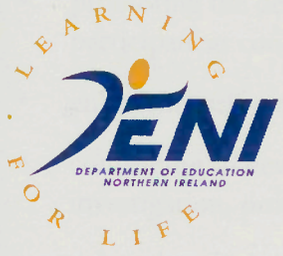


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TECHNOLOGY AND DESIGN

# TECHNOLOGY

# Characteristics of the Curriculum at Key Stages 3 and 4

Pupils enter Key Stage 3 with the experiences gained from the study of a range of subjects in the primary school. These experiences should be recognised and built upon at Key Stages 3 and 4. The learning experiences which are provided should be enjoyable and include challenges which are achievable and motivating.

It is important to recognise the continuing development of pupils as individuals during Key Stages 3 and 4, particularly through their growing awareness of themselves and their capabilities. The whole curriculum for Key Stages 3 and 4 should promote the development of the individual pupil in terms of an increasing facility for self-evaluation and ability to take responsibility for his or her own learning and work practices. There should be ample opportunity for the pupil to apply learning to relevant contexts and purposes.

The range of knowledge, understanding and skills represented in the curriculum at Key Stages 3 and 4 should also help pupils to become aware of themselves in the wider world, to develop independence and make informed judgements and responsible decisions relating to their own lives and their relationships with others. In their continuing development, pupils should be guided towards targets which are suited to their abilities and aptitudes and should be encouraged to review these targets as part of their development towards adult and working life.

The Key Stage 3 curriculum should take account of a vocational dimension through recognition and application of work-related skills and personal qualities, interests and abilities. Pupils should also have opportunities to explore the implications for adult and working life of decisions they will take in relation to their study beyond fourteen.

The Key Stage 4 curriculum should include a strong emphasis on the vocational dimension which will relate to decisions taken both about courses and qualifications and the setting of individual targets. The National Record of Achievement (NRA) and the formulation of Personal Career Plans will promote the recognition of personal qualities, interests and abilities through the exploration of the implications of pupils' decisions for further study and for adult and working life.

Education at Key Stages 3 and 4 should continue to foster the intellectual, social, emotional, physical, moral, cultural and spiritual development of pupils by:

- encouraging a growing independence;
- guiding pupils to express their own individual needs, identifying targets which meet these needs, and assisting them to make informed choices and decisions;
- promoting the development of personal and inter-personal skills, so enabling them to participate as contributing members of groups;
- enhancing self-esteem and encouraging the growth of pupils' own sets of values;
- continuing to develop pupils' study skills, by providing opportunities for exploration, investigation, problem-solving and decision-making;
- enhancing the creativity of pupils by stimulating curiosity and imagination;
- developing increased versatility and confidence in communication across a range of media and for a variety of purposes;
- providing rich and varied contexts for the development of thinking and reasoning skills associated with observing, recording, interpreting, inferring and predicting.

# Using the Programme of Study for Key Stage 3

## Access to the Programme of Study

Teachers should ensure that pupils have access to the breadth and depth of this programme of study at levels and within contexts which are appropriate and relevant to their individual needs and abilities.

In order to meet the particular needs of some pupils and to ensure that learning experiences for these pupils are positive and meaningful, it may be necessary for teachers to select materials and/or activities from an earlier key stage. When this is the case, it is important that such material and/or activities be presented in appropriate age- and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.



## Language Across the Curriculum

Teachers should be aware of the key role of language in learning. They should use opportunities provided within the programme of study to encourage the development of all four modes of language: talking, listening, reading and writing. Teachers should give attention to the quality of language and take opportunities to reinforce good practice on the use of language.

## Equality of Opportunity

The programmes of study for all subjects within the Northern Ireland Curriculum are designed to ensure equal access to a broad and balanced curriculum for all pupils. Teachers should make every effort to ensure that equality of opportunity is provided for both girls and boys in order that all pupils should have equal access to the full range of experiences across all subjects in the Northern Ireland Curriculum.

## Referencing

The lettering used throughout the programme of study is for referencing purposes only. It does not necessarily identify strands, indicate a teaching sequence or hierarchy of knowledge, understanding and skills.

## Statutory Elements

Those elements which form part of the statutory requirements have been tinted. Other aspects which provide information or clarification have been left untinted. Examples are non-statutory and are printed in italics.

# Programme of Study for Technology and Design at Key Stage 3



## Introduction

Technology and design activities should encourage pupils to use and develop imagination and creativity. Pupils should have opportunities to engage in technology and design activities which build upon their interests and level of maturity. Throughout their work, pupils should build upon and apply the principles and laws of science. Technology and design activities should also provide opportunities for pupils to experience the sense of satisfaction and enjoyment that comes from purposeful activities leading to an outcome of completed products.

The key activity within technology and design is designing. Designing requires pupils to bring together and apply knowledge, understanding and skills relating to materials and components, energy and control, and manufacturing. Within the design activities there should be opportunities to analyse, investigate and generate ideas, and to evaluate those ideas. Throughout all design activities, pupils should have opportunities to communicate their ideas in both written and oral forms.

As they progress through the key stage, pupils should be given increasing opportunities to take responsibility for their work. They should develop their design skills through the approach taken to designing and the complexity of the design task in which they are engaged. Pupils should be encouraged to consider the function and safety of their design. The design activities may originate from a range of starting points, *for example, from the identification of a need, the technical specification provided by a customer, an initial design concept for a product which needs to be developed, or from the evaluation of a product.* By engaging in design activities that begin from different starting points, pupils should develop further their understanding of designing.

Technology and design activities require the integration of the elements of technology and design, and pupils should be encouraged to adopt an integrated approach over the key stage. However, there may be occasions when it will be appropriate to focus work on one or more of the elements of technology and design. Such focused tasks should be used to develop particular skills and/or to enable pupils to acquire specific knowledge and understanding. *For example, a focused task relating to electronics may involve pupils in assembling and testing an electronic circuit from a given circuit diagram.* Knowledge, understanding and skills acquired from work on focused tasks should subsequently be used in the development of the integrated approach to technology and design.

## Contribution to Educational (Cross-curricular) Themes

Throughout work relating to the programme of study, pupils should have opportunities to engage in discussion and to undertake activities which fulfil the objectives of the cross-curricular themes. The opportunities listed in this section should not be treated as a check list to be covered but as illustrations of some of the ways in which the cross-curricular themes can be developed as an integral part of technology and design.

Pupils should have opportunities to:

### Education For Mutual Understanding/Cultural Heritage

- promote self-esteem and co-operative working during technology and design activities;
- appreciate the contribution of technology in the past and to evaluate the impact of technology in modern times;
- consider the influence of technology upon modern culture and in other cultures, and to consider the positive and negative implications of technology and design activities on society, the economy and the environment;
- evaluate some of the conflict that may arise because of the differing needs and aspirations of individuals and society as a result of technological development, and the way such conflict may be alleviated or resolved by attention to factors, *for example, choice of materials, sympathetic design and environmental impact;*

### Health Education

- maintain a safe and organised working environment and adopt safe working practices, particularly when using tools, machines and equipment;
- recognise potential hazards in the manufacturing environment and to take appropriate actions should dangerous situations arise;

### Information Technology (IT)

- evaluate the impact of information technology on their technology and design activities and on their own lives and within society;
- use information technology within designing to model, measure and sense changes, and to introduce control within their products;

### Economic Awareness

- consider the costs of materials and components used in technology and design activities, and to recognise the need for the efficient use of resources.
- appreciate the economics of production in relation to the manufacture of single products or the use of production lines.
- be aware of the importance of visual, tactile, ergonomic and economic characteristics of products in influencing consumer choice and, therefore, on the design of products.

### Careers Education

- recognise the impact of technological development on working practices in all spheres of employment.
- appreciate the value of technology and design capability in relation to certain career opportunities.

## Communicating

Throughout their design and technology activities, pupils should use a variety of communication skills and techniques, including oral, written and graphic communication. Pupils should be encouraged to work individually and in groups and to present their ideas and findings both orally and in written reports.

Pupils should have opportunities to develop their understanding of the range of drawing techniques used in technological activity. Throughout this key stage, emphasis should be placed on freehand sketching, particularly when pupils are generating and developing their design ideas. As pupils progress through the key stage, they should be encouraged to use more formal drawing techniques. Pupils should have opportunities, where appropriate, to use information technology tools to support and develop their work.

Pupils should have opportunities to:

a present their ideas in 2D and 3D through the use of freehand sketches. They should develop their graphic techniques progressively through the use of line, shape, form, colour and texture;

b include detail in their drawings by the use of annotations, and by the use of enhancement of constructional features through techniques, *for example, enlargements or exploded views;*

c use recognised drawing conventions to provide details of the main dimensions in their drawings;

d draw and interpret diagrams, including circuit diagrams, that include recognised symbols appropriate to their design tasks, *for example, those used in pneumatic or electronic circuits;*

e use technology and design vocabulary of increasing range and complexity which is appropriate for the technology and design activities being undertaken;

f use more formal working drawings and pictorial views.

## Planning

Technology and design activities should present pupils with tasks which stimulate their thinking. Pupils should be encouraged to plan their work in a logical and organised manner. As they progress through the key stage, pupils should have opportunities to undertake tasks relating to situations which are less familiar to them. Activities should also be structured so that pupils plan their work in an increasingly independent manner.

Pupils should have opportunities to:

a discuss design activities and draw upon their knowledge to develop their ideas about these design activities;

b use a design brief to guide their design thinking;

c generate and develop ideas and, where appropriate, develop models or undertake tests in order to inform their planning;

d draw up a specification against which they can evaluate their finished products;

e make decisions in selecting the most appropriate plan of action.

## Appraising

Appraisal is a continuing process which provides opportunities for pupils to review their design work and to make constant refinements during their design activities. It should also provide opportunities for discussion about the quality of the work. Appraisal should include consideration of a range of factors, *for example, the approach taken, materials and components used, manufacturing processes adopted, and suitability and quality of the outcome.* Pupils should have opportunities to discuss, in a constructive manner, these factors in relation to their own work and that of others.

Pupils should have opportunities to:

a appraise their design ideas as they develop, taking into account their original intentions and specifications;

b use the results of their appraisal in order to make, where appropriate, practical and purposeful changes to products or systems;

c evaluate the quality of products in terms of

- fitness for purpose, including safety considerations,
- the appropriate use of resources,
- method of manufacture,
- aesthetic appearance.

## Manufacturing

The focus of technology and design activities is on the manufacture of technological products. Emphasis should therefore be placed on the development of knowledge, understanding and skills related to manufacturing. Activities should be devised for pupils to gain experiences in working with a range of materials, including metal, wood and plastics, and components, and integrating these materials and components within their products. As pupils progress through the key stage, they should have opportunities to make products which include more than one material. Where additional materials, *for example, textiles,* are to be included in their products, pupils should be taught the knowledge, understanding and skills necessary to work with those materials.

During the key stage, pupils should engage increasingly in manufacturing activities which require greater attention to quality and accuracy. The development and application of critical appraisal skills should enable the manufacture of products which reflect this greater attention to quality and accuracy. Activities should be devised to ensure that pupils have opportunities to work with a range of hand and machine tools. As they progress through the key stage, increasing emphasis should be placed on the use of machine tools.

Pupils should have opportunities to:

a understand the handling characteristics of tools and equipment for a range of manufacturing processes, including marking-out, holding, cutting, wasting, joining and forming. In addition, pupils should also have opportunities to understand the safe operation of hand-held power tools, *for example, soldering irons;*

b understand the purpose and safe operation of machines used for drilling, sanding, polishing, vacuum forming, cutting (jig saw) and plastics bending;

c select and use correctly and safely, with increasing confidence and accuracy, hand and power tools, and machines, and to develop a range of manufacturing skills associated with these tools and machines;

d join materials and components in both permanent and semi-permanent forms;

e use appropriate finishing techniques associated with metal, plastics and wood.

## Materials and Components

Throughout the key stage, pupils should have an opportunities to work with a range of materials, including metal, plastics and wood, and components, and, where appropriate, other materials, *for example, textiles.* Their products should, as far as possible, combine materials and should show an understanding of structure as a means of strengthening products. Structure should be an important consideration in the technology and design activities, and pupils should understand the basic principles of natural and man-made structures.

Pupils should have opportunities to:

a use materials and components in their products, taking account of the working characteristics and properties of these materials and components;

b take account of the physical and aesthetic properties of the materials they use;

c consider the principles used in natural and man-made structures and, where appropriate, take account of these principles to ensure strength and stability in their products.

## Energy and Control

Energy and control is central to technology and design activities. Through classroom activities related to the building of control systems and incorporating these control systems into the products they design, pupils can gain an understanding of how things work in the world outside the classroom.

Pupils should recognise that a source of energy is required to make products operate and should have opportunities to use appropriate energy sources within their products.

Pupils should have opportunities to investigate and build electronic and mechanical control systems, and incorporate these systems into their products. They should understand that a control system has input, process and output elements. Throughout the key stage, pupils should have increasing opportunities to use computers, with appropriate interfaces, to control electronic and mechanical systems.

As pupils develop their understanding of electronic and mechanical control systems, they should have opportunities to investigate the uses of the constituent components of the systems. It is through their understanding of the function and operation of the constituent components and how these components can be interconnected, that enables pupils to apply the principles of control when designing products.

## Electronic Systems and Control

Pupils should have opportunities to:

a investigate the function and operation of basic electronic components, including resistors, LEDs, transistors and capacitors;

b construct circuits incorporating electronic components in order to achieve desired effects;

c use production techniques, *for example, strip board or printed circuit boards (PCB),* in the assembly of electronic circuits.

## Mechanical Systems and Control

Pupils should have opportunities to:

d investigate the function and operation of basic mechanical components, including levers, pulleys, belts, gears and cams;

e construct mechanical systems by interconnecting simple mechanisms in order to achieve desired effects;

f investigate the function and operation of valves and cylinders, and incorporate these components into pneumatic systems.

## Computer Control

Pupils should have opportunities to:

g discuss the advantages of using computer control;

h use computers in control and interface electronic or mechanical control systems using input and output commands and feed back.

# Attainment Target and Level Descriptions for Technology and Design at Key Stage 3



Technology and design at Key Stage 3 has one attainment target entitled 'Technology and Design Capability'. The level descriptions, set out within Levels 1 to 8, therefore cover the subject as a whole.

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the key stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

KEY STAGE 3

## TECHNOLOGY AND DESIGN CAPABILITY

**Pupils should develop, in parallel, their ability to:**

- **apply knowledge and understanding;**
- **communicate effectively;**
- **manipulate a range of materials and components to make products;**
- **use energy to drive and control products they design.**

**LEVEL 1**
Pupils talk about natural objects and manufactured products, particularly what they like or dislike about them. They assemble and rearrange materials in simple constructions. They talk about what they are going to make or have made.

**LEVEL 2**
Pupils ask questions and suggest ideas for making things. They construct by joining materials in a variety of ways and, with assistance, incorporate simple movement into their construction. They talk about what they like or dislike about what they have made.

**LEVEL 3**
Pupils respond to design tasks by producing a range of ideas using freehand sketches. They talk about their choice of materials and components. They use appropriate methods to cut, shape and join materials. They create movement in models and control the movement in simple ways. They describe the success of what they have made and suggest improvements.

**LEVEL 4**
Pupils use a range of sketching and drawing techniques to show how they have developed their ideas from a design brief. They plan what they are going to make and how they are going to make it. They select and use appropriate tools and equipment when working with a range of materials and components. They understand that control systems have input, process and output elements, and recognise how control systems are used in their products. They understand that computers can be used to control systems. They evaluate what they have made, bearing in mind their original intentions.

**LEVEL 5**
Pupils undertake research in order to gain information about the views and preferences of users when designing their products. They show how they develop a range of ideas and present, using information technology, a justified design proposal. Pupils produce drawings with dimensions and sequence what they are going to do. They understand the use and operation of components in electronic and mechanical systems. They evaluate their products in terms of reliability and strength.

**LEVEL 6**
Pupils present design proposals taking account of factors, *such as the working characteristics and properties of materials.* They produce specifications upon which they can evaluate their finished products. They recognise that there is a range of control systems and incorporate control systems within their products. They use computers to control their systems. Pupils take an increasing account of accuracy and quality in manufacturing and evaluate the quality of the outcomes of the technology and design activities, suggesting practical and purposeful changes.

**LEVEL 7**
Pupils generate ideas from a range of sources. They produce freehand sketches which show how their ideas were developed and working drawings which relate to their design brief and specification. They demonstrate an increasing awareness of factors, *such as function and safety,* in their designing. They sequence manufacturing processes and suggest alternative methods of proceeding. Pupils select and use manufacturing techniques processes and resources, taking account of limitations, *such as physical and aesthetic properties of materials.* They construct electronic circuits and mechanical systems which demonstrate their understanding of input, process and output. Pupils evaluate the extent to which their products satisfy the design specification and, taking account of the views of users, suggest modifications.

**LEVEL 8**
Pupils generate design briefs and specifications, drawing upon knowledge and experience gained through research to guide their design thinking. They develop realistic ideas and solutions which they communicate effectively through a variety of media, using, where appropriate, information technology. Pupils plan work effectively, sequence the manufacturing processes required, and match the materials and components they use with appropriate tools, machines and equipment. Pupils demonstrate an understanding of the principles of control systems and interconnect control systems in the manufacture of products. They appraise the product manufactured in relation to the design specification, detail the modifications made during development and assess the effectiveness of the changes made.

# Outline Programme of Study for Technology and Design at Key Stage 4



## Using the Outline Programme of Study

This outline programme of study sets out the broad principles and requirements to which any approved course in technology should adhere. It provides a framework within which courses in technology can be developed or against which courses in technology can be evaluated in order to determine whether they provide appropriate learning experiences.

For some pupils at Key Stage 4 it may be more appropriate to follow the requirements for an earlier key stage. When this is the case, it is important that materials and activities are presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.



## Principles

All courses should build on technology and design experiences gained at Key Stage 3 and should provide a foundation for further study in technology related subjects. They should provide pupils, where appropriate, with opportunities to address the objectives of the educational (cross-curricular) themes.

Any course in technology should provide opportunities for pupils to:

- undertake designing, including manufacturing, and activities that focus on the production of purposeful outcomes;
- gain an appreciation of the contribution of technology to economic and social development and of the positive and negative effects of technology activities on the environment;
- understand the importance of quality in all aspects of their work;
- recognise the need to maintain a safe and organised working environment and adopt safe working practices when using hand tools, machines and equipment.

## Requirements

Any course on technology should provide opportunities to engage in work relating to the following elements of technology. These requirements are not presented in a hierarchical or linear order nor is it anticipated that they should be undertaken as separate entities. The holistic nature of designing should mean these elements are combined as appropriate to the activity being undertaken.

### Communicating

Use appropriate written, graphical and oral communication skills and techniques, including information technology, when designing.

### Designing

Designing activities should include:

- developing design briefs and specifications;
- generating and developing ideas;
- working within defined parameters;
- appraising and evaluating;
- manufacturing.

### Using Materials and Components

Knowledge, understanding and skills related to the use of a range of materials and components. This should include:

- their general physical, aesthetic and structural characteristics;
- appropriate methods of shaping and joining materials;
- how standard components can be assembled and used in manufacturing;
- finishing techniques.

### Using Control Systems

Knowledge, understanding and skills related to the use of control systems. This should include:

- input, process and output;
- system function, performance and feedback;
- one or more of the following control systems
  - electronic control,
  - mechanical control,
  - computer control,
  - pneumatic control.



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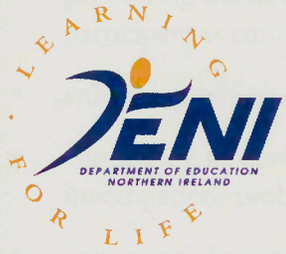
# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGET

HISTORY

Contents






Text printed on a tinted background indicates statutory requirements. The examples printed in *italics* serve to illustrate the programmes of study and are non-statutory.

# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGET

Contents

# Characteristics of the Curriculum at Key Stages 3 and 4

Pupils enter Key Stage 3 with the experiences gained from the study of a range of subjects in the primary school. These experiences should be recognised and built upon at Key Stages 3 and 4. The learning experiences which are provided should be enjoyable and include challenges which are achievable and motivating.

It is important to recognise the continuing development of pupils as individuals during Key Stages 3 and 4, particularly through their growing awareness of themselves and their capabilities. The whole curriculum for Key Stages 3 and 4 should promote the development of the individual pupil in terms of an increasing facility for self-evaluation and ability to take responsibility for his or her own learning and work practices. There should be ample opportunity for the pupil to apply learning to relevant contexts and purposes.

The range of knowledge, understanding and skills represented in the curriculum at Key Stages 3 and 4 should also help pupils to become aware of themselves in the wider world, to develop independence and make informed judgements and responsible decisions relating to their own lives and their relationships with others. In their continuing development, pupils should be guided towards targets which are suited to their abilities and aptitudes and should be encouraged to review these targets as part of their development towards adult and working life.

The Key Stage 3 curriculum should take account of a vocational dimension through recognition and application of work-related skills and personal qualities, interests and abilities. Pupils should also have opportunities to explore the implications for adult and working life of decisions they will take in relation to their study beyond fourteen.

The Key Stage 4 curriculum should include a strong emphasis on the vocational dimension which will relate to decisions taken both about courses and qualifications and the setting of individual targets. The National Record of Achievement (NRA) and the formulation of Personal Career Plans will promote the recognition of personal qualities, interests and abilities through the exploration of the implications of pupils' decisions for further study and for adult and working life.

Education at Key Stages 3 and 4 should continue to foster the intellectual, social, emotional, physical, moral, cultural and spiritual development of pupils by:

- encouraging a growing independence;
- guiding pupils to express their own individual needs, identifying targets which meet these needs, and assisting them to make informed choices and decisions;
- promoting the development of personal and inter-personal skills, so enabling them to participate as contributing members of groups;
- enhancing self-esteem and encouraging the growth of pupils' own sets of values;
- continuing to develop pupils' study skills, by providing opportunities for exploration, investigation, problem-solving and decision-making;
- enhancing the creativity of pupils by stimulating curiosity and imagination;
- developing increased versatility and confidence in communication across a range of media and for a variety of purposes;
- providing rich and varied contexts for the development of thinking and reasoning skills associated with observing, recording, interpreting, inferring and predicting.

# Using the Programme of Study for Key Stage 3

## Access to the Programme of Study

Teachers should ensure that pupils have access to the breadth and depth of this programme of study at levels and within contexts which are appropriate and relevant to their individual needs and abilities.

In order to meet the particular needs of some pupils and to ensure that learning experiences for these pupils are positive and meaningful, it may be necessary for teachers to select materials and/or activities from an earlier key stage. When this is the case, it is important that such material and/or activities be presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Language Across the Curriculum

Teachers should be aware of the key role of language in learning. They should use opportunities provided within the programme of study to encourage the development of all four modes of language: talking, listening, reading and writing. Teachers should give attention to the quality of language and take opportunities to reinforce good practice on the use of language.

## Equality of Opportunity

The programmes of study for all subjects within the Northern Ireland Curriculum are designed to ensure equal access to a broad and balanced curriculum for all pupils. Teachers should make every effort to ensure that equality of opportunity is provided for both girls and boys in order that all pupils should have equal access to the full range of experiences across all subjects in the Northern Ireland Curriculum.

## Referencing

The lettering used throughout the programme of study is for referencing purposes only. It does not necessarily identify strands, indicate a teaching sequence or hierarchy of knowledge, understanding and skills.

## Statutory Elements

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# Programme of Study for History at Key Stage 3



## Introduction

Pupils should have opportunities to develop an understanding of important aspects of the culture, economy, politics and society of Ireland in the context of Britain and Europe and, where appropriate, the wider world from the early Middle Ages to the 20th century. They should have opportunities to make links and connections between historical events and changes in the different periods and areas studied. They should be given opportunities to use their historical knowledge to evaluate and use sources of information, and to construct narratives, descriptions and explanations of historical events and developments at levels appropriate to their age and ability.

The Programme of Study is set out under:

- Historical Skills and Concepts, which suggest possible progression; and
- six study units as follows:

  1 The Normans and the Medieval World;

  2 Rivalry and Conflict;

  3 Union to Partition;

  4 The Twentieth-Century World;

  5 A unit of the school's own choice;

  6 A unit of the school's own choice.



## Approaches to History at Key Stage 3

Study Units 1, 2 and 3 should, as far as possible, be taught in sequence, one in each of the three years of the key stage. Units 5 and 6 may focus on topics of the school's own choice not covered elsewhere. The units are not weighted. The emphasis given to each is therefore a matter of professional judgement, although teachers may wish to devote more time to Units 1-4.

The Study Units and the historical skills and concepts should be taught together. Progression in history will be achieved by:

- developing and reinforcing the historical skills and concepts as an integral part of the work undertaken to deliver the historical content;
- increasing the range and depth of pupils' knowledge and understanding and their ability to make links and connections across periods; and
- developing pupils' ability to organise and communicate their knowledge and understanding.

Across the key stage, pupils should be given opportunities to study aspects of the past:

a **in outline,** in order to develop their knowledge and understanding of the broad sweep of history within and across the periods studied with reference to the significant features and changes of the periods;

b **in depth,** in order to develop more detailed knowledge of individuals, events and developments and their impact on the period and to consider available evidence from a range of points of view. In-depth case studies should preferably be lightly focused and of short duration;

c **from a variety of perspectives and points of view,** political, economic, social, cultural and aesthetic, religious, technological and scientific, and from the perspective of men and women, in order to develop awareness of the many dimensions of events and developments and that these can be viewed and interpreted from a range of standpoints.

## Contribution to Educational (Cross-curricular) Themes

Throughout work relating to the programme of study, pupils should have opportunities to engage in discussion and to undertake activities which fulfil the objectives of the cross-curricular themes. In some cases the objectives of the themes overlap. For example, Education for Mutual Understanding (EMU), Cultural Heritage (CH) and Economic Awareness have strands which relate to interdependence; Education for Mutual Understanding (EMU), Cultural Heritage (CH) and Health Education have strands which relate to personal development and to a healthy environment. In such cases, the examples listed, and therefore associated subject work, may be contributing to more than one of the themes at any given time. The opportunities listed in this section should not be treated as a check list to be covered but as illustrations of some of the ways in which the cross-curricular themes can be developed as an integral part of history.

Pupils should be given opportunities to:

### Education for Mutual Understanding/Cultural Heritage

- understand and appreciate their own way of life, their environment and culture and that of others and the interdependence of people by exploring,
  - how their identity, way of life and culture and has been shaped by influences from the local and wider world, *for example, language, music, religion and folklore,*
  - shared and distinct aspects of cultural heritage within Northern Ireland and beyond and how these have been preserved, changed or destroyed over time, *for example, customs, folklore, language and music,*
  - the cultures and lifestyles of people who are different from them within Northern Ireland, these islands and beyond, in order to understand and respect others, and where appropriate, to question and challenge prejudice and stereotypes, *for example, neighbourhood graffiti and wall murals, and one-sided interpretations of significant historical events,*
  - ways in which conflicts can arise over the use of resources and how these have been resolved, or compromises reached, *for example, in the preservation or sympathetic development of historical sites,*

- the historical origins of issues arising from inequalities and differences between the northern and southern hemispheres, *for example, in relation to aspects of colonialism,*
- the historical origins of agencies which work towards international co-operation *for example, the United Nations;*

### Health Education

- consider issues relating to global health in the past and the relationship between diet, health, trade, aid and development;
- find out about poor relief work in the past, *for example, during the Great Famine,* and compare the capacity and willingness of governments and agencies to provide relief then and today in terms of period attitudes to poor relief, available information and resources, infrastructure, transport and communications;
- consider the use of natural resources through time and the long term effects of pollution on health at local, national and global levels;

### Information Technology

- use a word processor or newspaper package to draft and redraft text, *for example, descriptions of periods, people or events studied; or different viewpoints;*
- use a data collection sheet for local history field work, accurately enter or amend data on a database or knowledge base, use databases to make simple and complex queries, search and sort databases to extract meaningful information;
- use simulation packages to investigate historical issues and to search for patterns and relationships;
- use spreadsheets and graph plotting packages to plot historical information in graphical form and to modify if appropriate;

### Economic Awareness

- develop their insights into choices and decisions involving the use of resources by examining,
  - how Northern Ireland is, and has been, interdependent with other parts of these islands through time and the increasing interdependence of Europe and the wider world, *for example, in ways of life, economy, transport and trade;*
  - some of the economic influences on decision-making and the economic consequences of such choices in historical settings, *for example, Partition;*
  - some of the economic causes of division within Ireland in the past, *for example, religion and land,* patterns of integration and segregation in Northern Ireland arising from historical influences *such as the plantations, sectarian conflict over time, industrial development, employment and housing;*
  - imbalances between nations in trade and living standards now and in the past and the impact of historical factors on economic development and living standards in different countries, *for example, colonialism;*

**Careers Education**

- understand the relevance and application of historical skills and knowledge to adult and working life and the value of an historical background in relation to certain career opportunities;
- gain understanding of some of the influences on decision-making in historical settings and the widespread and longitudinal consequences of some decisions; reflect on the need to weigh up influences on personal decisions and take responsibility for choices made and their short and long-term consequences.

## Historical Skills and Concepts

Pupils should have opportunities to develop:

a chronological awareness by

- placing events, people and changes in the periods studied within a chronological framework, noting key dates, *for example, pupils could use timelines to record and sequence key events and developments within and across periods;*
- describing and explaining important historical concepts associated with the periods studied, *for example, pupils could use and explain conceptual terms, such as invasion, conquest, expansion, feudalism, conflict and rivalry, exploration, colonisation and plantation, revolution, famine and emigration, nationalism, Home Rule, Unionism, Republicanism, industrialisation, empire and imperialism, partition;*

b range and depth of historical knowledge and understanding by

- identifying and analysing the characteristic features of periods and societies studied, *for example, pupils could identify and discuss some of the main ideas, beliefs and attitudes of men and women in the Norman, early modern and 19th-20th century periods, and the social, cultural and religious diversity of Irish and British society;*
- describing and explaining reasons for and results of some of the historical events and changes in the periods studied, *for example, pupils could explain reasons for and results of the Norman invasion, the Williamite campaigns, the Great Famine, the Home Rule movement, partition;*
- developing overviews of the main events and changes both within and across periods by making links between the content in different study units and between Irish, British, European and world history, *for example, pupils could develop overviews of issues such as migration between these islands, Europe and the new World between the Norman and 17th Century period, and the changes this brought about in the religious composition of the population;*
- assessing the significance of the main events, people and changes studied, *for example, pupils could discuss the significance of: the Civil War and the ascendancy of Cromwell and Parliament; and/or the Glorious Revolution and the ascendancy of William; or land ownership and religious practice in England or Ireland;*

c interpretations of history by

- considering how and why some historical events, people and changes have been interpreted differently, *for example, pupils could be helped to recognise that there can be differing interpretations of the past, from sources such as the Bayeux Tapestry and the Anglo Saxon Chronicle; or accounts of the 1641 rebellion; or the 1916 Rising; or William of Orange; and consider how and why accounts differ;*
- analysing and evaluating sources and interpretations in their historical context, *for example, pupils could consider the relative usefulness of differing interpretations for providing insights into events, people or changes;*

d historical enquiry by

- identifying, collecting and recording information from a range of sources appropriate to their age and ability to investigate, with increasing independence, aspects of the period, *for example, pupils could be given opportunities to extract relevant information from documents and printed sources, artefacts, pictures, photographs, films, music and oral accounts, buildings and sites;*

e organisation and communication by

- recalling, selecting and organising information deploying terms accurately to communicate their knowledge and understanding of history, *for example, pupils could construct historical accounts, descriptions, narratives and/or substantiated explanations in answer to questions posed, including dates and terms and with reference to evidence, using IT as appropriate.*

## Study Units

### Study Unit 1: The Normans and the Medieval World

Pupils should have opportunities to consider the Norman impact on medieval society in both Britain and Ireland.

Pupils should:

a be given a broad outline of the key issues, significant features and changes of the period, including

- The Norman Conquest
  - the origins of the Normans,
  - the invasion of England,
  - the nature and extent of the Norman Conquest;
- Aspects of Medieval Society
  - Institutions and way of life, *for example, the medieval church, the manor and the town, the Black Death;*
- The Normans in Ireland
  - medieval Irish society before and after the Norman invasion,
  - the expansion and decline of Norman authority in Ireland;

b examine at least one short case study involving the use of evidence and, where appropriate, a range of perspectives and interpretations, to consider one of the following areas

- continuity and change in aspects of medieval society, *for example, economy and trade, the monarchy and its relations with the Church, barons and people;*
- causes and short and long term impact of a key event, *for example, the Battle of Hastings, the Doomsday survey, Magna Carta, the Crusades;*
- experiences, motives, role and impact of a key personality or group, *for example, William the Conqueror, Harold, John de Courcy, Diarmuid McMurrough, Strongbow, King John, Thomas Becket and Henry II.*

## Study Unit 2: Rivalry and Conflict

Pupils should have opportunities to consider some of the major political, social, economic and religious changes that shaped the history of Ireland from the end of the sixteenth to the end of the seventeenth century, within a British and European context.

Pupils should:

a be given a broad outline of the key issues, significant features and changes over the period including

- The causes of European rivalries and conflict in the late 16th century
  - the impact of religious change,
  - Anglo-Spanish rivalry,
  - overseas expansion and colonisation;
- Crown and Parliament
  - key issues in the conflict between Stuart Kings and Parliament;
- Ireland c1600 - c1700
  - conquest and plantation,
  - rebellion, war and changes in land ownership;

b examine at least one short case study involving the use of evidence and, where appropriate, a range of perspectives and interpretations, to consider one of the following areas

- continuity and change in aspects of society over the period, *for example, monarchy, religion, exploration and expansion, trade, advances in arts and science;*
- causes and short and long term impact of a key event, *for example, the Renaissance, the Reformation, the Armada, the Plantation of Ulster, the 1641 Rebellion, the English Civil War, Cromwell in Ireland, the Restoration, an event in the Williamite campaign, the Treaty of Limerick, the Penal Laws;*
- experiences, motives, role and impact of a key personality or group, *for example, Elizabeth and Philip, Mary Queen of Scots, Hugh O'Neill, James II, William of Orange.*

**Study Unit 3: Union to Partition**

Pupils should have opportunities to consider the social, economic and political developments in Ireland and its relationships with Britain and the Empire from 1800 to 1922.

Pupils should:

a be given a broad outline of the key issues, significant features and changes over the period, including

- Social and economic change in Ireland and Britain
  - industrialised Britain as the workshop of the world, *for example, the importance of an expanding Empire, the development of towns, living and working conditions, the economic growth of the North East Ulster,*
  - rural Ireland and the impact of the Great Famine, *for example, emigration and the land question;*
- Home Rule and Partition
  - the Home Rule movement as a consequence of the Act of Union,
  - the development of Unionism and Nationalism by 1914,
  - steps to Partition 1914-1922;

b examine at least one short case study involving the use of evidence and, where appropriate, a range of perspectives and interpretations, to consider one of the following areas

- continuity and change in aspects of society over the period, *for example, technological change, the development of transport, science or medicine, the abolition of slavery, the Repeal Movement, the Home Rule Bills, Victorian art and architecture, land ownership in Ireland;*
- causes and short and long term impact of a key event, *for example, the 1798 Rebellion, the Act of Union, Catholic Emancipation, the extension of the franchise, the 1911 Parliament Act, conscription, the 1916 Rising, the 1918 elections, the Civil War;*
- experiences, motives, role and impact of a key personality or group, *for example, the United Irishmen, Daniel O'Connell, the IRB, the UVF, Sinn Féin, Captain Boycott, Charles Stewart Parnell, Edward Carson, Bonar Law, Randolph Churchill, Michael Collins, Lloyd George.*

## Study Unit 4: The Twentieth-Century World

Pupils should have opportunities to investigate major events and developments which have shaped the twentieth century world through a study of the impact of world war and a study of an aspect of change in twentieth century society.

Pupils should study

a The impact of World War

- either the First or the Second World War, or a major event or turning point which illustrates the nature and impact of total war, *for example,*
  - *World War I: Gallipoli 1915, The Battle of the Somme 1916, submarine and air warfare, the withdrawal of Russia from the war in 1917, the failure of the German offensive in 1918,*
  - *World War II: the invasion of Poland, Pearl Harbour, Stalingrad 1942-3, the Holocaust, the D-Day landings, the dropping of the atomic bomb 1945;*

b one of the following areas

- a significant social development, *for example, the changing role and status of women, the impact of changes in science, or medicine, or technology and communications, the UN Charter and Declaration of Human Rights, the Welfare State;*
- a major event or person, *for example, the Russian Revolution; the rise of Dictators (either Hitler, Mussolini or Stalin), the Holocaust, the dropping of the atomic bombs, the break-up of Empire and the emergence of new nations, the Cold War, the break-up of the Soviet Union, the creation of the state of Israel and Arab-Israeli relations;*
- a significant organisation, *for example, the Commonwealth, the League of Nations; the United Nations; the EC; the Council of Europe; the civil rights movement in the USA in the 1950s and 1960s.*

## Study Units 5 and 6: Study Units of the school's own choice

Units 5 and 6 may focus on topics of the school's own choice and not covered elsewhere (see suggestions below). Pupils should gain an overview of the main issues, trends and changes related to the chosen topics and become aware of the reasons why such changes have come about and their principal consequences.

Pupils should study:

a a place, event, personality or group of significance to the local area or a local development, *for example,*

- *a townland, mill, castle, bawn, church, workhouse;*
- *the people associated with a local site or event and their impact upon the local area, industrialisation, emigration, transport, agrarian change, education;*

b an historical theme over time, *for example, explorations and encounters, religion, empire, medicine, energy, women, slavery;*

c a significant era or turning point in history, *for example, the Industrial Revolution, the American Frontier, the Renaissance, the Reformation, the American Revolution, the French Revolution, the American Civil War, the British Empire, the First World War, the Second World War, the Cold War;*

d a past European or non-European society, *for example, Ancient Rome, Ancient Egypt, the Aztecs or Incas, Benin, indigenous peoples of North America or Australia, black peoples of the Americas.*

In the light of the focus of Units 1-4 it is recommended that choice of content in these units should ensure, as far as possible, that the programme of study as a whole reflects breadth and balance in relation to coverage of historical periods and perspectives across the key stage.

# Attainment Target and Level Descriptions for History



History has one attainment target entitled: Developing Knowledge, Understanding and Skills in History. The level descriptions, set out within Levels 1 to 8, therefore, cover the subject as a whole. The relationship between the attainment target and the programme of study is set out below.

## Key Stage 3

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the key stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## DEVELOPING KNOWLEDGE, UNDERSTANDING AND SKILLS IN HISTORY

**Pupils should develop a chronological awareness and sense of the past, a range and depth of historical knowledge, and an ability to use historical sources and communicate their understanding in a variety of forms.**



### LEVEL 1

Pupils talk about aspects of stories and events from the past and describe what they see in photographs and objects. They begin to recognise obvious differences between past and present. They convey understanding through the use of pictures, symbols, words and phrases.

### LEVEL 2

Pupils retell the main events from stories about the past and demonstrate their understanding through the use of simple drawings, words and phrases and some simple sentences. They describe obvious differences between past and present from photographs, objects or stories. They begin to use some of the vocabulary of time, *such as yesterday, today, tomorrow, long ago, then, now.* They undertake basic sorting and sequencing activities using pictures, objects or events from a story.

### LEVEL 3

Pupils retell a story from the past. They begin to use words and phrases related to the divisions of time, *such as week, month, year, century.* They use sources, suited to their age and ability, to gain information about an aspect of a period being studied. They draw and describe pictures of a historical story, where appropriate, in sequence using simple sentences.

### LEVEL 4

Pupils recall some facts and key events about individual periods from the Key Stage 2 or 3 Programme of Study and use some historical terms that arise within them. They extract factual information from sources suitable to their age to make obvious statements about the past. They construct basic historical narratives of what happened and attempt some reasoning.

### LEVEL 5

Pupils display some understanding of key events within a period from the Key Stage 2 or 3 Programme of Study and use an increasing number of historical terms and conventions that arise within them. They recognise that sources offer different versions of the past and can extract relevant information from a range of sources and interpretations to make basic deductions about the past. They begin to construct historical accounts, which contain some accurate information related to the question set and which display some understanding and indicate simple causation.

### LEVEL 6

Pupils display a sound knowledge and understanding of individual periods from the Key Stage 3 Programme of Study and use significant dates and terms appropriately. They select and combine appropriate information from a range of sources and interpretations to answer significant questions. They suggest obvious reasons for different interpretations of events, personalities and changes. They write with increasing independence structured historical accounts containing accurate and relevant detail related to the question set and which attempt to offer explanations.

### LEVEL 7

Pupils display a sound knowledge and understanding of the individual periods from the Key Stage 3 Programme of Study which they use to assess the significance and impact of the personalities, events and changes studied. They apply key terms with understanding and refer to sources to substantiate their work, demonstrating awareness of the strengths and weaknesses of sources and interpretations used. They write, with increasing independence and competence, well structured accounts using accurate and relevant information to substantiate conclusions drawn.

### LEVEL 8

Pupils display a detailed knowledge and understanding of the Key Stage 3 Programme of Study and make links and comparisons within and between periods. They make judgements about the usefulness of a variety of sources and interpretations and use these critically to construct analytical accounts which take into consideration a range of different perspectives and interpretations and make connections, comparisons and contrasts in support of a balanced treatment of the topic.

# Outline Programme of Study for History at Key Stage 4



## Using the Outline Programme of Study

This outline programme of study sets out the broad principles and requirements to which any approved course in history should adhere. It provides a framework within which courses in history can be developed or against which courses in history can be evaluated in order to determine if they provide appropriate learning experiences.

For some pupils at Key Stage 4, it may be more appropriate to follow the requirements for an earlier key stage. When this is the case, it is important that materials and activities are presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.



## Principles

All courses in history should build on the foundation of knowledge, understanding and skills established by the Northern Ireland Curriculum for Key Stages 1 to 3. They should provide pupils, where appropriate, with opportunities to address the objectives of the cross-curricular themes. Pupils should have the opportunity to study history to the breadth and depth which is relevant and appropriate to their individual needs and ability.

Any course in history at Key Stage 4 should provide opportunities for pupils to explore:

- key historical events, people, changes and issues;
- the way in which the contemporary world is a product of historical developments;
- the ways in which historical developments can be the subject of differing interpretations;
- source materials and their use in providing information about the past.

## Requirements

Any course in history should provide pupils with opportunities to engage in work involving the study of:

- the key historical issues, events, personalities and developments in the period(s) or topic(s) specified;
- history with a 20th century focus in at least two different scales to include a European and Northern Irish dimension;
- history in at least two different ways, *for example in depth, in outline or thematically;*
- history from a variety of perspectives – political, economic, social and cultural;
- the development of investigative skills in examining history through a range of sources of information appropriate to the period, *for example, written or visual sources.*

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# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGET

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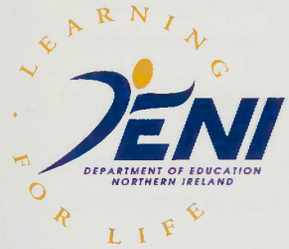
GEOGRAPHY




Text printed on a tinted background indicates statutory requirements. The examples printed in *italics* serve to illustrate the programmes of study and are non-statutory.

# Characteristics of the Curriculum at Key Stages 3 and 4

Pupils enter Key Stage 3 with the experiences gained from the study of a range of subjects in the primary school. These experiences should be recognised and built upon at Key Stages 3 and 4. The learning experiences which are provided should be enjoyable and include challenges which are achievable and motivating.

It is important to recognise the continuing development of pupils as individuals during Key Stages 3 and 4, particularly through their growing awareness of themselves and their capabilities. The whole curriculum for Key Stages 3 and 4 should promote the development of the individual pupil in terms of an increasing facility for self-evaluation and ability to take responsibility for his or her own learning and work practices. There should be ample opportunity for the pupil to apply learning to relevant contexts and purposes.

The range of knowledge, understanding and skills represented in the curriculum at Key Stages 3 and 4 should also help pupils to become aware of themselves in the wider world, to develop independence and make informed judgements and responsible decisions relating to their own lives and their relationships with others. In their continuing development, pupils should be guided towards targets which are suited to their abilities and aptitudes and should be encouraged to review these targets as part of their development towards adult and working life.

The Key Stage 3 curriculum should take account of a vocational dimension through recognition and application of work-related skills and personal qualities, interests and abilities. Pupils should also have opportunities to explore the implications for adult and working life of decisions they will take in relation to their study beyond fourteen.

The Key Stage 4 curriculum should include a strong emphasis on the vocational dimension which will relate to decisions taken both about courses and qualifications and the setting of individual targets. The National Record of Achievement (NRA) and the formulation of Personal Career Plans will promote the recognition of personal qualities, interests and abilities through the exploration of the implications of pupils' decisions for further study and for adult and working life.

Education at Key Stages 3 and 4 should continue to foster the intellectual, social, emotional, physical, moral, cultural and spiritual development of pupils by:

- encouraging a growing independence;
- guiding pupils to express their own individual needs, identifying targets which meet these needs, and assisting them to make informed choices and decisions;
- promoting the development of personal and inter-personal skills, so enabling them to participate as contributing members of groups;
- enhancing self-esteem and encouraging the growth of pupils' own sets of values;
- continuing to develop pupils' study skills, by providing opportunities for exploration, investigation, problem-solving and decision-making;
- enhancing the creativity of pupils by stimulating curiosity and imagination;
- developing increased versatility and confidence in communication across a range of media and for a variety of purposes;
- providing rich and varied contexts for the development of thinking and reasoning skills associated with observing, recording, interpreting, inferring and predicting.

# Using the Programme of Study for Key Stage 3

## Access to the Programme of Study

Teachers should ensure that pupils have access to the breadth and depth of this programme of study at levels and within contexts which are appropriate and relevant to their individual needs and abilities.

In order to meet the particular needs of some pupils and to ensure that learning experiences for these pupils are positive and meaningful, it may be necessary for teachers to select materials and/or activities from an earlier key stage. When this is the case, it is important that such material and/or activities be presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.



## Language Across the Curriculum

Teachers should be aware of the key role of language in learning. They should use opportunities provided within the programme of study to encourage the development of all four modes of language: talking, listening, reading and writing. Teachers should give attention to the quality of language and take opportunities to reinforce good practice on the use of language.

## Equality of Opportunity

The programmes of study for all subjects within the Northern Ireland Curriculum are designed to ensure equal access to a broad and balanced curriculum for all pupils. Teachers should make every effort to ensure that equality of opportunity is provided for both girls and boys in order that all pupils should have equal access to the full range of experiences across all subjects in the Northern Ireland Curriculum.

## Referencing

The lettering used throughout the programme of study is for referencing purposes only. It does not necessarily identify strands, indicate a teaching sequence or hierarchy of knowledge, understanding and skills.

## Statutory Elements

Those elements which form part of the statutory requirements have been tinted. Other aspects which provide information or clarification have been left untinted. Examples are non-statutory and are printed in italics.

# Programme of Study for Geography at Key Stage 3



## Introduction

The aim of the geography curriculum at Key Stage 3 is to develop pupils' knowledge and understanding of people, places and processes in the world, both locally and beyond, and to provide pupils with the necessary skills to help them conduct investigations in order to record, present, analyse and interpret information from primary and secondary sources. Opportunities should be provided, where appropriate, to exploit the practical nature and topical potential of the subject and to utilise information technology.

The Programme of Study is set out under the following headings:

- Geographical Skills;
- Geographical Themes;
- Places and Locational Knowledge;
- Issues;
- Contribution to Educational (Cross-curricular) Themes.

### Geographical Skills

Pupils should extend the range of mapwork, research, data handling, presentation and communication skills acquired in Key Stages 1 and 2. The geographical skills set out within the programme of study should be developed and reinforced, for the most part as an integral part of work undertaken in other areas of the programme of study. Pupils should have two opportunities to be involved in fieldwork.

### Geographical Themes

This part of the Programme of Study is set out under the following headings:

- PHYSICAL ENVIRONMENTS
  - Rocks and Processes of Landscape Development,
  - Weather and Climate,
  - Ecosystems;
- HUMAN ENVIRONMENTS
  - Population,
  - Settlement,
  - Economic Activities;

Teachers may plan to teach the curriculum as discrete themes with the geographical skills, locational knowledge and issues integrated into individual themes. Alternatively, they may integrate the content of the themes to form study units ensuring that the skills, locational knowledge and issues are taught as part of the units.

## Places and Locational Knowledge

Throughout Key Stage 3, pupils should have opportunities to develop a sense of place through the study of examples drawn from a range of scales: local, national, continental and global. They should be given opportunities to locate and name the following places and features on globes and maps, and in atlases using the contents page and index:

- Northern Ireland – the six counties, main towns, rivers, loughs and mountains;
- Ireland – the counties, main towns, rivers, loughs and mountains;
- the capital cities of England, Scotland and Wales;
- the member states and capital cities of the European Union;
- the continents and oceans and major lines of latitude and longitude of the world.

## Issues

Pupils should have opportunities, where possible and appropriate, to investigate aspects of world development and the human impact on the environment. During the key stage pupils should have opportunities to study:

- at least one environmental issue; and
- at least one issue related to an aspect of world development.

*Examples of environmental issues include the conflict between:*

- *the use of fossil fuels and the impact this has on the environment, for example, global warming;*
- *hedgerow removal for field enlargement and hedgerow retention for the protection of important habitats;*
- *economic developers and habitat conservationists in Amazonia or other places.*

*Examples of world development-related issues include:*

- *the conflict between appropriate and inappropriate industrialisation in developing countries, for example, the use of appropriate technologies or exploitation by multi-national companies;*
- *fair trade – the conflict between the needs of the consumer in developed countries and the protection of the quality of life and income of the producer in developing countries;*
- *global equality – the issue of access to clean water, hospitals, social amenities and appropriate education.*

Issues arise when individuals and/or groups have conflicting views about the use of resources and the management of the environment. The investigation of issues should form an integral part of pupils' thematic studies and should be carefully guided by the teacher. Opportunities may arise for a local issue to be studied through fieldwork. When studying an issue, pupils should be helped to address and respond to the following questions in both oral and written forms.

- What is the issue I am investigating and where is the issue located?
- Which group(s) of people are involved in the issue?
- What are the views of the group(s) of people involved in the issue and why do they hold these views?
- How might the issue be resolved?
- How do I now feel about the issue?

## Contribution to Educational (Cross-curricular) Themes

Throughout work relating to the programme of study, pupils should have opportunities to engage in discussion and to undertake activities which fulfil the objectives of the cross-curricular themes. In some cases the objectives of the themes overlap, for example, Education for Mutual Understanding (EMU), Cultural Heritage (CH) and Economic Awareness have strands which relate to interdependence; and EMU, CH and Health Education have strands which relate to personal development and to a healthy environment. In such cases, the examples listed, and therefore associated subject work, may be contributing to more than one of the themes at any given time. The opportunities listed in this section should not be treated as a check list to be covered but as illustrations of some of the ways in which the cross-curricular themes can be developed as an integral part of geography.

Pupils should be given opportunities to:

### Education For Mutual Understanding / Cultural Heritage

- understand and appreciate their own way of life, their environment and culture and that of others, and the interdependence of people by exploring
  - how their identity, culture and way of life has been shaped by influences from the local and wider world, *for example, food; goods and services; the influence of advertising; peer pressure; travel and television,*
  - aspects of cultural heritage in the landscape and how these can be preserved, changed or destroyed, *for example, areas of outstanding natural beauty; special habitats, villages, town centres, churches, buildings of architectural and historical interest,*
  - the cultures and lifestyles of people who are different from them, *for example, in Europe or the developing world,* in order to understand and respect others, and, where appropriate, to question and challenge prejudice and stereotypes,
  - conflict arising from the interdependence of the world's ecological systems, *for example, the depletion of natural resources, pollution, soil erosion, global warming;* how conflicts might be resolved or compromises reached,
  - issues arising from inequalities and differences between the northern and southern hemispheres, *for example, population growth, food production, famine, world health, economic aid, charity and development,*
  - attempts to promote global and international co-operation for a sustainable future, *for example, resource and energy conservation, renewal and recycling, trade, aid, education and development;*
  - the work of some local and global agencies which work towards conserving the environment, *such as, Conservation Volunteers, RSPB* or agencies promoting just development, *for example, Oxfam, Trocaire or Greenpeace;*

### Health Education

- consider the major causes and consequences of pollution and their effects on health at local, national and global levels;
- consider the relationship between diet, health, trade, aid and development and issues arising, *for example, food production, availability of basic resources such as clean water, the focus and nature of international aid, loan repayments;*
- find out about the work of some local and global agencies, *for example, the World Health Organisation;*

## Information Technology

- use a word processor to draft and redraft text, *for example, descriptions of places, geographical features and processes studied;*
- use a data collection sheet for field work; accurately enter or amend data on a database or knowledge base; use databases to make simple and complex queries; search and sort databases to extract meaningful information;
- use simulation packages to investigate geographical features and processes and to search for patterns and relationships,
  - use spreadsheets and graph plotting packages to plot information in graphical form and to modify if appropriate,
  - use a weather station to monitor environmental changes;

## Economic Awareness

- develop their insights into choices and decisions involving the use of resources by examining,
  - the impact of some of their own economic choices and behaviour, *for example, on trade and the environment;* the need to accept personal responsibility for their own views, decisions and actions, and to reflect on the consequences of different choices for themselves and others;
  - the physical and economic interdependence of Northern Ireland within these islands and beyond, in terms of economy, transport systems and trade;
  - the increasing interdependence of Europe and the wider world, *for example, in terms of way of life, economy, transport systems and trade;*
  - patterns of integration and segregation in Northern Ireland, some of the economic causes of divisions within Northern Ireland and some of the measures which might alleviate them;
  - imbalances between nations in trade and living standards;
  - the impact of international organisations on the allocation of resources, economic development and living standards in different countries, *for example, the World Bank;*

## Careers Education

- understand the relevance and application of geographical skills and knowledge to adult and working life and the value of a geographical background in relation to certain career opportunities;
- gain understanding and experience, through the study of environmental and development issues, of the processes involved in making informed decisions, including the factors which influence decisions, and the need to take responsibility for personal decisions and choices.

## Geographical Skills

### OS Mapwork Skills

Pupils should have opportunities to learn and practice the following mapwork skills:

a the use of four and eight points of the compass to record and follow directions;

b the use of four and six figure grid references to locate features and places on maps;

c the use of a key to identify places and features on a 1:50,000 scale map;

d the use of scale to measure straight line distances;

e drawing simple plans and maps without the use of scale;

f draw simple plans using scale;

g identification of the methods used to represent height on maps;

h identification of physical and human features on maps, *for example, river valleys, slopes, mountains; settlement, communication, amenities.*

### Fieldwork Skills

Pupils should have two opportunities to be involved in fieldwork investigations during the key stage. Fieldwork should take the form of a simple investigation at a location considered appropriate by the teacher. During Key Stage 3, fieldwork is organised and planned by the teacher.

Pupils, however, should be given opportunities to:

a clarify the objectives of investigations;

b identify the type of information and evidence that is required;

c discuss and agree the methods to be used;

d carry out practical preparations;

e observe, measure and record data using a range of appropriate instruments and methods of data collection;

f refine and present data in a range of appropriate forms, *for example, tables, graphs, maps and text;*

g describe data noting obvious patterns and relationships;

h make explanations and conclusions related to a previously stated aim or idea.

## Research, Data Handling and Presentation Skills

Pupils should have opportunities to:

a analyse and extract relevant information from a range of secondary sources, *for example, books, maps, photographs, census data;*

b refine and present data in a range of appropriate forms, *for example, tables, graphs, maps, population pyramids, geographical diagrams, sketches and descriptive and explanatory text;*

c use information technology as a medium for research, to process data and to present geographical information.

## Geographical Themes

### Physical Environments

ROCKS AND PROCESSES OF LANDSCAPE DEVELOPMENT

Pupils should have opportunities to learn about:

a the formation of igneous, sedimentary and metamorphic rocks;

b the major rock types found in Northern Ireland and the differences between them;

c different weathering processes, including physical, chemical and biological;

d the processes and features of erosion and deposition in at least one of the following environments

- fluvial, *for example, valley, river channel, waterfall, meander, flood plain;*
- coastal, *for example, headland, bays, beaches, spits;*
- glacial, *for example, corries, U-shaped valleys, moraines, drumlins;*

e one example of how the physical environment influences human activities, *for example, energy supply, water supply, tourism.*

WEATHER AND CLIMATE

Pupils should have opportunities to learn about:

a weather recording;

b the weather forecast;

c the difference between weather and climate;

d the major processes in the water cycle, (evaporation, condensation, precipitation, surface run-off);

e temperature and rainfall patterns in the British Isles;

f one extreme weather event and its human impact, *for example, a storm, hurricane, tornado or drought.*

ECOSYSTEMS

Pupils should have opportunities to learn about:

a the main characteristics of an ecosystem, (climate, soil, vegetation, animals);

b two ecosystems on a global scale, *such as equatorial rainforests, hot deserts, Mediterranean lands or Arctic environments;*

c the impact of human activity on one ecosystem at the local or global scale, *for example, deforestation, hedgerow removal, peat bog drainage.*

## Human Environments

### POPULATION

Pupils should have opportunities to learn about:

a population distribution in Northern Ireland, Britain and the wider world;

b reasons for variations in population density;

c reasons for population change, (birth rate, death rate, migration);

d differences in population composition in a developed and developing country.

### SETTLEMENT

Pupils should have opportunities to learn about:

a factors which influence choice of settlement, *for example, site, situation, resources, shape of land, protection;*

b the size, shape and function of settlements and how these may change over time;

c land use zones and patterns in settlements, by comparing a settlement in a developed and a developing country;

d land use changes in settlements and how these affect people, (one example from inner city re-development, *for example, re-location of industry, impact of a by-pass, changing shopping patterns).*

### ECONOMIC ACTIVITIES

Pupils should have opportunities to learn about:

a the classification of economic activities as primary, secondary and tertiary; one example of primary or secondary or tertiary industry using a systems approach;

b renewable and non-renewable resources;

c the impact of economic activity on the environment, *for example, quarrying, factory pollution, refuse disposal;*

d contrasts in the level of development between countries, by comparing a developed and a developing country using economic and non-economic indicators, *for example, birth rate, GNP.*

# Attainment Target and Level Descriptions for Geography



Geography has one attainment target entitled 'Geographical Knowledge, Understanding and Skills'. The level descriptions, set out within Levels 1 to 8, therefore, cover the subject as a whole. The relationship between the attainment target and the programme of study is as below.

## Key Stage 3

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the key Stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## GEOGRAPHICAL KNOWLEDGE, UNDERSTANDING AND SKILLS

**Pupils should develop a breadth and depth of geographical knowledge, skills in geographical enquiry, an ability to understand geographical issues and to communicate their understanding in a variety of forms.**

LEVEL 1
Pupils identify and talk about a limited range of places and features observed in the local neighbourhood and observe and talk about changes in the weather from season to season. They express views about what they like or dislike about the environment around them. They begin to use simple directional language *such as up, down, forward, backwards,* and attempt to describe orally simple picture maps not to scale. They illustrate understanding through talking, drawing and asking questions.

LEVEL 2
Pupils recognise and describe some common landscape features in the environment or from photographs and drawings. They describe, in simple sentences and/or by drawings, a limited range of features and processes from the programme of study which has been discussed in class. They offer some reasons why we need to care for the environment. They help organise data generated by the teacher into pictograms, simple block graphs using objects or simple computer databases to make the graphs. They follow a route on a simple map using directional language, *such as left and right,* and draw and describe simple picture maps not to scale.

LEVEL 3
Pupils describe some common landscape features in terms of size and shape and compare some major features and conditions they have learned about from the local area and the wider world. They show basic understanding of a limited range of processes they have discussed in class. They recognise that the use or disposal of some resources can sometimes present a problem for the environment and express simple views about issues. They draw simple plans and maps not to scale and use and follow North, South, East and West as directions. They help collect simple data and represent it on a simple bar chart or computer database.

LEVEL 4
Pupils describe and compare a range of features and places and offer simple explanations for the relationships between some of them. They recognise that there may be different views about geographical issues and describe two main viewpoints relating to an issue they have studied. They use a wider range of basic geographical skills, *for example, they identify some familiar features on a map using a simple key.* They collect, measure and record information and present and explain it in written form and in simple graphs, databases or diagrams.

LEVEL 5
Pupils use an appropriate geographical vocabulary to describe and compare an increasing range of geographical features and places. They offer simple explanations of a range of processes at more than one scale. They demonstrate more detailed understanding of issues by recognising that there can be a range of points of view and suggest simple explanations for some of the different views held about an issue. They use a wider range of geographical skills *such as four-figure grid references, the eight points of the compass,* and they draw simple plans and maps to scale. They collect, read and present information from primary and secondary sources appropriately.

LEVEL 6
Pupils use an increasing and appropriate geographical vocabulary to offer more detailed descriptions and explanations of a widening range of geographical processes at a variety of scales, *such as precipitation, manufacturing or pollution.* They recognise and describe some of the most significant economic, social and environmental dimensions of issues. They demonstrate increasing competence in map skills, *such as the measurement of straight line distances and the use of six-figure grid references.* They design and use appropriate data collection sheets and collect, present and explain data from both primary and secondary sources in a variety of forms. They undertake field work tasks and enquiries through secondary sources with increasing competence.

LEVEL 7
Pupils give accurate and relevant descriptions and explanations of a wide range of physical and human processes at a variety of scales and identify relationships, patterns and variations in them. They offer informed explanation of the viewpoints of different groups and suggest ways by which conflicts of interest might be resolved, showing awareness of some of the complexities of compromise. They use a wide range of map and enquiry skills with confidence and support descriptions and explanations with reference to appropriate graphs, diagrams and cross-sections. They demonstrate competence and independence in the completion of fieldwork tasks and enquiries through secondary sources.

LEVEL 8
Pupils explain the operation of a wide range of physical and human processes at a range of scales, demonstrating knowledge and understanding of relationships, patterns and variations, including the different rates at which processes operate and their varying impact over time and from place to place. They analyse the standpoints of groups in relation to issues and illustrate awareness of the complexity of decision-making in situations where economic development threatens the environment. They use and interpret maps, graphs, diagrams and cross-sections frequently and with confidence to support analysis and interpretations. They carry out appropriate investigations to solve problems or test hypotheses and reach valid conclusions based on the interpretation of data.

# Outline Programme of Study for Geography at Key Stage 4



## Using the Outline Programme of Study

This outline programme of study sets out the broad principles and requirements to which any approved course in geography should adhere. It provides a framework within which courses in geography can be developed or against which courses in geography can be evaluated in order to determine if they provide appropriate learning experiences.

For some pupils at Key Stage 4, it may be more appropriate to follow the requirements for an earlier key stage. When this is the case, it is important that materials and activities are presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.



## Principles

The geography curriculum at Key Stage 4 should provide opportunities for pupils to:

- develop their knowledge and understanding of
  - a variety of environments,
  - physical and human processes, their inter-relationships and spatial outcomes and how these change over time,
  - issues arising from the use and management of environments and their resources,
  - the various ways in which societies with different technologies, economic and political systems and cultural values have responded to particular environments;
- use a range of geographical skills, including IT where appropriate, in investigative actvities;
- develop an appreciation of
  - a sense of place,
  - the environment, and thus develop an informed concern about its future,
  - the complexity and variety of geographical phenomena,
  - the often tentative nature of explanations in geography,
  - the relationships and interdependence of different communities and cultures within and between societies.

The geography curriculum should, where appropriate, provide opportunities for pupils to explore and reflect on the content and issues associated with the educational (cross-curricular) themes.

4

KEY STAGE

## Requirements

The study of geography at Key Stage 4 should build on the knowledge, understanding and skills established by the Northern Ireland Curriculum for Key Stages 1 to 3 and provide a foundation for further study.

It requires:

- a balanced coverage of the physical and human aspects of the subject;
- the study of places at different scales, small, regional/national, international/global, in different parts of the world including Northern Ireland, the European Union and countries in various stages of development;
- the study of the inter-relationships and interactions between peoples and environments and how these change over time;
- the investigation of the differing views and actions of people involved in geographical issues and the consequences of these for the management of environments and their resources;
- the application of suitable ideas to explain geographical phenomena;
- the selection and use of a range of skills, techniques and procedures in practical work including,
  - investigation in the field involving observation, collection, presentation, analysis, and interpretations of data and drawing of conclusions,
  - the use of maps, diagrams and photographs and other secondary sources.

Programme of Study
GEOGRAPHY

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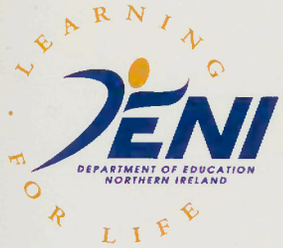
# KEY STAGE 4

## PROGRAMME OF STUDY

BUSINESS STUDIES

Contents



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# Outline Programme of Study for Business Studies at Key Stage 4



## Using the Outline Programme of Study

This outline programme of study sets out the broad principles and requirements to which any approved course in business studies should adhere. It provides a framework within which courses in business studies can be developed or against which courses in business studies can be evaluated in order to determine if they provide appropriate learning experiences.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Such pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Introduction

The principles and requirements set out below are underpinned by the fact that business is a creative and dynamic activity. Pupils should, therefore, be given opportunities to engage in practical work such as simulations, investigations, case studies and mini-enterprise. Such work should enable pupils to explore the day-to-day activities in real business, experience the entrepreneurial environment and take advantage of local business contexts wherever possible.

Where appropriate, pupils should have opportunities to address the objectives of the educational (cross-curricular) themes.

## Principles

Business studies courses should provide pupils with opportunities to develop:

- knowledge and understanding of the features and dynamics of business activity, taking account of the environment and contexts within which that activity takes place;
- knowledge and understanding of the language, concepts, techniques and decision-making procedures involved in business activities;
- knowledge and appreciation of the business world and of the co-operation and inter-dependence which participation in that world entails;
- an awareness of the nature and significance of innovation and change within the context of business activities;
- the ability to select and use appropriate information technology applications in the context of administration and decision-making within business;
- those qualities and skills which are essential in the business world, *for example, working as a member of a team; using initiative, writing reports and interpreting financial statements.*

4

KEY STAGE

## Requirements

A business studies course should enable pupils to develop knowledge and understanding of two essential areas which are set out below.

1 The relationship between business activity and the environment within which it takes place.

2 The structure, organisation and control of the main forms of business.

In relation to 1 and 2 above, pupils should develop knowledge and critical understanding of:

- the aims and objectives of business;
- roles, relationships and management in business;
- the sources, uses and management of finance;
- production and marketing objectives and related strategies.

Pupils should demonstrate their ability to use appropriate information technology applications in the context of decision-making within business.

Programme of Study
BUSINESS STUDIES

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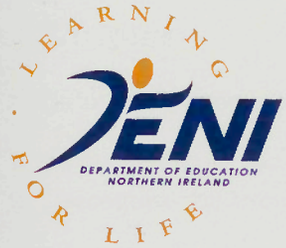
# KEY STAGE 4

## PROGRAMME OF STUDY

Contents



ECONOMICS

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# Outline Programme of Study for Economics at Key Stage 4



## Using the Outline Programme of Study

This outline programme of study sets out the broad principles and requirements to which any approved course in economics should adhere. It provides a framework within which courses in economics can be developed, or against which courses in economics can be evaluated in order to determine if they provide appropriate learning experiences.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Such pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Introduction

The principles and requirements set out below are underpinned by the view that economics concerns enquiry into, and understanding of, the allocation of resources to the production and distribution of wealth. In order to involve them in the learning process, pupils should be given opportunities to engage in a variety of activities. *Examples of these activities include:*

- *the use of case studies based on some aspect of the local economy;*
- *simulations;*
- *role-play;*
- *use of data response type material;*
- *economic games;*
- *fieldwork; and*
- *computer assisted learning.*

Where appropriate, pupils should have opportunities to address the objectives of the educational (cross-curricular) themes.

## Principles

Any course in economics should provide opportunities for pupils to:

- make effective use of terminology, concepts and methods relevant to the subject, and to recognise the strengths and limitations of the ideas used;
- develop the ability to apply their knowledge of economics in a wide range of contexts, including Northern Ireland, distinguishing between facts and opinions, and evaluating data in order to make informed judgements;
- develop knowledge and understanding of the working of economic systems and the interdependence and dynamics in economic behaviour.

4

KEY STAGE

## Requirements

A course in economics should provide pupils with opportunities to develop knowledge and understanding of the two essential areas which are set out below.

1 The basic economic problems and decisions which give rise to economics as a discipline.

2 The economic behaviour of individuals, groups, organisations and governments within local, national and international communities.

In relation to 1 and 2 above, pupils should be given opportunities to develop knowledge and critical understanding of:

- the concepts, theories and methods needed to analyse issues from an economics perspective;
- economic terms, classifications and indicators;
- the institutional and organisational framework within which economic behaviour takes place;
- the criteria against which economic behaviour might be assessed.

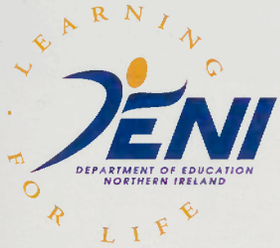
# KEY STAGE 4

## PROGRAMME OF STUDY

POLITICAL STUDIES

Contents



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FOREIGN STUDIES

# Outline Programme of Study for Political Studies at Key Stage 4



## Using the Outline Programme of Study

This outline programme of study sets out the broad principles and requirements to which any approved course in political studies should adhere. It provides a framework within which courses in political studies can be developed or against which courses in political studies can be evaluated in order to determine if they provide appropriate learning experiences.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Such pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Introduction

The study of political studies at Key Stage 4 should build on the knowledge, understanding and skills gained during the study of the curriculum at Key Stage 3. It should provide a foundation for further study. The study should be undertaken to the breadth and depth which is relevant and appropriate to the pupils' individual needs and abilities.

## Principles

Any course in political studies at Key Stage 4 should prepare pupils for life in an ever-changing world by providing opportunities for pupils to:

- develop knowledge and understanding of key political vocabulary and language;
- explore key ideas that govern political processes and political behaviour, to develop an appreciation of differing viewpoints;
- develop knowledge and understanding of the main political institutions and the extent to which they interact with key ideas and political behaviour;
- develop the skills necessary to explore a range of source materials;
- explore and reflect on the content and issues associated with the educational (cross-curricular) themes.

4

KEY STAGE

## Requirements

Any course in political studies must require:

- the study of
  - the key political processes and structures of British Government,
  - contemporary political issues, including a Northern Ireland dimension;
- the development and use of the skills necessary to acquire, handle and evaluate information.

Programme of Study
POLITICAL STUDIES

# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGET

HOME ECONOMICS

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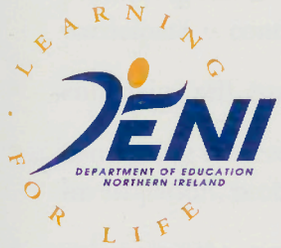


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# Characteristics of the Curriculum at Key Stages 3 and 4

Pupils enter Key Stage 3 with the experiences gained from the study of a range of subjects in the primary school. These experiences should be recognised and built upon at Key Stages 3 and 4. The learning experiences which are provided should be enjoyable and include challenges which are achievable and motivating.

It is important to recognise the continuing development of pupils as individuals during Key Stages 3 and 4, particularly through their growing awareness of themselves and their capabilities. The whole curriculum for Key Stages 3 and 4 should promote the development of the individual pupil in terms of an increasing facility for self-evaluation and ability to take responsibility for his or her own learning and work practices. There should be ample opportunity for the pupil to apply learning to relevant contexts and purposes.

The range of knowledge, understanding and skills represented in the curriculum at Key Stages 3 and 4 should also help pupils to become aware of themselves in the wider world, to develop independence and make informed judgements and responsible decisions relating to their own lives and their relationships with others. In their continuing development, pupils should be guided towards targets which are suited to their abilities and aptitudes and should be encouraged to review these targets as part of their development towards adult and working life.

The Key Stage 3 curriculum should take account of a vocational dimension through recognition and application of work-related skills and personal qualities, interests and abilities. Pupils should also have opportunities to explore the implications for adult and working life of decisions they will take in relation to their study beyond fourteen.

The Key Stage 4 curriculum should include a strong emphasis on the vocational dimension which will relate to decisions taken both about courses and qualifications and the setting of individual targets. The National Record of Achievement (NRA) and the formulation of Personal Career Plans will promote the recognition of personal qualities, interests and abilities through the exploration of the implications of pupils' decisions for further study and for adult and working life.

Education at Key Stages 3 and 4 should continue to foster the intellectual, social, emotional, physical, moral, cultural and spiritual development of pupils by:

- encouraging a growing independence;
- guiding pupils to express their own individual needs, identifying targets which meet these needs, and assisting them to make informed choices and decisions;
- promoting the development of personal and inter-personal skills, so enabling them to participate as contributing members of groups;
- enhancing self-esteem and encouraging the growth of pupils' own sets of values;
- continuing to develop pupils' study skills, by providing opportunities for exploration, investigation, problem-solving and decision-making;
- enhancing the creativity of pupils by stimulating curiosity and imagination;
- developing increased versatility and confidence in communication across a range of media and for a variety of purposes;
- providing rich and varied contexts for the development of thinking and reasoning skills associated with observing, recording, interpreting, inferring and predicting.

# Using the Programme of Study for Key Stage 3

## Access to the Programme of Study

Teachers should ensure that pupils have access to the breadth and depth of this programme of study at levels and within contexts which are appropriate and relevant to their individual needs and abilities.

In order to meet the particular needs of some pupils and to ensure that learning experiences for these pupils are positive and meaningful, it may be necessary for teachers to present materials, and/or activities in appropriate maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Language Across the Curriculum

Teachers should be aware of the key role of language in learning. They should use opportunities provided within the programme of study to encourage the development of all four modes of language: talking, listening, reading and writing. Teachers should give attention to the quality of language and take opportunities to reinforce good practice on the use of language.

## Equality of Opportunity

The programmes of study for all subjects within the Northern Ireland Curriculum are designed to ensure equal access to a broad and balanced curriculum for all pupils. Teachers should make every effort to ensure that equality of opportunity is provided for both girls and boys in order that all pupils should have equal access to the full range of experiences across all subjects in the Northern Ireland Curriculum.



## Referencing

The lettering used throughout the programme of study is for referencing purposes only. It does not necessarily identify strands, indicate a teaching sequence or hierarchy of knowledge, understanding and skills.

## Statutory Elements

Those elements which form part of the statutory requirements have been tinted. Other aspects which provide information or clarification have been left untinted. Examples are non-statutory and are printed in italics.

# Programme of Study for Home Economics at Key Stage 3



## Introduction

The central focus of home economics at Key Stage 3 is the consideration of the importance of home and family in relation to the development of the individual and society. The programme of study is designed to enable pupils to acquire the knowledge, understanding and skills to make informed decisions about home and family which may improve the quality of life for themselves and others.

The programme of study is set out under the following strands:

- An Approach to Home and Family Issues;
- Family Life;
- Diet and Health;
- Choice and Management of Resources.

Throughout the key stage, teachers should aim to present these strands in an integrated way and to provide opportunities for pupils to develop their understanding of:

- the home and family as these relate to the development of the individual and society;
- the interdependence and interaction among individuals, families and communities;
- the individual and his/her relationship within the home and family;
- the challenges facing the family in a changing society and the need to respond effectively to change;
- the need to take account of attitudes and values in making informed judgements on matters relating to the home and family;
- the physical, social, emotional and intellectual needs of self and others, and how these may change throughout life;
- the need to become discerning consumers and effective managers of resources in relation to the home and family.

Account should be taken of the variety of family and cultural backgrounds from which pupils come. Teachers should appreciate that the home and family situations in which pupils live may not conform to a standard pattern therefore issues should be approached in a sensitive manner. It is also important to recognise that home and family issues may be controversial and can involve a range of viewpoints.

For the purposes of this programme of study the main stages in the life cycle are as follows.

- baby/toddler: 0-3 years
- child: 4-11 years
- adolescent: 12-17 years

- young adult: 18-25 years
- adult: 26-64 years
- elderly person: 65+ years

Teachers will need to take these stages into account when selecting contexts which complement the content within the strands of the programme of study.

## Methodology

Pupils should gain experience of working independently, in pairs, and as members of a group. They should have opportunities to articulate their ideas and views, as well as listening to and appreciating the efforts and opinions of others.

Pupils should have regular opportunities to experience a range of activities which will encourage the development of skills, including:

- communication;
- creative;
- decision-making;
- investigative;
- management;
- measurement;
- personal and social;
- problem-solving;
- psycho-motor;
- reasoning and critical thinking.

One important aspect is the development of practical skills. Regular opportunities should be provided to enable pupils to carry out practical activities in a competent and safe manner.

Enjoyment should be an integral part of the learning experience and pupils should be encouraged to take pride in their achievements. Through a range of activities, pupils should have opportunities to transfer knowledge and understanding from one situation to another.

## Contribution to Educational (Cross-curricular) Themes

Throughout work relating to the programme of study, pupils should have opportunities to engage in discussion and to undertake activities which fulfil the objectives of the cross-curricular themes. The opportunities listed in this section should not be treated as a check list to be covered but as illustrations of some of the ways in which the cross-curricular themes can be developed as an integral part of home economics.

### Education For Mutual Understanding/Cultural Heritage

Pupils should have opportunities to develop a knowledge, understanding and appreciation of:

- themselves and others and how to handle and react appropriately to a range of personal and social situations, including conflict;
- interdependence in relation to other individuals, families, communities and the wider world;
- the influence of different traditions and cultures on home and family life, and on diet and health.

### Health Education

Pupils should have opportunities to:

- develop a positive self-image and self-confidence through exploring attitudes and clarifying values;
- consider the nature of relationships within the family, with peers and with others within the community and develop appropriate interpersonal skills;
- understand the stages involved and the factors which govern physical and emotional growth and well being;
- know and understand the contribution of food to growth, energy and health, and make responsible decisions about their diet;
- demonstrate safe and hygienic practices when preparing and cooking food;
- consider safe practices for the prevention of accidents in the home including safety in relation to goods and equipment.

### Information Technology

Pupils should have opportunities to:

- use a database, a spreadsheet and relevant software packages;
- store, process, retrieve and present information;
- consider the effects of modern technology on home and family life, on diet and health, and in relation to the effective management of resources.

### Economic Awareness

Pupils should have opportunities to:

- develop the knowledge and skills required to become discerning consumers and make effective use of available resources;
- consider personal and household budgeting and make reasoned decisions about the allocation of financial income;
- understand the factors which influence consumer choice and investigate the sources of information which are available;

- explore the types of goods and services which are used by family members, the range of retail outlets from which goods can be bought and the methods of paying for goods and services;
- understand the legislation which exists to protect the basic rights of consumers and know the procedures for making a complaint.

### Careers Education

Pupils should have opportunities to:

- explore the roles and responsibilities of individuals within the family unit and the ways in which these change throughout life;
- develop understanding of the factors which can affect decisions and actions and consider the potential consequences;
- appreciate the value which home economics competence could have on career opportunity.

## HOME ECONOMICS COMPETENCE

### An Approach to Home and Family Issues

An approach to home and family issues introduces an approach whereby pupils can develop their ability to apply knowledge, understanding, skills and ideas to issues which arise within the home and family in a changing society. They should recognise how issues can arise within families, understand that a process of decision making can be applied and that the resultant decisions may have an effect on the family and society.

Through work related to the other strands of the programme of study, pupils should develop knowledge and understanding of the process involved in exploring issues. While there should be opportunities throughout the key stage for pupils to apply the process in its entirety, it will be appropriate in some situations to focus on particular aspects of the process.

The pupils' ability to apply the process should develop as they make progress and explore increasingly complex issues.

The process of exploring issues should form a major element of home economics activity during this key stage. However, there will be aspects of home economics knowledge and understanding that will not lend themselves to this approach. Teachers should make use of teaching strategies which are suitable for the situation and which best suit the needs of the individual pupils.

#### The Process of Exploring Issues

Pupils should have opportunities to:

a identify the issue(s)

- what are the issues?
- why are they issues?
- who is involved and/or affected?
- in what ways are they affected?

b assemble relevant information

- use of primary and secondary sources of information;

c analyse viewpoints

- compare the viewpoints of self and others,
- give reasons why these are held,
- consider the validity of others viewpoints,
- understand the factors which affect viewpoints;

d arrive at a personal viewpoint

- consider a range of viewpoints,
- develop a personal viewpoint;

e make a decision and take action, if appropriate

- consider the factors which may influence decisions and actions,
- consider the potential consequences of decisions and actions,
- recognise that compromise and/or prioritising may be necessary when making a decision;

f evaluate the process

- what can be learnt?
- on reflection what might be improved?
- what conclusions might be drawn?

Attitudes and values may change over time. The process should allow pupils to re-evaluate their viewpoints concerning a particular issue if and when appropriate.

## Family Life

Pupils should develop knowledge and understanding of the concept of the family as a social institution and the contribution of family life to the personal and social development of its members. They should recognise the importance of developing and strengthening family relationships and the interdependence and interaction among individuals, families and society.

Pupils should have opportunities to:

a investigate the concept of family and family structures and the importance of the family as a caring unit, including

- their ideas of family life and the contributions made by individual family members,
- different types of family units and their structures,
- the variety of roles that occur in families and the changing nature of these roles and responsibilities,
- how the family can care for and support its members by providing for individual needs;

b examine the factors which encourage positive family relationships taking account of the personal and social development of family members, including

- the main stages of the life cycle,
- how family members can contribute to family life,
- the different and changing relationships which individuals have with others, both inside and outside the family,
- stereotyping and how it can affect the day-to-day organisation of, and relationships within the family,
- the impact of technology on individuals and families, *for example, video games, computer, television, labour-saving equipment;*

c explore the different and changing needs of family members and how these needs, *for example, physical, social, emotional and intellectual,* may be met throughout life, including

- basic family needs, *for example, food, shelter, clothing, love,*
- the individual needs of different family members,
- how the family can care for and support its members by providing for individual needs;

d consider a range of family situations which can lead to stress and conflict, *for example, pocket money, peer pressure, break-up of a relationship, stereotyping of roles,* and examine strategies for dealing with these situations, including

- the actions of family members, *for example, choice of clothes, music or friends, over-protective parents, unsuitable relationships,*
- ways in which people can co-operate, *for example, discussing the problem, sharing views, compromising, being tolerant.*

## Diet and Health

Pupils should develop knowledge, understanding and skills necessary to provide healthy diets for family members. They should recognise that family members have different dietary needs and that food choice is affected by social, economic, environmental, physiological and psychological factors.

Pupils should have opportunities to:

a investigate the links between diet and health and gain knowledge, understanding and competence to make informed choices, including

- the variety of foods from which to choose,
- why it is necessary to eat food,
- how foods may be grouped, *for example, plant, animal, processed,*
- how health can be affected by eating patterns,
- current dietary recommendations and their implications for health,
- the roles of protein, fat, carbohydrates, dietary fibre (Non-Starch Polysaccharides), vitamins (C and D only) and minerals (calcium, iron and fluorine only) within the context of providing healthy meals for family members,
- the primary sources of nutrients,
- an awareness of the range of factors which can affect food choice, *for example, time, financial constraints, nutrients supplied, availability of foods, cultural influences,*
- the nutritional needs of individuals, *for example, toddler, adolescent, pregnant woman, elderly person,*
- the links between diet and health in relation to coronary heart disease and anaemia;

b develop competence in the skills of decision-making, management, organisation and evaluation in relation to the preparation of healthy meals, including

- why some food needs to be cooked and that food changes as a result of cooking,
- the preparing and making of a range of healthy snacks,
- the demonstration of safe and hygienic practices when preparing and cooking food,
- how to store food appropriately,
- the selection of kitchen equipment and processes appropriate to food preparation and cooking,
- how storage, preparation and cooking of food can affect the nutritional content (Vitamin C only),
- modifications to recipes to take account of current dietary recommendations and nutritional needs and the use of food tables and/or computer software as appropriate,
- the planning, making and evaluating of a range of healthy meals, including
  - individual needs and situations, *for example, student in a flat, pregnant mother, vegetarian,*
  - the requirements of specific diet-related health disorders, *for example, coronary heart disease, anaemia;*

c develop an awareness of the effects of technology on the availability, storage, preparation and cooking of food, including

- how technological advances, *for example, the microwave, the food processor,* have affected food storage, preparation and cooking in the home,
- how technological developments, *for example, vacuum packaging, use of food additives, availability of cooked chill foods,* have affected the range and quality of food available in retail outlets.

## Choice and Management of Resources

Pupils should develop knowledge, understanding and skills to enable them to become discerning consumers and effective managers of resources in relation to the home and family. They should recognise how choices can be influenced by personal, economic and environmental factors.

Pupils should have opportunities to:

a examine the types of goods and services used by family members and consumers including

- a range of retail outlets and how they relate to the needs of individuals and families,
- the services which family members use, *for example, medical, postal, telephone services,*
- the methods of paying for goods and services, *for example, cash, cheque, saving stamps;*

b explore the influences on consumer choice, including

- the sources of information which are available to consumers, *for example, the media, friends, manufacturers' leaflets,*
- labelling on goods, *for example, storage instructions, safety symbols, recycling information,*

- the factors which influence decision-making and consumer choice, *for example, amount of money available, cost, peer pressure, design, safety, fitness for purpose,*
- the techniques which are used to promote sales and their effect on consumer choices, *for example, position of products in the supermarket, timing of television advertisements, money off coupons;*

c develop their understanding of the assistance offered to consumers and the protection provided by legislation, including

- an awareness of the assistance provided by the Citizen's Advice Bureau and by Environmental Health Officers,
- the procedures for making a complaint,
- the legislation which exists to protect the basic rights of consumers, including the main provisions of
  - the Sale and Supply of Goods Act, 1994,
  - the Trade Descriptions Act, 1968;

d investigate how the choice of home is influenced by a range of factors and consider the financial aspects of managing a home, including

- the different types of accommodation in which people live,
- the main factors which influence the type and location of a home, *for example, personal, social, economic, environmental,*
- the difference between renting and buying a home,
- the main costs of running a home,
- the factors which influence the allocation of financial income, *for example, prioritising needs and wants,*
- the importance of budgeting,
- the ability to plan a personal budget;

e develop knowledge, understanding and competence to enable them to make safe and effective use of available resources, including

- the identification of a range of tasks carried out in the daily running of a home,
- how family members can share the tasks involved in running a home,
- safe practices for the prevention of accidents in the home,
- the ability to organise and manage resources in relation to tasks, *for example, planning a simple lunch for a senior citizen, preparing for a friend coming to stay overnight,*
- the implications of technology in relation to the effective management of resources in the home, *for example, thermostats, time switches.*

# Attainment Target and Level Descriptions for Home Economics



Home economics has one attainment target entitled: Home Economics Competence. The level descriptions, set out within Levels 1 to 8, therefore, cover the subject as a whole.

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the key stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

3

KEY STAGE

Level Descriptions
HOME ECONOMICS

## HOME ECONOMICS COMPETENCE

**Home Economics Competence defines the knowledge, understanding, skills and competencies which pupils develop as they explore issues, think critically, make informed decisions and manage resources within the context of the home and family in a changing society. By exploring issues, pupils should develop their competencies within a range of contexts which reflect the practical and theoretical experiences appropriate to each of the strands ie Home and Family, Diet and Health, and Choice and Management of Resources, in the subject.**

LEVEL 1

*Pupils describe their observations about family life and identify the contributions of individual family members. They name and describe different types of homes, food, shops, goods and services. They know that resources need to be shared. They talk about what they are going to do during class activities and/or what they have done.*

LEVEL 2

*Pupils identify issues which arise within home and family situations and talk about possible courses of action. They identify different types of family units and know the basic needs of the family. They begin to understand how health is affected by eating patterns. They sort foods into groups and give supporting reasons. With help, they carry out practical activities and describe and record their observations. They talk about the range of tasks carried out in the daily running of a home, and the services which family members use. They describe why budgeting is important.*

LEVEL 3

*Pupils identify differing viewpoints and understand that more than one viewpoint can be held on issues. They describe the variety of roles that occur in families and take account of the individual needs of different family members. They begin to understand current dietary recommendations and describe their effect on health. With help, they plan and carry out practical activities using safe and hygienic practices. They describe in sequence what they did, talk about their choice of resources, comment on the success of the activity and suggest improvements. They identify some of the main factors which influence consumer choice. They consider how family members can share the tasks involved in running a home. They identify safe practices for the prevention of accidents in the home.*

LEVEL 4

*On a range of issues, pupils explain the reasons for holding a viewpoint. They describe the characteristics of positive family and social relationships and understand the different relationships that individuals may have with others. They identify the key factors which affect home and family situations and consider possible courses of action. They understand the nutritional value of healthy meals, know the primary sources of nutrients and identify the range of factors which affect food choice. They know about some technological advances which have affected food storage, preparation and cooking in the home. They demonstrate some competence when planning and carrying out practical activities. They explain how consumers make choices, and describe the main factors which influence the choice of goods and equipment. They identify sources of information available to consumers. They plan a personal budget.*

LEVEL 5

*In relation to a range of home and family issues, pupils identify some of the viewpoints which are possible and demonstrate an understanding that compromise and/or prioritising is often necessary when making decisions. They know about the interactions within the family in terms of changing roles, responsibilities and relationships and how support can be provided for family members. They demonstrate a sound knowledge and understanding of food and nutrition taking account of current dietary recommendations. They plan and carry out practical activities in a reasonably competent manner and demonstrate safe and hygienic practices when preparing and cooking food. In relation to a range of home and family situations, they make decisions and organise and manage resources. They know the procedures for making a complaint. They explain the main factors which influence the type and location of a home.*

LEVEL 6

*Pupils describe the different and changing needs of family members throughout life and provide explanations of how these needs can be met taking account of the range of influencing factors. They begin to make comparisons between different viewpoints and strategies using information selected from relevant sources and to demonstrate some understanding of the possible consequences of decisions and actions. They are competent in applying their knowledge and understanding to a range of home and family issues and situations, such as, the allocation of financial income and dealing with conflicting and stressful situations, and they suggest appropriate courses of action. They plan and carry out practical activities with increasing independence and competence and provide some reasoned explanations relevant to the outcomes. They understand the assistance offered to consumers and the protection provided by legislation.*

LEVEL 7

*Pupils are competent in applying their knowledge and understanding to a range of increasingly complex issues which reflect the challenges for the family in a changing society, such as, the factors which promote positive adult/child relationships. They explain how the attitudes of self and others may influence viewpoints and strategies and select from the evidence available to provide reasoned explanations which reflect the possible consequences of decisions and actions. They know about recent technological developments and evaluate the implications for consumer choices and for the effective management of resources. Independently, pupils plan and carry out more complex practical activities in a competent and efficient manner and in their evaluation of the outcomes they demonstrate increasing discrimination and critical evaluation.*

LEVEL 8

*Pupils examine the reasons for holding particular viewpoints. They consider issues from different perspectives and use their knowledge and understanding to draw inferences and provide appropriate judgements of their merits. They are competent in dealing with a wide range of influencing factors in relation to complex issues, they put forward a logical argument supported by relevant evidence, and provide well structured, reasoned and logical explanations. They show initiative in seeking to extend their knowledge and understanding. They work independently and are skilled and competent in planning and carrying out complex practical activities. They demonstrate a sound knowledge and understanding of the processes and strategies involved and provide logical and reasoned explanations of the outcomes.*

# Outline Programme of Study for Home Economics at Key Stage 4



## Using the Outline Programme of Study

This outline programme of study sets out the broad principles and requirements to which any approved course in home economics should adhere. It provides a framework within which courses in home economics can be developed or against which courses in home economics can be evaluated in order to determine if they provide appropriate learning experiences.

For some pupils at Key Stage 4, it may be more appropriate to follow the requirements for an earlier key stage. When this is the case, it is important that materials and activities are presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.



## Principles

A course in home economics at Key Stage 4 should:

- provide a coherent experience for pupils by building on the knowledge, understanding and skills which pupils have gained during Key Stage 3 and provide a foundation for further study;
- provide opportunities for pupils to explore and reflect on the content and issues of the cross-curricular themes, where appropriate;
- provide opportunities for pupils to develop their understanding of the home and family as they relate to the development of the individual and society;
- enable pupils to apply a process of decision-making and problem-solving and so acquire the knowledge, understanding and skills to make informed decisions within the context of home and family issues;
- provide opportunities for pupils to develop their understanding of individual needs, the interdependence of individuals, families and communities, and the influence of social, cultural, economic and environmental factors;
- increase pupils' awareness of the challenges facing the family in a changing world and develop their ability to respond effectively to such changes;
- enable pupils to become discerning consumers and effective managers of resources in relation to the home and family.

## Requirements

A course in home economics at Key Stage 4 should provide opportunities for maintaining breadth and increasing depth within each of the strands in the subject. Pupils' experiences should reflect an integrated approach so that a coherent and holistic experience is maintained.

4

KEY STAGE

Programme of Study
HOME ECONOMICS

## An Approach to Home and Family Issues

A course should enable pupils to develop their knowledge and understanding of the process involved in exploring issues relating to the home and family, including:

a identifying issues;

b considering relevant information;

c analysing viewpoints;

d arriving at a personal viewpoint;

e making a decision and taking action, if appropriate;

f evaluating the process.

The process of exploring issues should be applied to the knowledge, understanding and skills which any course relating to the home and family will provide.

A course in home economics should, through the process of exploring issues, allow pupils to demonstrate and apply their knowledge and understanding and to select and use a range of appropriate skills in a competent manner.

## The Subject Content

The subject content of any course should extend and build upon the strands relating to home and family which comprise the programme of study for Key Stage 3. The inter-relationships between the strands should be addressed in the context of both practical and theoretical situations.

### FAMILY LIFE

Pupils should have opportunities to demonstrate knowledge and understanding of the concept of the family as a social institution and the contribution of family life to the personal and social development of its members. They should recognise the importance of developing and strengthening family relationships and the interdependence and interaction among individuals, families and societies.

### DIET AND HEALTH

Pupils should have opportunities to demonstrate the knowledge, understanding and skills necessary for the provision of healthy diets for family members. They should recognise that family members have different dietary needs and that food choice is affected by social, economic, environmental, physiological and psychological factors.

### CHOICE AND MANAGEMENT OF RESOURCES

Pupils should have opportunities to apply knowledge, understanding and skills as discerning consumers and effective managers of resources in relation to home and family issues. They should recognise how choices can be influenced by personal, social, economic and environmental factors.

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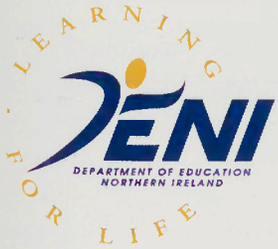
# KEY STAGE 4

## PROGRAMME OF STUDY

Contents



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SOCIAL & ENVIRONMENTAL STUDIES

# KEY STAGE 4

## PROGRAMME OF STUDY

# Outline Programme of Study for Social and Environmental Studies at Key Stage 4



## Using the Outline Programme of Study

This outline programme of study sets out the broad principles and requirements to which any approved course in social and environmental studies should adhere. It provides a framework within which courses in social and environmental studies can be developed or against which courses in social and environmental studies can be evaluated in order to determine if they provide appropriate learning experiences.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Such pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Principles

Social and environmental studies at Key Stage 4 should build on knowledge, understanding and skills gained during relevant studies in Key Stage 3. The study of courses in this subject area should be undertaken to the breadth and depth which is relevant and appropriate to the pupils' individual needs and abilities.

Any course in social and environmental studies should contribute to preparing pupils for life in a changing world by providing opportunities for them to:

- develop knowledge and understanding of the interdependence and inter-relationships of cultural, economic, environmental, political and social matters;
- understand themselves as social beings, their inter-relationships within society and their interactions with the environment;
- develop an understanding of the different values and attitudes, needs and perspectives of their own and other communities;
- develop the skills necessary to explore issues relating to the environment and society by engaging in a range of activities;
- explore and reflect on the content and issues associated with the educational (cross-curricular) themes.

## Requirements

Any course in social and environmental studies must require:

- the study of,
  - the inter-relationship between human activity and the environment within which that activity takes place,
  - influences from one or more perspectives - *such as, social, political, economic, cultural, technological* - which shape society and the inter-relationships of these influences with the attitudes and values of that society,
  - the relationships and responsibilities of, and influences on, the individual in the context of contemporary society;
- the development and use of the skills necessary to acquire, handle and evaluate information.

# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGET

PHYSICAL EDUCATION

Contents




LEARNING FOR LIFE
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# Characteristics of the Curriculum at Key Stages 3 and 4

Pupils enter Key Stage 3 with the experiences gained from the study of a range of subjects in the primary school. These experiences should be recognised and built upon at Key Stages 3 and 4. The learning experiences which are provided should be enjoyable and include challenges which are achievable and motivating.

It is important to recognise the continuing development of pupils as individuals during Key Stages 3 and 4, particularly through their growing awareness of themselves and their capabilities. The whole curriculum for Key Stages 3 and 4 should promote the development of the individual pupil in terms of an increasing facility for self-evaluation and ability to take responsibility for his or her own learning and work practices. There should be ample opportunity for the pupil to apply learning to relevant contexts and purposes.

The range of knowledge, understanding and skills represented in the curriculum at Key Stages 3 and 4 should also help pupils to become aware of themselves in the wider world, to develop independence and make informed judgements and responsible decisions relating to their own lives and their relationships with others. In their continuing development, pupils should be guided towards targets which are suited to their abilities and aptitudes and should be encouraged to review these targets as part of their development towards adult and working life.

The Key Stage 3 curriculum should take account of a vocational dimension through recognition and application of work-related skills and personal qualities, interests and abilities. Pupils should also have opportunities to explore the implications for adult and working life of decisions they will take in relation to their study beyond fourteen.

The Key Stage 4 curriculum should include a strong emphasis on the vocational dimension which will relate to decisions taken both about courses and qualifications and the setting of individual targets. The National Record of Achievement (NRA) and the formulation of Personal Career Plans will promote the recognition of personal qualities, interests and abilities through the exploration of the implications of pupils' decisions for further study and for adult and working life.

Education at Key Stages 3 and 4 should continue to foster the intellectual, social, emotional, physical, moral, cultural and spiritual development of pupils by:

- encouraging a growing independence;
- guiding pupils to express their own individual needs, identifying targets which meet these needs, and assisting them to make informed choices and decisions;
- promoting the development of personal and inter-personal skills, so enabling them to participate as contributing members of groups;
- enhancing self-esteem and encouraging the growth of pupils' own sets of values;
- continuing to develop pupils' study skills, by providing opportunities for exploration, investigation, problem-solving and decision-making;
- enhancing the creativity of pupils by stimulating curiosity and imagination;
- developing increased versatility and confidence in communication across a range of media and for a variety of purposes;
- providing rich and varied contexts for the development of thinking and reasoning skills associated with observing, recording, interpreting, inferring and predicting.

# Using the Programme of Study for Key Stage 3

## Access to the Programme of Study

Teachers should ensure that pupils have access to the breadth and depth of the programmes of study at levels and within contexts which are appropriate and relevant to their individual needs and abilities.

In order to meet the particular needs of some pupils and to ensure that learning experiences for these pupils are positive and meaningful, it may be necessary for teachers to select materials and/or activities from an earlier key stage. When this is the case, it is important that such material and/or activities be presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.



## Language Across the Curriculum

Teachers should be aware of the key role of language in learning. They should use opportunities provided within the programme of study to encourage the development of all four modes of language: talking, listening, reading and writing. Teachers should give attention to the quality of language and take opportunities to reinforce good practice on the use of language.

## Equality of Opportunity

The programmes of study for all subjects within the Northern Ireland Curriculum are designed to ensure equal access to a broad and balanced curriculum for all pupils. Teachers should make every effort to ensure that equality of opportunity is provided for both girls and boys in order that all pupils should have equal access to the full range of experiences across all subjects in the Northern Ireland Curriculum.

## Referencing

The lettering used throughout the programme of study is for referencing purposes only. It does not necessarily identify strands, indicate a teaching sequence or hierarchy of knowledge, understanding and skills.

## Statutory Elements

Those elements which form part of the statutory requirements have been tinted. Other aspects which provide information or clarification have been left untinted. Examples are non-statutory and are printed in italics.

# Programme of Study for Physical Education at Key Stage 3



## Introduction

Building on the experiences gained during Key Stage 2, pupils should be given opportunities to develop their skills and apply them in more complex personal challenges. They should be given sufficient guidance to cope with these challenges and so continue to experience success in the full range of activities.

During Key Stage 3, pupils will progress gradually towards more adult forms of activity and cope with increased physical demands. Continued achievement and progress in physical performance should maintain a positive attitude towards participation. In lessons at this level there should be a strong emphasis on improving performances in all activities. Pupils should begin to identify personal preferences and areas where higher levels of performance may be achieved. The wider spread of ability and attainment at this key stage should be reflected in teacher expectations for individual pupils.

Pupils should learn to review objectively and appraise their own performances and those of others. They should reach a clear understanding of the place of regular exercise in everyday life and opportunities should be provided for them to reflect on and discuss their involvement in physical education activities.



## Contribution to Educational (Cross-curricular) Themes

The programme of study promotes the objectives of Education for Mutual Understanding (EMU), Cultural Heritage and Health Education. EMU can be promoted through the sections of the programme of study relating to 'Attitudes' and 'Understanding', as pupils will have opportunities to develop positive attitudes to physical activity and to learn to co-operate when working in pairs and groups, and participating in team games. Cultural Heritage can be promoted through dance where pupils should have opportunities to perform folk and popular dances of different countries and traditions. Health Education can be promoted through the sections of the programme of study relating to 'Health-related Physical Education' and 'Safe Practice' where pupils should have opportunities to understand how physical activity can lead to a healthy lifestyle.

## Attitudes

To develop positive attitudes pupils should:

a experience enjoyment and success;

b develop a sense of personal achievement through self discipline, motivation and perseverance;

c begin to identify personal preferences and strengths in physical education;

d develop a sense of fair play, good sporting behaviour and respect for others.

## Understanding

To promote understanding of all activities, pupils should have opportunities to:

a observe performances in a range of activities and suggest ways to improve them;

b co-operate in groups in the solving of movement problems;

c make informed judgements on the quality of their own performance and those of others;

d appreciate the aesthetic qualities of performance;

e demonstrate, through performance, an increased understanding of techniques, tactics and strategies.

## Safe Practice

To ensure safe practice pupils should:

a attend to and follow instructions and implement established routines;

b implement relevant rules and safety procedures for different activities;

c wear suitable clothing and footwear for safe participation in activities;

d take some responsibility for lifting, handling, placing, securing and storing equipment;

e show a responsible approach to safety of themselves and others.



## Health-related Physical Education

To promote physical activity and healthy lifestyles pupils should:

a understand the appropriate warm-up and cool-down activities related to athletics, dance, games, gymnastics and swimming;

b acquire a basic knowledge and understanding of the skills of, and fitness requirements for, specific activities;

c develop an understanding of the short and long term effects of exercise on the body;

d realise the importance of regular exercise;

e become aware of opportunities for participation in sport and physical recreation in the community;

f understand the need for, and practise, personal hygiene after exercise.

## Athletics

Pupils should extend their knowledge, understanding and performances in athletic events and strive for improvement.

Pupils should have opportunities to:

a practise and perform a range of track and field events;

b understand and apply the rules governing the events;

c know and understand the effects of body type on performance in athletic events;

d monitor personal performances.

## Dance

Pupils should have progressive experiences in a range of dance forms.

Pupils should have opportunities to:

a perform dance steps and creative movements with increased control, co-ordination, poise and accuracy of response;

b perform folk and popular dances of different countries and traditions;

c interpret stimuli, through movement, in a way which demonstrates skill and creativity, forming longer and more varied sequences.

## Games

Pupils should develop further their skills across a range of games categories including invasion, net/wall and field/run scoring games. They should progress from mini or adapted games to playing full games.

Pupils should have opportunities to:

a use a variety of recognised passing techniques;

b receive and control a ball when under pressure;

c serve, bowl or strike a ball or shuttle into a specific area;

d move with a ball at pace and in different directions;

e use attacking and defensive techniques in the range of games;

f display positional and spatial awareness in the range of games;

g perform different roles while participating in games;

h apply the rules and keep the score;

i employ simple tactics in the range of games.

## Gymnastics

Pupils should extend the variety and develop the quality of their work through the exploration of more complex movement themes. Recognised skills and abilities should, as far as possible, be incorporated into personal individual patterns and sequences.

Pupils should have opportunities to:

a select and combine a range of gymnastic actions to travel on the floor and on apparatus showing changes of speed and direction;

b move into, maintain, and move out of balance which may be performed in inverted positions and when travelling;

c twist and turn the whole body;

d display flight, with an emphasis on springing and assisted springing;

e perform some preliminary vaults;

f produce and perform sequences of movement with appropriate variations of time, weight, space and flow on the floor and on apparatus of varying heights and differing arrangements;

g balance and counter-balance with a partner;

h perform progressive skill practices leading to recognised agilities and vaults.

## Swimming

Pupils should acquire knowledge and practical proficiency in a range of swimming and water safety techniques.

Pupils should have opportunities to:

a practise entering and leaving the water safely;

b develop and refine major recognised strokes;

c develop further confidence in water;

d develop competence in, and an understanding of, water safety and personal survival skills, including floating and treading water.

# Attainment Target and Level Descriptions for Physical Education



Physical education has one attainment target entitled: Planning, Performing and Evaluating in Physical Education. The level descriptions, set out within Levels 1 to 8, therefore, cover the subject as a whole. The relationships between the attainment target and the programme of study are set out below.

## Key Stage 3

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the Key Stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## PLANNING, PERFORMING AND EVALUATING IN PHYSICAL EDUCATION

**Pupils should develop an ability to perform and plan, with competence, a range of skills in a variety of progressively challenging contexts. They should learn to make informed judgements about their own performance and that of others in a range of physical activities. They should be able to adapt, modify and improve performance.**



### LEVEL 1

*Pupils understand instructions and perform simple movements safely. They are aware of reasons for changing for physical activity.*

*Pupils are confident in exploring different ways of moving. They begin to show control in ways of moving such as travelling, jumping, balancing, climbing and dodging. They respond to stimuli and instructions.*

### LEVEL 2

*Pupils begin to share equipment and space and to follow safety procedures. They observe and talk about what they and others do. They recognise the effects of activity on the body and the need for rest after exercise. They handle and store apparatus safely.*

*Pupils run and jump with confidence and with control. They begin to control apparatus by handling, striking, kicking and throwing. They show increasing body awareness using movement themes such as shape and direction. They perform simple patterns to rhythmic accompaniment.*

### LEVEL 3

*Pupils co-operate in small groups and begin to display a sense of fair play. They observe and answer questions about the movements of themselves and others. They carry, place and use equipment with care and safety. They show an awareness of the relationship between exercise and physical well-being.*

*Pupils show poise, control and co-ordination in the performance of movement. They create and remember simple sequences and perform them in response to various stimuli. They begin to use simple tactics to outwit an opponent in simple games. They begin to measure performances in running, jumping and throwing activities.*

### LEVEL 4

*Pupils co-operate in groups in the solving of movement problems, displaying a sense of fair play. They know about the relationship between physical exercise and good health and the need for warm-up and cool-down activities. They observe and comment on the movements of themselves and others and begin to recognise good performance. They select, transport, use and store equipment safely.*

*Pupils use efficient techniques in running, jumping and throwing. They move with poise, control and co-ordination in response to a variety of stimuli, both individually and in groups. They are competent in the movements, techniques and strategies of small-sided games. They are confident and safe in water and begin to use recognised swimming strokes.*

**LEVEL 5**

*Pupils participate confidently in all activities, individually and in groups. They understand the basic principles of performance such as how to maintain balance, the characteristics of good techniques and tactics. They suggest ways to improve the movements of themselves and others. They show an awareness of the effects of exercise on the body.*

*Pupils recognise improvements in running, jumping and throwing, and verify by measurement. They structure and perform dances, showing the use of space, shape and speed. They demonstrate skilful performance in co-operative and competitive activities. They plan and perform gymnastic sequences which use contrasts of speed, shape and levels. They have acquired some water safety skills. They are able to sustain activity for longer periods of time.*

**LEVEL 6**

*Pupils make informed judgements about their own and others' performances and suggest improvements. They show an understanding of the benefits of exercise to health and understand the need for personal hygiene after exercise.*

*Pupils perform effectively a range of track and field events. They create movement sequences and perform dance steps with poise and control. They demonstrate controlled skills in different categories of games. Using a range of body movements, they perform complex gymnastic sequences on floor and apparatus. They swim with confidence, using the major recognised swimming strokes.*

**LEVEL 7**

*Pupils begin to identify personal preferences and strengths. They understand the role of activity in maintaining good health. They know the effects of body type on physical performance. They take some responsibility for handling and securing apparatus and show a responsible approach to the safety of themselves and others.*

*Pupils perform dance steps and creative movements with increased control, co-ordination, poise and accuracy of response. They take different roles and use simple strategies and tactics in playing a range of games. They perform preliminary vaults and agilities. They are competent in water safety and personal survival skills.*

**LEVEL 8**

*Pupils display sporting behaviour and respect for others. They appreciate both technical and aesthetic qualities of performance. They know the skills and fitness requirements for different activities.*

*Pupils monitor personal performance in athletics. They perform skilful and creative dance sequences in response to a variety of stimuli. They are competent in a range of games, exploiting space, using skills and tactics. Using floor and apparatus, they perform skilfully gymnastic sequences incorporating many movement elements.*

# Programme of Study for Physical Education at Key Stage 4



## Introduction

At Key Stage 4, pupils' personal development and potential should continue to build on the skills, knowledge and understanding acquired through following the Programmes of Study for physical education at Key Stages 1, 2 and 3. Pupils should become more responsible for their own activity programme and should be encouraged to seek opportunities to continue these outside the school curriculum. Physical education at Key Stage 4 should provide pupils with the opportunity to become informed and competent participants in physical activity through the knowledge and understanding of the principles pertaining to effective performance, the intrinsic value of physical activity and the promotion of a healthy lifestyle.

During Key Stage 4, pupils should experience a balanced programme of physical education. Pupils should be required to participate in health-related physical education and a minimum of three different activities from the following list. These may be undertaken as whole class, individual or group activities.

- Athletics
- Dance
- Games 1
- Games 2
- Gymnastics
- Swimming
- Outdoor Education



## Contribution to Educational (Cross-curricular) Themes

The programme of study promotes the objectives of Education for Mutual Understanding (EMU), Cultural Heritage, Health Education and Careers Education. EMU can be promoted through the sections of the programme of study relating to 'Attitudes' and 'Understanding', as pupils will have opportunities to develop positive attitudes to physical activity and to learn to co-operate when working in pairs and groups, and if participating in team games. Cultural Heritage can be promoted through the elements of 'Dance' and 'Games'. Where pupils choose to participate in dance, they could have opportunities to perform folk and popular dances of different countries and traditions. Where pupils choose to participate in 'Games' there should be opportunities to learn about games relating to different cultures. Health Education can be promoted through 'Health Related Physical Education' and 'Safe Practice' where pupils should have opportunities to understand how physical activity can lead to a healthy lifestyle.

### Attitudes

To develop positive attitudes, pupils should have opportunities to:

a experience enjoyment and success;

b develop a sense of personal achievement through self discipline, motivation and perseverance;

c develop a sense of fair play, good sporting behaviour and respect for others.

### Understanding

To promote understanding of all activities, pupils should have opportunities to:

a observe performances in a range of activities and suggest ways to improve them;

b plan and perform in a range of activities;

c extend, refine and adapt a range of skills in appropriate contexts;

d make informed judgements on the quality of their own performances and the performance of others;

e identify personal strengths and preferences;

f acquire an increased knowledge and understanding of training to prepare for performance in the selected activities;

g know about the opportunities available in the community to develop their sporting experiences and use these facilities, where appropriate;

h find out about career opportunities relating to physical education, sport and the leisure industry;

i understand factors which determine personal health and fitness within the context of sport and exercise, *for example, nutrition, smoking, alcohol, drugs, peer pressure and advertising.*

### Safe Practice

Pupils should have opportunities to:

a select and perform appropriate warm-up and cool-down activities;

b share responsibility for the safe conduct of events involving themselves and others;

c apply safety guidance procedures.

### Health-related Physical Education

Pupils should participate in health-related activities which enable them to experience the beneficial effects of exercise and heighten their personal awareness of lifestyle.

Pupils should have opportunities to:

a realise the importance of regular exercise;

b understand the need for, and practise personal hygiene after exercise;

c develop and monitor a personal health-related exercise programme;

d investigate the effects of short and long-term exercise on the individual;

e develop an understanding of heart health, muscular strength and endurance, and flexibility.

## Athletics

Pupils should extend further their knowledge, understanding and performance in athletics. They should make informed choices of particular events and show an increased awareness of the importance of athletics as a means of acquiring and maintaining fitness as one aspect of an active lifestyle.

Athletics should involve pupils in:

a performing proficiently a range of athletic events, both track and field;

b demonstrating knowledge and understanding of the rules governing the events and being able to apply these in suitable competitive situations.

## Dance

Pupils should develop further their skills and knowledge of a variety of dance forms and, where appropriate, should study in depth a dance form of their choice. They should be given increased responsibility for the planning and presentation of work which they have undertaken and, throughout the dance programme, should demonstrate an increased awareness of the role and importance of dance as a means of acquiring and maintaining fitness and of its popularity as a leisure activity.

Dance should involve pupils in:

a performing skilfully and accurately more complex dances from a variety of forms which may involve the use of props and necessitate greater attention being given to characterisation and costume;

b making informed selections relating to accompaniment for dances and movements of their own choice;

c sharing responsibility for the planning, organisation and presentation of dance activities.

## Games

Pupils should participate in a game or games of their choice taken from one or more of the categories which schools can reasonably offer from the range indicated below:

- invasion, *for example, soccer, Gaelic football, rugby, camogie, hurling, netball, basketball, hockey;*
- net/wall, *for example, badminton, racquet ball, tennis, squash, table tennis, volleyball, handball;*
- field/run scoring, *for example, cricket, rounders, softball, stoolball;*
- target, *for example, golf, bowls, archery, ten pin bowling;*
- combat/self-defence, *for example, judo, karate, wrestling, fencing.*

Games should involve pupils in:

a extending individual skills, techniques and tactics to improve their performance in games;

b applying principles of play;

c be involved in refereeing/officiating in games.

## Gymnastics

Pupils should extend their experience from the range of gymnastics. They should be given increased responsibility for planning and presenting their work, and show an increased awareness of how gymnastic activity can assist in acquiring and maintaining fitness.

Gymnastics should involve pupils in:

- building on previous gymnastic experiences to extend selected skills, agilities and sequences to be performed individually or in group formation.

## Swimming

Pupils should extend their skills in pool-based activities.

Swimming should involve pupils in:

- improving performance in a range of aquatic activities including a range of recognised strokes and techniques.

## Outdoor education

Outdoor education is a discrete element in the physical education curriculum and is an additional element which does not appear in the Programmes of Study for Key Stage 1, 2 and 3. Pupils should progress through activities which encourage their personal responsibility to a stage where co-operation and interdependence is evident. Activities may be pursued within a range of appropriate environments.

Outdoor education, which may be undertaken as whole class, individual or group activities, should involve pupils in:

- developing skills progressively within a range of appropriate activities, *for example, orienteering, camping, sailing or canoeing,* leading them to take some responsibility for planning and carrying out these activities.



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# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGET

ART AND DESIGN

Contents




LEARNING FOR LIFE

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DEPARTMENT OF EDUCATION NORTHERN IRELAND


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# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGET

## Characteristics of the Curriculum at Key Stages 3 and 4

Pupils enter Key Stage 3 with the experiences gained from the study of a range of subjects in the primary school. These experiences should be recognised and built upon at Key Stages 3 and 4. The learning experiences which are provided should be enjoyable and include challenges which are achievable and motivating.

It is important to recognise the continuing development of pupils as individuals during Key Stages 3 and 4, particularly through their growing awareness of themselves and their capabilities. The whole curriculum for Key Stages 3 and 4 should promote the development of the individual pupil in terms of an increasing facility for self-evaluation and ability to take responsibility for his or her own learning and work practices. There should be ample opportunity for the pupil to apply learning to relevant contexts and purposes.

The range of knowledge, understanding and skills represented in the curriculum at Key Stages 3 and 4 should also help pupils to become aware of themselves in the wider world, to develop independence and make informed judgements and responsible decisions relating to their own lives and their relationships with others. In their continuing development, pupils should be guided towards targets which are suited to their abilities and aptitudes and should be encouraged to review these targets as part of their development towards adult and working life.

The Key Stage 3 curriculum should take account of a vocational dimension through recognition and application of work-related skills and personal qualities, interests and abilities. Pupils should also have opportunities to explore the implications for adult and working life of decisions they will take in relation to their study beyond fourteen.

The Key Stage 4 curriculum should include a strong emphasis on the vocational dimension which will relate to decisions taken both about courses and qualifications and the setting of individual targets. The National Record of Achievement (NRA) and the formulation of Personal Career Plans will promote the recognition of personal qualities, interests and abilities through the exploration of the implications of pupils' decisions for further study and for adult and working life.

Education at Key Stages 3 and 4 should continue to foster the intellectual, social, emotional, physical, moral, cultural and spiritual development of pupils by:

- encouraging a growing independence;
- guiding pupils to express their own individual needs, identifying targets which meet these needs, and assisting them to make informed choices and decisions;
- promoting the development of personal and inter-personal skills, so enabling them to participate as contributing members of groups;
- enhancing self-esteem and encouraging the growth of pupils' own sets of values;
- continuing to develop pupils' study skills, by providing opportunities for exploration, investigation, problem-solving and decision-making;
- enhancing the creativity of pupils by stimulating curiosity and imagination;
- developing increased versatility and confidence in communication across a range of media and for a variety of purposes;
- providing rich and varied contexts for the development of thinking and reasoning skills associated with observing, recording, interpreting, inferring and predicting.

# Using the Programme of Study for Key Stage 3

## Access to the Programme of Study

Teachers should ensure that pupils have access to the breadth and depth of this programme of study at levels and within contexts which are appropriate and relevant to their individual needs and abilities.

In order to meet the particular needs of some pupils and to ensure that learning experiences for these pupils are positive and meaningful, it may be necessary for teachers to select materials and/or activities from an earlier key stage. When this is the case, it is important that such material and/or activities be presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.



## Language Across the Curriculum

Teachers should be aware of the key role of language in learning. They should use opportunities provided within the programme of study to encourage the development of all four modes of language: talking, listening, reading and writing. Teachers should give attention to the quality of language and take opportunities to reinforce good practice on the use of language.

## Equality of Opportunity

The programmes of study for all subjects within the Northern Ireland Curriculum are designed to ensure equal access to a broad and balanced curriculum for all pupils. Teachers should make every effort to ensure that equality of opportunity is provided for both girls and boys in order that all pupils should have equal access to the full range of experiences across all subjects in the Northern Ireland Curriculum.

## Referencing

The lettering used throughout the programme of study is for referencing purposes only. It does not necessarily identify strands, indicate a teaching sequence or hierarchy of knowledge, understanding and skills.

## Statutory Elements

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# Programme of Study for Art and Design at Key Stage 3



## Introduction

The fundamental aim of the art and design curriculum is to develop pupils' artistic potential and aesthetic sensitivity to the visual and tactile elements of the world in which they live. Art and Design has one attainment target which embodies the key experiences of investigating and realising. All pupils should have opportunities to investigate ideas and materials and to realise their intentions in ways which integrate these key experiences.

At Key Stage 3, pupils should be encouraged to develop, further, their knowledge, understanding and self-confidence in expressing their ideas and feelings about themselves and the world they live in, through a broad range of art and design activities. They should continue to develop art and design skills by using a wide range of materials, tools and processes.

Pupils should have opportunities to respond intuitively and to draw upon memory, imagination, observations, first-hand experiences and the work of artists, designers and craftworkers as a stimulus for developing their own ideas. They should exercise choice in the selection of materials, tools and processes for recording their observations and expressing their ideas in two and three dimensions.

Investigating and realising activities should enable pupils to develop skills in observing, recording and responding to visual aspects of the natural and made environments. Pupils should have opportunities to evaluate and appraise what they have seen and investigated and what they and other people have created.



## Contribution to Educational (Cross-curricular) Themes

This Programme of Study requires pupils to become familiar with images and objects which represent the expression of ideas within a wide range of cultures and traditions. It promotes pupils' ability to evaluate and appreciate similarities and differences in the visual representation of ideas at local, national and international levels. *For example, pupils could discuss the images of youth culture and their use to influence and shape ideas and trends.*

Pupils should become involved in research and development activities as part of art and design activities. This may incorporate an economic dimension in relation to the choice and management of appropriate, selected, or available materials, tools and processes.

Through familiarity with the work of artists, designers and craftworkers, pupils should develop an awareness of the personal, social and economic implications of working as a professional artist, designer or craftworker. They should become aware that the capabilities they develop, through investigating and realising art and design outcomes, are relevant to any future career.

All pupils should have the opportunity to use computers and a range of software which will develop their skill and understanding of the potential of information technology, in relation to the production, manipulation and transfer of images and text within, and across, a range of disciplines.

## INVESTIGATING AND REALISING IN ART AND DESIGN

Pupils should be made aware of safe practice when involved in investigating and realising activities and when using art and design materials and tools.

Investigating and realising activities include:

- exploring and experimenting;
- researching and classifying;
- selecting and using;
- observing and recording;
- reviewing and discussing;
- examining and analysing;
- designing and making;
- reviewing and modifying;
- appraising and evaluating;
- expressing and communicating;
- imagining and creating;
- appreciating and criticising.

Pupils' experiences in investigating and realising should, over the duration of the Key Stage, enable them to develop increasing aesthetic sensitivity and competence in:

- the creative, imaginative and selective use of a wide range of art and design materials, tools and processes;
- using and combining the visual elements (colour, tone, line, shape, form, texture, pattern) to record observations and to express and communicate ideas and feelings;
- making informed and critical comments about their own and other people's work;
- critical appreciation of the work of local, national and international artists, designers and craftworkers from the past and present, including works which reflect a range of non-European traditions. Pupils should have access to a wide range of resources within and beyond the classroom, *for example, books, prints, photographs, slides, reproductions, videos, technology such as CD ROM, or visits to museums, workshops or galleries,* which will enable them to view and experience a wide range of art, craft and design images and objects.

The following investigating and realising requirements should be implemented within the context of the activities outlined under materials, tools and processes.

Pupils should have opportunities to:

a respond to what they experience, remember and imagine;

b develop their understanding and ability to use and combine the visual elements;

c make a personal response, through two and three dimensional work, to a wide range of stimuli, including observations and experiences of the natural and made environments;

d develop specific skills to observe and record from first-hand experience, and to express intentions;

e experiment with, and combine a wide range of techniques, materials and processes to explore, express and communicate their ideas and feelings;

f design systems, artefacts or environments which will fulfil specific needs;

g use a workbook and a range of media in a personal and self-directed way, to develop ideas and images and to record first-hand observations from different sources;

h discuss and compare the development of their ideas and meaning in their work with that of other pupils, and evaluate their own and others' work, using appropriate language;

i analyse and compare the work of artists, designers and craftworkers from different cultures and contexts, and use the information to inform their own work.



## Materials, Tools and Processes

Pupils should have opportunities to:

a use and combine a variety of drawing, painting and graphic materials, tools and processes, *for example, pencils, pens, brushes, inks, paints, pastels, paper, computer and appropriate software;*

b use a variety of printing techniques and methods, *for example, mono/block printing techniques and various screen-printing methods;*

c work with textiles using a variety of materials, tools and techniques, *for example, painting, dyeing, weaving, felting, stitching, quilting, appliqué and collage;*

d manipulate, decorate and fire clay, using a variety of techniques, *for example, coiling, modelling, carving, impressing, sgraffito and the use of glazes and oxides;*

e use a variety of natural and man-made materials to create reliefs and sculptures, *for example, constructing and modelling with wood, plastics, wire, plaster and clay;*

f use photographic techniques for recording and creating work, *for example, a single lens reflex camera and darkroom equipment to develop and print monochrome film.*

# Attainment Target and Level Descriptions for Art and Design



Art and design has one attainment target entitled: Investigating and Realising in Art and Design. The level descriptions, set out within Levels 1 to 8, therefore, cover the subject as a whole. The relationships between the attainment target and the programme of study is set out below.

## Key Stage 3

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the Key Stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

KEY STAGE 3

## INVESTIGATING AND REALISING IN ART AND DESIGN

**Pupils should develop their ability to investigate the external world and the world of their own thoughts, ideas and imaginations, and to research, analyse and appraise a wide variety of references and resources, including the work of artists, designers and craftworkers. They should develop knowledge, skills and understanding in the use of the visual elements to enable them to express and communicate their ideas in two and three dimensions, and to appraise and evaluate their own work and that of others.**

Level Descriptions
ART AND DESIGN

LEVEL 1
*Pupils respond to the visual or tactile qualities of simple materials and of their immediate environment. They talk about their work, express ideas and feelings through pictures and models, and show some control of the media they use.*

LEVEL 2
*Pupils show some understanding and control of simple techniques and use them in two and three dimensional work. They combine visual and tactile elements in simple ways which reflect their observations, imagination and memory. They talk about their own and other people's work.*

LEVEL 3
*Pupils experiment with a range of materials, tools and processes when recording observations and responding to imagination and memory. They experiment with methods adopted by artists, designers and craftworkers and produce finished pieces of work in two and three dimensions. They talk about their ideas and intentions and are able to make suggestions for change. They describe their own and other people's work.*

LEVEL 4
*Pupils collect materials to stimulate their ideas, and show understanding and control in their use of two and three dimensional materials and media. They show some skill in combining the visual and tactile elements when recording their observations and working from imagination and memory. They discuss and make comparisons between their own and other people's work.*

LEVEL 5
*Pupils collect and classify a range of reference and resource materials as a stimulus for developing ideas. They select and manipulate a variety of materials tools and processes and combine the visual and tactile elements in imaginative ways when realising their intentions through work in two and three dimensions. They make judgements about their own and other people's work.*

LEVEL 6
*Pupils explore a range of reference and resource materials to enable them to establish and develop ideas and themes. They show control and understanding of the characteristics and qualities of a range of two and three dimensional materials, tools and techniques and of visual and tactile elements, by recording and responding, in a personal way, to aspects of the natural and made environments.*

LEVEL 7
*Pupils research and select from a wide variety of reference and resource materials, including the work of artists, designers and craftworkers, when developing ideas and themes. They evaluate, modify and realise their ideas through the effective and discriminating use of visual and tactile elements in two and three dimensional work. They show understanding of how similar ideas and themes have been explored by artists, designers and craftworkers within a range of cultures and contexts.*

LEVEL 8
*Pupils show independence and individuality in their ability to research, analyse and evaluate reference and resource materials. They express and communicate their ideas and feelings and realise their intentions by combining visual and tactile elements in imaginative and fluent ways. They work in both two and three dimensions and evaluate, appreciate and make informed judgements about their own and other people's work. They understand the relationship between their work and that of artists, designers and craftworkers in different cultures and contexts. They recognise that all images and artefacts are subject to a variety of interpretations.*

# Outline Programme of Study for Art and Design at Key Stage 4



## Using the Outline Programme of Study

This outline programme of study sets out the broad principles and requirements to which any approved course in art and design should adhere. It provides a framework within which courses in art and design can be developed or against which courses in art and design can be evaluated in order to determine if they provide appropriate learning experiences.

For some pupils at Key Stage 4, it may be more appropriate to follow the requirements for an earlier key stage. When this is the case, it is important that materials and activities are presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Principles

All courses in art and design at Key Stage 4 should build upon the art and design experiences of Key Stage 3 and provide a foundation for further study in the subject. They should provide pupils, where appropriate, with opportunities to address the objectives of the educational (cross-curricular) themes.

The two major creative practical activities encountered in art and design activity are investigating and realising. Related to each of these activities should be evaluation and critical appraisal of the pupil's own work, the work of other pupils and the work of artists, designers and craftworkers from their own and other cultures.

## Investigating and Realising

Pupils should continue to develop their ability to investigate the real or 'outer' world and the visualisation of the imaginary or 'inner' world. They should assemble, generate, develop and evaluate ideas, thoughts and feelings by researching, recording, experimenting and analysing a variety of reference and resource materials, sources and stimuli, including the work of artists, designers and craftworkers. Pupils should understand that personal or group investigations are more effective when they are explored within a variety of contexts and cultures, including their own.

Pupils should develop their ability to express their work in creative, imaginative and considered ways to produce mainly visual and tactile outcomes in two and three dimensions. In realising their thoughts, ideas and feelings, pupils should develop an appropriate and competent use of the visual elements and a range of media, materials, tools, techniques and processes.

Appropriate use should be made of contempory technology. They should critically evaluate their own work and that of artists, designers and craft workers, within a broad contextual and cultural framework, and understand that this activity is an important part of the creative process.

Pupils should have opportunities to:

- use and experiment with a variety of media, materials, processes and techniques in order to explore and record ideas and observations from first-hand experience, memory and imagination;
- evaluate and make decisions about their work;
- explore a range of reference and resource materials to help establish and develop ideas for their work;
- make reference to, and imaginative use of, approaches adopted by artists, designers and craftworkers from their own and/or other contexts and cultures;
- use and combine elements of visual language in appropriate ways to realise their intentions;
- select and manipulate appropriate media, materials, processes, tools and techniques to realise their work in two and three dimensions;
- evaluate and describe their work from initial ideas through various developmental stages, to completion;
- compare and contrast their finished work with that of artists, designers and craftworkers in their own and/or other contexts and cultures.



## Requirements

These requirements are not presented in a hierarchical order, nor is it anticipated that they should be undertaken as separate entities, rather that the holistic nature of creative art and design processes should combine them as appropriate to the activity in hand.

Pupils should have opportunities to:

- record from direct experience and observation of the natural and made environment and from the imagination;
- develop ideas for their work, investigating visual and other sources of information;
- explore, experiment with and use a range of media for working in two and three dimensions;
- review, modify and refine work as it progresses and realise intentions;
- identify the distinctive characteristics of art, craft and design and relate them to the context in which the work was created, making connections with their own work;
- make critical judgements about work, using a specialist vocabulary.

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# KEY STAGES 3 and 4

## PROGRAMMES OF STUDY and ATTAINMENT TARGET

MUSIC

Contents




LEARNING FOR LIFE

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# Characteristics of the Curriculum at Key Stages 3 and 4

Pupils enter Key Stage 3 with the experiences gained from the study of a range of subjects in the primary school. These experiences should be recognised and built upon at Key Stages 3 and 4. The learning experiences which are provided should be enjoyable and include challenges which are achievable and motivating.

It is important to recognise the continuing development of pupils as individuals during Key Stages 3 and 4, particularly through their growing awareness of themselves and their capabilities. The whole curriculum for Key Stages 3 and 4 should promote the development of the individual pupil in terms of an increasing facility for self-evaluation and ability to take responsibility for his or her own learning and work practices. There should be ample opportunity for the pupil to apply learning to relevant contexts and purposes.

The range of knowledge, understanding and skills represented in the curriculum at Key Stages 3 and 4 should also help pupils to become aware of themselves in the wider world, to develop independence and make informed judgements and responsible decisions relating to their own lives and their relationships with others. In their continuing development, pupils should be guided towards targets which are suited to their abilities and aptitudes and should be encouraged to review these targets as part of their development towards adult and working life.

The Key Stage 3 curriculum should take account of a vocational dimension through recognition and application of work-related skills and personal qualities, interests and abilities. Pupils should also have opportunities to explore the implications for adult and working life of decisions they will take in relation to their study beyond fourteen.

The Key Stage 4 curriculum should include a strong emphasis on the vocational dimension which will relate to decisions taken both about courses and qualifications and the setting of individual targets. The National Record of Achievement (NRA) and the formulation of Personal Career Plans will promote the recognition of personal qualities, interests and abilities through the exploration of the implications of pupils' decisions for further study and for adult and working life.

Education at Key Stages 3 and 4 should continue to foster the intellectual, social, emotional, physical, moral, cultural and spiritual development of pupils by:

- encouraging a growing independence;
- guiding pupils to express their own individual needs, identifying targets which meet these needs, and assisting them to make informed choices and decisions;
- promoting the development of personal and inter-personal skills, so enabling them to participate as contributing members of groups;
- enhancing self-esteem and encouraging the growth of pupils' own sets of values;
- continuing to develop pupils' study skills, by providing opportunities for exploration, investigation, problem-solving and decision-making;
- enhancing the creativity of pupils by stimulating curiosity and imagination;
- developing increased versatility and confidence in communication across a range of media and for a variety of purposes;
- providing rich and varied contexts for the development of thinking and reasoning skills associated with observing, recording, interpreting, inferring and predicting.

# Using the Programme of Study for Key Stage 3

## Access to the Programme of Study

Teachers should ensure that pupils have access to the breadth and depth of this programme of study at levels and within contexts which are appropriate and relevant to their individual needs and abilities.

In order to meet the particular needs of some pupils and to ensure that learning experiences for these pupils are positive and meaningful, it may be necessary for teachers to select materials and/or activities from an earlier key stage. When this is the case, it is important that such material and/or activities be presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.



## Language Across the Curriculum

Teachers should be aware of the key role of language in learning. They should use opportunities provided within the programme of study to encourage the development of all four modes of language: talking, listening, reading and writing. Teachers should give attention to the quality of language and take opportunities to reinforce good practice on the use of language.

## Equality of Opportunity

The programmes of study for all subjects within the Northern Ireland Curriculum are designed to ensure equal access to a broad and balanced curriculum for all pupils. Teachers should make every effort to ensure that equality of opportunity is provided for both girls and boys in order that all pupils should have equal access to the full range of experiences across all subjects in the Northern Ireland Curriculum.

## Referencing

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## Statutory Elements

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# Programme of Study for Music at Key Stage 3



## Introduction

The fundamental aim of the music curriculum is to develop pupils' musical ability. All pupils are potentially musical. Music has one attainment target which is defined through the key experiences of making and responding to music. All pupils should have experiences in both making and responding to music.

At Key Stage 3, pupils should be encouraged to develop their musicianship and self-confidence through a wide range of individual and group music-making activities. They should continue to develop their composing, performing and listening skills and have opportunities to express, through the music they compose and perform, their ideas and feelings about themselves and the world around them. They should be encouraged to listen to unfamiliar music with open and enquiring minds.

## Contribution to Educational (Cross-curricular) Themes

This programme of study promotes the objectives of Education for Mutual Understanding (EMU) and Cultural Heritage. It does so by requiring pupils to work collaboratively towards individual and common goals by sharing ideas and resources, and by being mutually supportive in realising musical outcomes. Additionally, pupils are required to listen to and appraise music from different cultures, traditions and styles. *For example, they could investigate the musical influences and links which exist between Ireland and other countries or cultures.* They should be encouraged to listen to unfamiliar music with open and enquiring minds. *For example, they might consider the emotional impact of music and how it is, or can be, used for manipulative purposes.*

The processes involved in composing and performing activities provide opportunities for pupils to reflect on issues which may be related to any aspect of EMU, Cultural Heritage, Health Education or Environmental Education, since the programme of study requires that all pupils have opportunities to express, through the music they compose and perform, their ideas and feelings about themselves and the world around them.

The use of Information Technology in present day music-making means that pupils should have access to, and develop skills in the use of music technology as a resource for composing, performing and preserving their music.

Pupils should become aware that the capabilities they develop through making and responding to music are relevant to any future career.

## MAKING AND RESPONDING TO MUSIC

Pupils should compose music for voices and instruments, using exploratory and improvisational approaches. They should develop skill in refining and preserving their compositions in written format and through the use of technology. Pupils should continue to develop and refine performing skills by practising and performing an appropriate range of songs and instrumental pieces which take account of their preferences, abilities, and the problems which may arise with adolescent voices. They should be encouraged to use a range of acoustic and electronic instruments, including those which they may learn outside the classroom, during their music-making activities.

Pupils should discuss and evaluate their individual music-making activities and their contributions to group work, including finished compositions and performances. They should have opportunities to direct performances and to discuss and decide on points of interpretation in the music being performed. Pupils should listen to music from different traditions, cultures and styles and develop the skill of analysing and appraising what they hear. They should be acquainted with such aspects of historical or cultural background as will enable them to appreciate the music in context.

Pupils' experiences of making and responding to music should develop their conceptual understanding and control of the elements of music in relation to:

- more subtle use of dynamics, *for example, accents or balance between parts;*
- tempo and pace of change within music, *for example, changing metres, harmonic movement or changes in any of the listed elements;*
- duration, *for example, syncopation and more complex rhythms;*
- the organisation of pitch, *for example, motifs, scales, modes, series, concord and discord;*
- timbre, *for example, the expressive use of instrumental colour and/or register;*
- texture, *for example, homophony or simple polyphony;*
- structure and style, *for example, the use of the listed elements to create compositional devices and contribute to established forms and recognised styles.*

The making and responding to music requirements are carried out within the context of the following composing, performing and listening activities. While one or more of these activities may provide the main focus for a lesson, or part of a lesson, the three are interdependent. Pupils should be encouraged to perceive their inter-relatedness.

## Improvising and Composing

Pupils should have opportunities to:

a create arrangements of familiar music and accompaniments to songs;

b improvise within a rhythmic/harmonic framework and from a given stimulus;

c explore the structural, expressive and stylistic potential of the elements of music, *for example, compose pieces which explore timbre, texture, concord, discord, scalic patterns or other compositional devices and techniques;*

d compose music which expresses their ideas and feelings in relation to a given stimulus, *for example, a song or instrumental piece for a special occasion such as Christmas;*

e present compositions and arrangements in a finished form and with appropriate annotation.

## Interpreting and Performing

Pupils should have opportunities to:

a perform a variety of music by ear, from memory and from notations;

b perform music which increases technical control and expressive capability;

c perform a variety of music which requires independent part-playing or singing;

d develop skills in ensemble playing;

e develop the ability to communicate with an audience when performing;

f take responsibility for rehearsing and directing group performances.

## Listening and Appraising

Pupils should have opportunities to:

a identify and evaluate their own contribution to group compositions and performances;

b modify and refine their improvisations and compositions;

c listen to a wide variety of music from different periods, styles, cultures and contexts and discuss how the elements of music are used for structural and expressive purposes;

d listen to and discuss a wide variety of music which relates to, or will inform, the music they compose and perform;

e listen to and appraise their own music and that of others.

# Attainment Target and Level Descriptions for Music



Music has one attainment target entitled: Making and Responding to Music. The level descriptions, set out within Levels 1 to 8, therefore, cover the subject as a whole. The relationships between the attainment target and the programme of study is set out below.

## Key Stage 3

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the Key Stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## MAKING AND RESPONDING TO MUSIC

**Pupils should develop the composing, performing and listening skills, knowledge and understanding to enable them to make their own music and to respond, with understanding, to music from a range of styles and cultural traditions.**

LEVEL 1
*Pupils explore sounds and join in simple music-making activities. They focus attention on sound and respond to short pieces of music.*

LEVEL 2
*Pupils select sounds to create simple effects and participate in a range of group music-making activities. They communicate their understanding of loud/quiet and fast/slow, and respond appropriately to short pieces of music.*

LEVEL 3
*Pupils use sound to create mood and atmosphere, and draw pictures and patterns to represent their music. They perform simple music with awareness of the need for control and expression. They communicate their understanding of long/short and high/low and participate in discussions about the music they make and hear.*

LEVEL 4
*Pupils compose short pieces of music which express their ideas and feelings. They perform technically simple music with control and expression. They communicate their awareness of simple structural and expressive devices in the music they make and hear.*

LEVEL 5
*Pupils compose short pieces based on simple structural and expressive devices and find ways of preserving their compositions. They perform with control and expression, both individually, and as members of a group. They communicate their understanding of simple structures in the music they make and hear, and show an awareness of differences in musical styles.*

LEVEL 6
*Pupils show an awareness of style in their compositions and arrangements and preserve their work in appropriate ways. They perform and interpret more difficult music with control, accuracy and confidence. They are critically aware, and evaluate the music they make and hear.*

LEVEL 7
*Pupils show some understanding of structure and style in their compositions, and present them in a finished form. They make imaginative use of voices and instruments when composing and making arrangements of existing music. They perform with confidence and show technical skill and sensitivity to the music. They identify the main characteristics of musical periods and styles and appraise their own music-making and that of others.*

LEVEL 8
*Pupils develop musical ideas and maintain style in their compositions and arrangements. They focus on the quality of sound they produce and are sensitive to subtle changes in the music they perform. They understand how music is organised to evoke a response and are aware of cultural and historical influences on the music they hear. They relate their understanding to their own and other people's music.*

# Outline Programme of Study for Music at Key Stage 4



## Using the Outline Programme of Study

This outline programme of study sets out the broad principles and requirements to which any approved course in music should adhere. It provides a framework within which courses in music can be developed or against which courses in music can be evaluated in order to determine if they provide appropriate learning experiences.

For some pupils at Key Stage 4, it may be more appropriate to follow the requirements for an earlier key stage. When this is the case, it is important that materials and activities are presented in appropriate age and maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.



## Principles

Experiences in music at Key Stage 4 should continue to foster pupils' musical potential and personal development by building upon the knowledge, skills and understanding which pupils have acquired through following appropriate and relevant programmes of study for music at Key Stages 1, 2 and 3. They should provide a foundation for the subsequent development of specialisms within the subject, and for further study or enhanced use of leisure time. Where appropriate, pupils should have opportunities to address the objectives of the educational (cross-curricular) themes, through making and responding to music.

## Making and Responding to Music

Pupils should have opportunities to be creative and imaginative and to make music in ways which accommodate their individual needs and interests. Pupils should be involved in a range of music-making activities, working with instruments and/or voices and/or music technology.

Pupils should have opportunities to respond to their own and other people's music and to develop their understanding of the expressive power of music. While individual preferences and interests should be expressed and acknowledged, pupils should develop their ability to appraise music from an objective standpoint.

## Requirements

All courses in music at Key Stage 4 should enable pupils to develop musical skills, knowledge and understanding. This should be done by providing opportunities for pupils to select one or more of the three areas of musical activity as the main focus for their work.

While pupils may choose a narrower focus within or across composing, performing and appraising, their experiences of the three activities should be interactive so that a coherent and holistic musical education is maintained.

## Composing

Pupils should develop their ability to improvise and/or compose new music and/or make arrangements of existing music. While pupils may be encouraged to internalise their work, the emphasis should remain on improvisational and practical approaches.

Pupils should have opportunities to:

- express and communicate their ideas and feelings through the music they improvise and/or compose and/or arrange;
- hear their work performed;
- select appropriate ways to preserve their work.

## Performing

Pupils should develop instrumental and/or vocal and/or performing technology skills. Technical ability should increasingly be seen as serving the pupil's personal expression.

Pupils should have opportunities to:

- perform in their chosen style(s);
- perform for an audience;
- express and communicate their own interpretation of the composer's intentions in the music they perform.

## Listening and Appraising

Pupils should develop skill in the objective appraisal of their own music-making activities and those of others.

Pupils should have opportunities to:

- listen to, analyse, and discuss in detail, a range of music and musical performances;
- become familiar with different musical styles and genres;
- develop knowledge and understanding of music in the context of culture, period and idiom.



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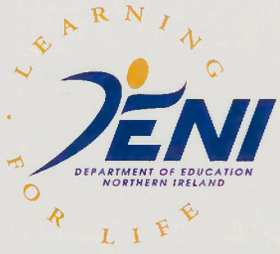
# KEY STAGE 4

## PROGRAMME OF STUDY

DRAMA

Contents



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# Outline Programme of Study for Drama at Key Stage 4



## Using the Outline Programme of Study

This outline programme of study sets out the broad principles and requirements to which any approved course in drama should adhere. It provides a framework within which courses in drama can be developed, or against which courses in drama can be evaluated in order to determine if they provide appropriate learning experiences.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Such pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Principles

A course in drama should be emotionally, intellectually and creatively challenging. It should enable students to develop:

- an awareness of self and others and the world around them in a dramatic context;
- self-confidence and mutual respect in a dramatic context;
- the ability to express ideas and emotions in dramatic form;
- negotiation skills, concentration and control in dramatic form;
- an appreciation and enjoyment of the drama process and live theatre;
- an appreciation and understanding of dramatic texts;
- contexts within their work which explore and reflect on the content and issues of the cross-curricular themes.

## Requirements

Two essential components of any drama course should be the processes of Making and Appraising.

### Making

Within drama, Making means creating or using dramatic forms in order to understand and express ideas about the world. It generally means becoming involved with other people and employing processes which include negotiating, experimenting, problem-solving, refining, shaping and performing. A course should provide students with opportunities to demonstrate they can:

- use drama to explore relationships, their own and others' attitudes, beliefs and emotions about the world in which they live;
- develop and sustain a role;

- work productively as part of a group in and out of role;
- use dramatic skills, forms, language and text appropriate to audience, context, purpose and task.

## Appraising

Within drama, Appraising involves applying the skills of reflection, analysis and evaluation to the process of Making, in order to enhance understanding of how meaning may be expressed through the use of dramatic skills. Appraising involves seeing the work within a context of known forms and conventions so that its effectiveness may be judged. Appraising should occur during and after the drama, both in and out of role. A course should provide students with opportunities to demonstrate:

- an understanding of the development process involved in the making of meaning and the ability to evaluate critically the meaning made;
- a critical understanding, in written and non-written form, of their own work and that of other people;
- a critical knowledge of dramatic context and the ability to analyse and evaluate forms, theatrical genres and conventions.

In both Making and Appraising in drama, students should have opportunities to come to terms with themselves and the world in which they live; to develop intellectually, emotionally and imaginatively, and as a member of a society or culture. Their work should take place both in role and out of role. The course should enable and encourage them to develop their knowledge of, and ability to, apply dramatic forms, strategies and technical skills.

A drama course should offer at least one drama form and one other form or competence from the list below.



## Drama Forms

- Improvisation
- Acting
- Mime
- Dance drama

## Drama Competencies

- Design
- Electronic media
- Critical and creative writing

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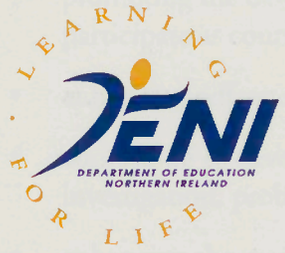
# KEY STAGES 3 and 4

## PROGRAMME OF STUDY and ATTAINMENT TARGETS

Contents






Text printed on a tinted background indicates statutory requirements. The examples printed in *italics* serve to illustrate the programmes of study and are non-statutory.

MODERN LANGUAGES
(FRENCH, GERMAN, ITALIAN, SPANISH and IRISH)

# Characteristics of the Curriculum at Key Stages 3 and 4

Pupils enter Key Stage 3 with the experiences gained from the study of a range of subjects in the primary school. These experiences should be recognised and built upon at Key Stages 3 and 4. The learning experiences which are provided should be enjoyable and include challenges which are achievable and motivating.

It is important to recognise the continuing development of pupils as individuals during Key Stages 3 and 4, particularly through their growing awareness of themselves and their capabilities. The whole curriculum for Key Stages 3 and 4 should promote the development of the individual pupil in terms of an increasing facility for self-evaluation and ability to take responsibility for his or her own learning and work practices. There should be ample opportunity for the pupil to apply learning to relevant contexts and purposes.

The range of knowledge, understanding and skills represented in the curriculum at Key Stages 3 and 4 should also help pupils to become aware of themselves in the wider world, to develop independence and make informed judgements and responsible decisions relating to their own lives and their relationships with others. In their continuing development, pupils should be guided towards targets which are suited to their abilities and aptitudes and should be encouraged to review these targets as part of their development towards adult and working life.

The Key Stage 3 curriculum should take account of a vocational dimension through recognition and application of work-related skills and personal qualities, interests and abilities. Pupils should also have opportunities to explore the implications for adult and working life of decisions they will take in relation to their study beyond fourteen.

The Key Stage 4 curriculum should include a strong emphasis on the vocational dimension which will relate to decisions taken both about courses and qualifications and the setting of individual targets. The National Record of Achievement (NRA) and the formulation of Personal Career Plans will promote the recognition of personal qualities, interests and abilities through the exploration of the implications of pupils' decisions for further study and for adult and working life.

Education at Key Stages 3 and 4 should continue to foster the intellectual, social, emotional, physical, moral, cultural and spiritual development of pupils by:

- encouraging a growing independence;
- guiding pupils to express their own individual needs, identifying targets which meet these needs, and assisting them to make informed choices and decisions;
- promoting the development of personal and inter-personal skills, so enabling them to participate as contributing members of groups;
- enhancing self-esteem and encouraging the growth of pupils' own sets of values;
- continuing to develop pupils' study skills, by providing opportunities for exploration, investigation, problem-solving and decision-making;
- enhancing the creativity of pupils by stimulating curiosity and imagination;
- developing increased versatility and confidence in communication across a range of media and for a variety of purposes;
- providing rich and varied contexts for the development of thinking and reasoning skills associated with observing, recording, interpreting, inferring and predicting.

# Using the Programme of Study for Key Stages 3 and 4

## Access to the Programme of Study

Teachers should ensure that pupils have access to the breadth and depth of this programme of study at levels and within contexts which are appropriate and relevant to their individual needs and abilities.

In order to meet the particular needs of some pupils and to ensure that learning experiences for these pupils are positive and meaningful, it may be necessary for teachers to present materials, and/or activities in appropriate maturity-related contexts.

Pupils with physical or sensory difficulties should have access to appropriate non-visual or non-aural methods of communication, or to the technological aids which will facilitate communication and/or access to the activities outlined in the programme of study. Pupils should have access to the time and support required to facilitate their use of aids and/or methods of communication.

## Equality of Opportunity

The programmes of study for all subjects within the Northern Ireland Curriculum are designed to ensure equal access to a broad and balanced curriculum for all pupils. Teachers should make every effort to ensure that equality of opportunity is provided for both girls and boys in order that all pupils should have equal access to the full range of experiences across all subjects in the Northern Ireland Curriculum.



## Referencing

The lettering used throughout the programme of study is for referencing purposes only. It does not necessarily identify strands, indicate a teaching sequence or hierarchy of knowledge, understanding and skills.

## Statutory Elements

Those elements which form part of the statutory requirements have been tinted. Other aspects which provide information or clarification have been left untinted. Examples are non-statutory and are printed in italics.

# Programme of Study for Modern Languages
(French, German, Italian, Spanish and Irish)
**at Key Stages 3 and 4**



## Introduction

The programme of study covers both Key Stages 3 and 4. Pupils at Key Stage 3 are required to study the following contexts set out within the section entitled, 'Contexts for Learning with Associated Topics':

- Everyday Activities;
- Personal Life and Social Relationships; and
- The World Around Us.

At Key Stage 4, pupils should study all the contexts set out within this section.

## Contribution to Educational (Cross-curricular) Themes

Throughout work relating to the programme of study, pupils should have opportunities to engage in discussion and to undertake activities which fulfil the objectives of the cross-curricular themes. The opportunities listed in this section should not be treated as a check list to be covered but as illustrations of some of the ways in which the cross-curricular themes can be developed as an integral part of modern languages.

### Education For Mutual Understanding

Pupils should have opportunities to cultivate informed attitudes towards the lifestyles, social conventions, beliefs, opinions and ideas of other peoples. These attitudes can be developed through work relating to the contexts for learning entitled 'Personal Life and Social Relationships', and 'The International World'.

### Cultural Heritage

Work relating to Cultural Heritage can be promoted through the following topics:

- Celebrations and special occasions (see 2d, page 7);
- Life in countries or communities in which the target language is spoken (see 5b, page 8).

### Health Education

The inclusion of the topic 'Health' within the context of 'Personal Life and Social Relationships' promotes the theme of Health Education.

### Information Technology

Pupils should be given opportunities, where appropriate, to develop their knowledge, skills and understanding of the theme of Information Technology. Software packages, which support interactive language work, and the concept keyboard can be helpful in motivating and reinforcing learning.

### Economic Awareness

The theme of Economic Awareness may be promoted through work relating to the following topics:

- Shopping (see 1c, page 7);
- Eating out (see 1d, page 7);
- Services to the public (see 4a, page 8);
- Travel and tourism (see 5a, page 8).

### Careers Education

The theme of Careers Education can be promoted at both Key Stages 3 and 4 through work relating to the contexts set out within the programme of study. At Key Stage 3, careers education could be developed through work in the following topics:

- Shopping (see 1c, page 7);
- Self, family and friends (see 2a, page 7).

At Key Stage 4, there will be particular opportunities offered through the Context, 'The World of Work'.

## General skills and Cultural Awareness

### Developing Personal and Social Skills

Pupils should have opportunities, through the communicative process, to enhance their self-esteem by enjoying success and to develop positive attitudes to others. Such attitudes should include tolerance, empathy and appreciation of the talents and contributions of other people. Concentration and perseverance should be encouraged among pupils. These attitudes and qualities may be promoted by:

a working independently and collaborating in pairs and small groups;

b working on whole class activities;

c undertaking tasks in co-operation with the teacher or with another adult such as a language assistant or visitor;

d conducting or taking part in interviews, surveys or investigations;

e developing the skills of self-expression and presentation;

f taking part in decision-making;

g acknowledging their own contribution and that of peers.

### Developing Language Learning Skills

Pupils should have opportunities to acquire, develop, and apply through the language learning processes, skills which include:

a memorising sounds, words and structures;

b note-taking;

c dealing with information;

d drawing conclusions and making inferences;

e predicting meaning from context;

f using resources independently;

g developing an awareness of sounds and language patterns;

h reading for a purpose;

i managing their own learning;

j solving problems;

k listening attentively;

l redrafting writing to improve accuracy and presentation.

### Developing Cultural Awareness

Pupils should have opportunities to develop an awareness, understanding and appreciation of the culture of the country or community of the target language. They should have opportunities to develop a sense of European identity and to appreciate the diversity of European cultures and societies. By identifying similarities and acknowledging differences between cultures, they may learn to view their own culture more objectively. Pupils should have opportunities to:

- use authentic materials, *for example, magazines and videos;*
- meet native speakers of the target language, *for example, language assistants or visitors;*
- participate in correspondence and, where appropriate, visits to and exchange schemes with the country or community of the target language;
- experience or learn about the customs and traditions of the country or community of the target language through song, dance and the celebration of festivals.

## Language Skills and Contexts for Learning

### Language skills

Throughout the programmes of study, pupils should be exposed to the target language and have frequent opportunities to use it. As a consequence, when responding to questions in a spoken or written form, pupils should use the target language except where a response in their first language is a necessary part of the task, *for example, in an interpreting exercise.*

Pupils should take part in activities which:

- combine two or more of the four language skills (listening, speaking, reading, writing) where appropriate;
- enable them to use the target language for real purposes;
- help them to acquire and use the target language to communicate with each other, their teacher and other speakers of the language;
- cultivate informed attitudes towards the lifestyles, social conventions, beliefs, opinions and ideas of other peoples.

Pupils should have opportunities to develop language learning skills and awareness of language through the following activities:

- practising pronunciation and intonation;
- recognising how sounds are represented in writing;
- practising and internalising structures and vocabulary;
- developing awareness of different conventions and styles of language.

In order to develop and reinforce linguistic skills and to manipulate the target language, pupils should be taught to:

a listen for comprehension of general meaning and detail;

b listen for information and pleasure;

c seek and give information;

d ask about meanings and seek clarification or repetition;

e express preferences and reactions;

f take part in short exchanges and conversations;

g participate in imaginative and creative activities, *for example, drama, poetry and song;*

h follow instructions, *for example, when making and drawing;*

i read printed or handwritten texts for comprehension of general meaning and detail;

j read for information and for pleasure;

k use a range of reference materials and resources to aid comprehension and communication;

l select and copy;

m produce short pieces of continuous writing;

n write for pleasure;

o write formal and informal letters;

p interpret the meaning of language with the help of visual and other non-verbal clues;

q respond to different types of aural, visual and textual sources.

As they progress through the levels of attainment, pupils should have opportunities to engage in activities involving the higher order skills of:

r initiating and sustaining conversations;

s responding to unprepared situations;

t expressing feelings, opinions and ideas;

u discussing issues, making comparisons;

v adjusting language to suit context, audience and purpose;

w taking notes and reporting orally or in writing.

### Contexts for Learning with Associated Topics

The Contexts for Learning and Associated Topics for each key stage enable teachers to provide pupils with opportunities to engage in linguistic activities through a broad range of experiences. Teachers should feel free to include additional material in their schemes of work if they feel it is appropriate for their pupils' interests and abilities. Given the increasing importance of the European dimension in society generally and in the world of work, pupils at Key Stage 4 should be encouraged to perceive the acquisition of a modern language as a means of improving their geographical and occupational mobility.

Pupils at Key Stage 3 should study Contexts 1, 2 and 3.

Pupils at Key Stage 4 should study Contexts 1, 2 and 3 in greater depth and should also study contexts 4 and 5.

### Context 1: Everyday Activities

#### Topics

a Home and school life

b Food and drink

c Shopping

d Eating out

### Context 2: Personal Life and Social Relationships

#### Topics

a Self, family and friends

b Health

c Holidays and leisure

d Celebrations and special occasions

### Context 3: The World Around Us

**Topics**

a House and home

b Town and countryside

c Getting around

d Weather

### Context 4: The World of Work

**Topics**

a Services to the public

b Occupations and places of work

c Future plans and careers

### Context 5: The International World

**Topics**

a Travel and tourism

b Life in countries or communities in which the target language is spoken

c Caring for the environment.

# **Attainment Targets and Level Descriptions for Modern Languages** (French, German, Italian, Spanish and Irish)



Each Modern Language has four attainment targets which relate directly to the sections within the programme of study:

- Listening;
- Speaking;
- Reading;
- Writing.

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the key stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## LISTENING

**Pupils develop the ability to understand the spoken language in a variety of forms and make an appropriate response.**

LEVEL 1
Pupils understand and respond to key words and short phrases, clearly spoken without background noise. They may need support such as frequent repetition, mime, gesture or visual aid and guidance, *such as through the use of closed questions.*

LEVEL 2
Pupils understand and respond to the message contained in a simple sentence. They identify the gist of a short dialogue, but may need support and guidance.

LEVEL 3
Pupils understand and respond to simple instructions, messages and dialogues. The language heard is clear, and without background noise. Pupils may need support and guidance, *such as in the use of grids or forms to be completed.*

LEVEL 4
Pupils understand and respond to instructions, messages and dialogues and identify specific detail in these language items. Support may be needed in terms of repetition and clarification. Guidance may need to be given on what to listen for.

## SPEAKING

**Pupils develop the ability to communicate effectively and appropriately in the spoken language in a variety of situations.**

LEVEL 1
Pupils imitate sounds, simple words and short phrases. They respond, using a single word or short phrase to give simple factual information. They take part in simple repetitive activities. Their pronunciation may be approximate and they may require considerable prompting by the teacher in the form of visual or verbal stimuli.

LEVEL 2
Pupils respond to what is seen and heard using simple phrases. They seek and give simple factual information. They express an inability to understand and may request the support of the teacher through the use of stock phrases such as asking for repetition.

LEVEL 3
Pupils participate in a short exchange using a limited number of phrases or short, simple sentences. They express likes and dislikes. Despite frequent inaccuracies, their pronunciation and structures are generally understood by the teacher and other pupils. They observe simple patterns of intonation although their delivery may be hesitant.

LEVEL 4
Pupils participate in a longer exchange using phrases or short sentences. They demonstrate some confidence and fluency in their delivery. They are able to ask for the meaning or translation of words.

## READING

**Pupils develop the ability to understand the written language in a variety of forms and to respond appropriately.**

LEVEL 1
Pupils understand and respond to individual words clearly presented in context. They may need support in the form of a visual aid, and guidance, *such as a grid to complete.*

LEVEL 2
Pupils understand and respond to words and short phrases presented in context. They interpret meaning with the help of visual or non-verbal clues.

LEVEL 3
Pupils understand and respond to phrases and simple sentences in context. They can use simple reference materials to find out the meaning of words and may need support and guidance, *such as in the use of grids or forms to be completed.*

LEVEL 4
Pupils understand and respond to simple sentences in short pieces of continuous writing (some of which may be handwritten). Support may be needed in terms of clarification of task, and guidance may be needed to focus attention on what to look for in the text.

## WRITING

**Pupils develop the ability to express themselves and to communicate effectively and appropriately in writing in a variety of forms and in response to an aural, visual or written stimulus.**

LEVEL 1
Pupils select and copy familiar words correctly to label items or to compile a list. They may need prompting by the teacher.

LEVEL 2
Pupils select and copy short simple phrases correctly and write from memory a limited number of everyday words. When writing from memory the words are in a recognisable form.

LEVEL 3
Pupils select and copy a variety of short, simple sentences. They write phrases and short, simple sentences from memory in order to express personal information, preferences and reactions. Their accuracy is such that it is readily understood by the teacher and other pupils.

LEVEL 4
Pupils write simple substitutions in a short familiar text in order to adapt the information given or requested and they write from memory a variety of short sentences.

# **Attainment Targets and Level Descriptions for Modern Languages** (French, German, Italian, Spanish and Irish)



Each Modern Language has four attainment targets which relate directly to the sections within the programme of study:

- Listening;
- Speaking;
- Reading;
- Writing.

The programme of study at Key Stage 3 covers up to Level 8 of the attainment target. It is expected that the majority of pupils will be working at either Level 5 or 6 at the end of the key stage.

When judging a pupil's level of attainment, teachers are advised to select the level description which best fits the pupil's work over a period of time. This judgement should be verified by careful comparison of the selected level description with those immediately above and below it.

It should be noted that level descriptions build successively on the knowledge, understanding and skills of lower levels which are, therefore, subsumed within them.

## LISTENING

**Pupils develop the ability to understand the spoken language in a variety of forms and make an appropriate response.**

LEVEL 5
Pupils understand and respond to a short sequence of instructions contained in messages and dialogues and can identify specific details in instructions, messages and dialogues. The language heard will be clear, although there may be a minor amount of background noise.

LEVEL 6
Pupils understand and respond to a variety of speech, dealing with more than one aspect of a topic. They select and extract specific details from a variety of speech containing some extraneous material. The language heard will be at near normal speed and may contain some background noise, spontaneous repetition and hesitancy. Guidance may need to be given on what to listen for and how to formulate responses.

LEVEL 7
Pupils understand and respond to a variety of speech on a range of topics. They select and extract specific details from recordings *such as news items and summaries.*

LEVEL 8
Pupils understand and respond to a variety of speech on a range of material in which general attitudes and opinions are expressed. They select and extract specific details and make comparisons. Some support and guidance may be needed on how to formulate responses.

## SPEAKING

**Pupils develop the ability to communicate effectively and appropriately in the spoken language in a variety of situations.**

LEVEL 5
Pupils participate in a short structured conversation, demonstrating an ability to move between topics. They express simple preferences and reactions and refer to events using more than one tense. There may be some inaccuracies in their speech but they are understandable to a wider audience.

LEVEL 6
Pupils participate in a structured conversation of increasing length and complexity. They express feelings and opinions. They demonstrate increased confidence in their delivery and need little support from the teacher.

LEVEL 7
Pupils participate in a structured conversation responding to unprepared situations, adjusting language to suit context and purpose. They refer to present, past and future events, with good pronunciation, intonation and a degree of accuracy, which is readily understood.

LEVEL 8
Pupils participate in a discussion, initiate and sustain conversation with good pronunciation, intonation and structural accuracy. Their delivery is confident.

## READING

**Pupils develop the ability to understand the written language in a variety of forms and to respond appropriately.**

LEVEL 5
Pupils understand and respond to short pieces of writing on a subject within their experience containing some long sentences and a limited amount of unfamiliar language which should not hinder their comprehension. They identify specific details in texts *such as information leaflets, brochures, newspaper and magazine articles and informal letters.*

LEVEL 6
Pupils understand and respond to short pieces of writing on subject matter within their experience containing some complex and unfamiliar language in addition to some extraneous material. Guidance may need to be given on what to look for in the text and how to formulate responses.

LEVEL 7
Pupils understand and respond to a range of writing on a variety of topics containing some complex and unfamiliar language, views and opinions. They extract information related to a specific need or purpose. They use a range of reference materials and resources to assist their comprehension.

LEVEL 8
Pupils understand and respond to a wide range of writing on a variety of topics in which general attitudes, and opinions are expressed. They select and extract specific details, and make comparisons. They are more independent in their use of reference materials and resources.

## WRITING

**Pupils develop the ability to express themselves and to communicate effectively and appropriately in writing in a variety of forms and in response to an aural, visual or written stimulus.**

LEVEL 5
Pupils complete a text relating to everyday activities from which words and simple phrases have been omitted. They produce a short piece of continuous writing to convey and request items of personal information, applying basic grammar. They succeed in communicating the message even though there may be a number of inaccuracies in their writing.

LEVEL 6
Pupils produce a short piece of continuous writing, such as a letter, to convey and request a range of information on a few everyday subjects, referring, as appropriate, to events using more than one tense, applying basic grammar. They compose a list of proposed activities relating to everyday situations and use an informal style of writing at a simple level.

LEVEL 7
Pupils produce a short piece of continuous writing to convey and request information on a variety of everyday subjects, including events in the present, past and future, with a degree of accuracy which is readily understood. They use either formal or informal styles of writing as appropriate with support and guidance.

LEVEL 8
Pupils produce a piece of continuous writing, such as an account or a report, on everyday subjects, real or imaginary, to express or seek attitudes and opinions using a variety of tenses, structures and idioms.

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