



Qualifications and
Curriculum Authority

QCA

futures
MEETING THE CHALLENGE



A CURRICULUM FOR THE FUTURE: SUBJECTS CONSIDER THE CHALLENGE

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‘Education only flourishes if it successfully adapts to the demands and needs of the time.’

‘The curriculum cannot remain static. It must be responsive to changes in society and the economy, and changes in the nature of schooling itself.’

National curriculum



What do we want learners to gain from the curriculum and schooling?
This question carries an enormous challenge for all involved in education.

I believe that we want young people to *want* to continue learning and to develop the skills necessary to influence their own lives. We want them to look back on a positive experience.

Developments in our understanding of how we learn, the increasing global dimension to life, and changes in work, society and technology mean that there are evolving ideas about how we should go about achieving these goals. We want learners to look forward to, and indeed enjoy, bright futures. This is why QCA is committed to creating a curriculum framework that will inspire and challenge all learners and allow them to flourish in the future.

This booklet draws together the thoughts of subject experts on curriculum change and is the first in a series that will consider future directions. I encourage you to think about, discuss and respond to the recommendations put forward in this booklet and join in the debate.

Let's build a curriculum that draws all learners towards the exhilaration of learning.

Mick Waters
Director of Curriculum
Qualifications and Curriculum Authority



Image: Marc Kirsten

Introduction

We live in an age where the pace of change is more rapid than at any time in history. In the UK the industrial economy has been replaced by a globalised knowledge- and service-based economy. Society is more diverse, open and fluid than it was a generation ago.

Developments in cognitive science are providing new insights into how the brain functions and how we learn. Technology permeates the workplace and lives of learners. Across all commercial sectors and the public services there is an increasing trend towards greater customisation and choice.

In this context QCA, as the national curriculum authority, has to be forward looking and responsive to the forces shaping the future of education and schooling. In the future, young people will need to be increasingly enterprising, adaptable and capable of learning throughout their lives.

QCA has a responsibility to develop a curriculum that will inspire and challenge all learners and prepare them for the future. To achieve this we are promoting wide debate about how the curriculum should change. Our programme, 'QCA futures: meeting the challenge', will help ensure that curriculum developments are informed by the latest and best thinking.

A curriculum for the future

Today's curriculum has many enduring values and purposes. However, the curriculum must respond to the demands of contemporary life and work if it is to provide a modern, world-class education.

We have identified five broad forces for change that are shaping new and evolving ideas of what it means to be educated for life in the twenty-first century. They are:

- changes in society and the nature of work
- the impact of technology
- new understanding about learning
- the need for greater personalisation and innovation
- the increasing global dimension to life and work.

In considering how the curriculum should respond to these forces for change we are:

- engaging with learners, parents, teachers, employers and other key stakeholders in education
- drawing on the latest, most promising research
- drawing on the knowledge and vision of leading educational thinkers.

'QCA futures: meeting the challenge' summits

In February 2005, as part of a series of events planned for the coming year, QCA held four summits with subject representatives to discuss how the curriculum might need to change.

We started the Futures debate with subject summits, because of the current organisational structure of the curriculum. Other events will be held for stakeholders, for example parents and learners, to engage in the debate from different perspectives.

Subject representatives from a range of backgrounds, including primary and secondary teachers, school inspectors, policy makers, academics and those working in industry, were invited to participate.

Summit participants were asked to consider the following questions.

- What do the forces for change mean for subjects and the whole curriculum?
- How should the current broad aims, values and purposes of education be better embedded into the curriculum and how might subjects best contribute?
- What should be the characteristics of a modern, world-class curriculum?

To stimulate the debate, 18 educational commentators wrote 'think pieces' – brief articles expressing particular viewpoints on how and why the curriculum should change. A full list of writers and their articles is given in the appendix and the articles are available on the QCA website.

About this booklet

This booklet describes the main ideas that emerged from these summits. It includes:

- a summary of people's views on the future curriculum as a whole (pages 6–7)
- a discussion of each subject's place in a future curriculum and how the subject might need to change to meet the demands of life and work in the future (pages 8–37)
- information on how you can get involved in the debate (page 38).

You'll see these blue circles throughout this booklet. They contain quotes and questions that we hope will stimulate further debate.

We look forward to hearing your views.



Image: Marc Kirsten

The characteristics of a future curriculum

What were the main views expressed at the subject summits about the whole curriculum, assessment and accountability measures?

The curriculum

Participants in the summits felt that the curriculum should:

- **be aims-led**, based on the needs of learners and our aspirations for society and the economy. The aims should be intelligible to learners, the public and policy makers and should underpin curriculum development. The components of the curriculum should relate directly to these aims
- **contribute to social justice by providing a common entitlement** for all learners and access to the kinds of experiences, knowledge, understanding, skills, attitudes and values that citizens need in a liberal democracy
- **give substantial weight to personal, social and emotional education**, incorporating the five outcomes – enabling learners to be healthy, stay safe, enjoy and achieve, make a positive contribution, and achieve economic well-being – outlined in *Every child matters*

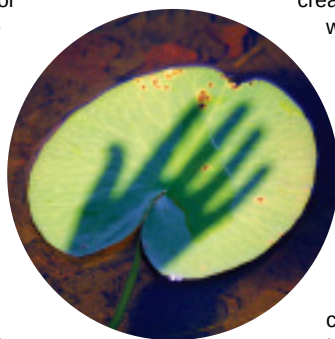


Image: Scran

- **promote the development of skills**, competences and dispositions essential for lifelong learning. It should cultivate positive attitudes towards learning and should develop inquisitive, self-reliant and responsible young people who understand how they learn. It should promote enterprise and skills for employability. Explicit attention should be paid to thinking skills, including creativity and problem solving, as well as moral and ethical development. The importance of collaboration and teamwork should feature highly
- **recognise the importance of knowledge** – knowledge that helps define who we are and our place in the world and cultivates an appreciation of major human achievements. The curriculum should provide access to scholarship, including subject-specific knowledge and modes of enquiry. Subjects should be thought of as essential resources capable of contributing to wider educational goals
- **value knowledge that falls outside traditional subject boundaries** and recognise that learning can be organised in different

ways. It should include opportunities for complex projects that incorporate several subject perspectives. It should also recognise that knowledge is not static or compartmentalised and that its interconnectedness is often the cornerstone of creativity. The curriculum should focus on knowledge creation as well as knowledge acquisition

- **be futures-oriented and deal with the big issues in young people's lives**. It should allow learners to look ahead and make predictions, taking responsibility for themselves, others and the environment. It should address social and cultural change, globalisation, sustainability and the survival of the planet. It should build on learners' lives, experiences and communities, stimulating their interest and motivation and encouraging active participation
- **allow for innovation and customisation**. It should be sufficiently minimal and flexible that schools and teachers can create and customise their own relevant, dynamic and innovative curricula suited to individual learners and local circumstances within the context of a common entitlement
- **use technology to extend and enhance learning**. ICT is a tool for thinking and doing as well as for presenting information. The curriculum should develop learners who are

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confident in using ICT tools for research, analysis, creativity and communication. ICT should be used to extend when, where and how learning takes place. It should make assessment more relevant, offering timely feedback and giving learners greater control over their learning. Some subjects need to be updated to reflect the impact of technology on the discipline and the use of ICT in the workplace

- **recognise practical and performance-based learning**. This type of learning must be seen to be as valid as more traditional methods, and more suitable for some learners. Motivation to learn should be achieved by aligning traditional academic subjects with contemporary vocational areas. Education should be seen to value a wide range of intelligences and capabilities
- **reach out to the world outside the school** so that education is a joint venture between learners, parents, employers and the community. External links should enrich and enhance the learning experience and the contribution young people make to the community and economy. Outdoor learning,

fieldwork, visits and work placements should be an integral part of every learner's experience. Informal learning in a range of settings, such as clubs and networked communities, should have a role

- **have an international and global context**, recognising that individuals now have to function in an increasingly interdependent world. This perspective should infuse all subjects and elements of learning.
- **Assessment and accountability**
Participants at the summits felt that assessment should:
 - **be an integral part of learning**. Well-planned formative assessment helps to develop learners who are reflective and have a desire to improve – essential qualities in an age where learning to learn is a vital skill for life
 - **value everything that a modern curriculum** is trying to promote
 - **allow learners to demonstrate what they know and can do using a wide range of methods** and in increasingly **authentic contexts**
 - **make the most of new technology** to make assessment more relevant, give timely

feedback and allow learners to take greater control of their learning.

They believed that inspection and evaluation frameworks should:

- better reflect the **full range of outcomes we expect from a modern curriculum**
- include broad measures that relate directly to the wider aims and objectives of education.

They also felt that tests designed to monitor institutional accountability should:

- be managed to **minimise narrowing of the curriculum** and 'teaching to the test'.

Do you agree with these views?
Let us know your thoughts through the QCA futures online forum at www.qca.org.uk/futures/.



Image: Marc Kirsten

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Art and design

The importance of art and design in a future curriculum

Through studying art and design, which includes craft, learners become visually literate and culturally aware, able to communicate visually through making and to understand the world around them in aesthetic terms. An education in art and design develops learners' capacity to make informed critical judgements.

Art and design stimulates and values learners' creativity. It encourages them to question existing knowledge, create new knowledge, take risks, manage failure and work in and through a range of materials and media. Learners express, share and communicate ideas, values, aspirations and feelings. Both practical problem solving through manipulating materials and enhancing creativity through developing lateral thinking skills help promote inventiveness.

Art and design is central to developing knowledge and understanding of cultural heritage. The subject promotes transcultural understanding, especially through the critical study of art and artefacts in different contexts.

Through art and design learners explore feelings and are guided by their intuition in a way that is not easily achieved elsewhere. Art and design's contribution to the spiritual and emotional dimension of the curriculum is

significant; studying universal themes such as death, war and love can give insights into profound issues of concern to many young people. Contemporary arts practice and the themes artists are exploring raise a range of social and cultural issues, contributing to new knowledge and challenging existing knowledge.

Art and design can help to develop a real sense of achievement and an appreciation of quality. Through self-expression and communicating through materials and different media, learners can develop a greater sense of self and heightened self-esteem. Many pupils who have disengaged with school get actively involved in art and design activities.

What do we need to do?

Increase the focus on the learner

The emphasis in art and design education is shifting from a rather insular learning *about* art and design to a more inclusive and far-reaching learning *through* art and design. This is not to minimise the contribution of art and design, but to recognise that the learner rather than the

'Art and design is not just a subject to learn, but an activity that you can practise: with your hands, your eyes, your whole personality.'

Quentin Blake,
Children's Laureate

subject must be the focus of discussion about the future of education. In future the curriculum will need to be accessible and relevant for each individual and should be flexible enough to work in situations other than traditional school environments. More could be done to recognise learners' achievements in the broader learning environment, both in and out of school.

Explore more relevant and appropriate assessment

Assessment needs to be relevant to learners' needs and the world of work, and appropriate for a diverse discipline. Current assessments make it difficult to recognise group achievement, the use of new technologies and skills such as teamwork. This is a particular issue for vocational practice. One way forward could be to explore and promote the portfolio review. This is essentially a dialogue between teachers and learners and is an accurate and relevant way of evaluating progress that allows for the needs of a broad range of learners.

Break down boundaries

Art and design frequently leads the way in

cross-curricular work and in the creative use of technologies. School curricula need to provide opportunities to sustain and pursue learning across time and subjects. There is real benefit from having artists in residence in schools, but new technologies, such as webcams, could facilitate work with designers and craftspeople across and outside the traditional school boundaries. Industry, museums, galleries and professionals in the creative and cultural sphere are all crucial to a dynamic and relevant curriculum that prepares learners to work in the creative industries and the cultural sectors of the economy.

Strengthen support for teachers

Provision for art and design in the primary phase of education is uneven and this impacts on progression to the secondary phase. At secondary level, the curriculum delivered in schools is again uneven and while some pupils are offered a broad and flexible approach to art and design others have a more limited experience. The challenge for the future is to ensure that there is a genuine entitlement for all young people.

Particular areas for further support for teachers include:

- developing learners' making skills and developing confidence when working with a broader range of media
- developing learners' knowledge and

- understanding of visual culture
- using ICT in art and design and considering the way contemporary artists make use of it
- increasing understanding of contemporary vocational practice
- increasing awareness of contemporary arts practice.

Image: Scran

'More should be done to recognise a broader range of learners' achievements.' How might this be done? Contribute your thoughts through the QCA futures online forum at www.qca.org.uk/futures/.

Image: Scran

Business education

The importance of business education in a future curriculum

Learners are actively involved in business and enterprise activities from an early age, as are the communities in which they live. As learners grow older, they play an increasingly active part in the economy.

Business education provides learners with access to a growing knowledge and skill base that develops the business and economic understanding necessary for living and working in a modern post-industrial society.

Business education's contribution to the curriculum includes not only the content of economic and business understanding but also developing:

- decision-making skills in complex, changing business environments with restricted information, multiple stakeholders and different levels of economic power
- attitudes and skills for enterprise, personal success, lifelong learning and employability
- team working and collaboration to solve business problems and achieve business objectives within a framework of internal and external economic constraints
- confidence and proficiency in handling a range of business-related issues.

Business activity creates prosperity at local, national and global levels. Business education enables learners to understand and critically analyse the human assumptions, decisions and preferences that drive business activity.

What do we need to do?

Encourage learners to ask critical questions

The vision for economics and business education is to provide learners with the support they need to ask and answer questions such as 'What is the economic and business activity in my life?', 'How can I better understand what is happening, why it is happening and how it is operating?', 'What roles do I play in this economic and business activity?' and 'What do I think about this activity (not just technically, but morally and ethically) and why do I hold this view?'. Asking these questions and exploring the answers will increase the knowledge, understanding and skills learners need to shape the business and economic activity that will affect all our futures.

'The teaching of business exerts powerful influences on young people as consumers, workers, citizens and ultimately as owners. The development of an understanding of business can equip students to choose how they will contribute to the world in which they are growing up.'

Nancy Wall,
Chief Executive, Economics and
Business Education Association

Enable teachers to innovate and use initiative

Teachers need to be able to use their initiative to organise time and space in the curriculum to give their pupils the appetite and aptitudes for learning. The curriculum needs to explore themes in depth rather than touching on several topics superficially.

Consider introducing business education earlier

We need to consider if business education should be incorporated into the curriculum at a much earlier stage. Even young children are involved in business and enterprise activity, getting increasingly active as they mature. Currently learners who do not choose to study business or economics at 14 or post-16 do not get the chance to develop the business and economic understanding that can be so necessary for life and work.

Explore the impact of new technology and develop e-learning

Technology has changed the way the world does business. Exploring new services and

businesses such as online holidays and auctions and considering the impact of technology in enabling global transactions to take place helps learners to understand what a difference technology has made to the way businesses can work. E-learning in business education needs to be explored and developed further so that appropriate technologies are used effectively in all schools to help learning.

'In a knowledge economy we need to encourage enterprise, creativity and knowledge creation rather than just knowledge acquisition.' How can this be done? Contribute your thoughts through the QCA futures online forum at www.qca.org.uk/futures/.



Citizenship



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The importance of citizenship in a future curriculum

Citizenship gives learners the knowledge, skills and understanding to play an effective role in society at local, national and international levels. Citizenship:

- helps learners to become informed, thoughtful and responsible citizens who are aware of their duties and rights
- promotes learners' spiritual, moral, social and cultural development, making them more self-confident and responsible both in and beyond the classroom
- encourages learners to play a helpful part in the life of their schools, neighbourhoods, communities and the wider world.

Citizenship also teaches learners about our economy and democratic institutions and values; encourages respect for different national, religious and ethnic identities; and

develops students' ability to reflect on issues and take part in discussions. It addresses the issues that matter to young people in their daily lives, dealing with immediate and challenging problems, changes and events in society.

Citizenship can also help to promote community cohesion through an understanding of diversity and equality. It provides opportunities to make real choices and take action on political and social issues in the school and the community. This can help address the disengagement and apathy that some young people feel.

What do we need to do?

Clarify what citizenship is about

Making the aims and concepts of citizenship more explicit will help schools and learners to better understand what citizenship is about. This will also help schools to make decisions about the prioritisation and organisation of learning in the citizenship curriculum and recognise where there are useful links, for example between citizenship and sustainable development. The skills citizenship develops, such as those needed for democratic participation, could be made more explicit. They need planned and regular opportunities for development.

Connect learning in citizenship to the wider world

Young people flourish when they have the opportunity to engage with and understand topical and controversial issues in society. The European, international and global dimensions of citizenship could be more fully exploited by schools and greater emphasis placed on global interdependence. The political focus of sustainable development could also be addressed more fully in citizenship. Teaching and learning in citizenship, as with all curriculum subjects, could be more responsive to the changing demands of life, work and the world around us.

Use citizenship to help develop community cohesion

Teaching about identity, diversity and inclusion could do more to address the issues of community cohesion and help bridge gaps in understanding between different groups. The democratic debate that citizenship promotes encourages individuals and groups to think about and express their own views and choices. It also helps learners to recognise that they come from diverse backgrounds, have

different experiences and should try to understand each other's needs as well as their own. More could be done to support teachers in dealing with potentially controversial and sensitive issues.

Encourage more critical evaluation

Most people today learn about news and events from the broadcast media and websites. These should be used more by schools and in a way that encourages learners to critically evaluate the information they present. Encouraging learners to identify the issues they investigate, and use skills of judgement about sources of information they use, potentially changes the traditional relationship between teacher and learner. It could create a more active and aware citizenry, with learners involved in making decisions about what and how they learn and with teachers as facilitators.

Increase relevance and enhance progression

Content could be made even more relevant to learners if there was greater choice in what is

specified. Key topics, concepts and skills of citizenship may need to be prioritised. A separate programme of study for citizenship in the primary phase would ensure greater consistency and continuity for learners in citizenship when they enter key stage 3.



'Not only must we emphasise with new vigour the value of communication, teamwork and flexibility, we also need to help students feel connected to the world in which they will create their future.'

Sir Anthony Greener,
Chairman, QCA

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Design and technology

The importance of design and technology in a future curriculum

Studying the designed and made world includes analysing and developing products and systems using a wide range of materials, design, engineering, fashion, architecture and food technology. Studying design and technology is crucial in a world where nearly everything around us, apart from the natural world, has been designed and made by somebody for some purpose.

Design and technology prepares learners to participate in tomorrow's rapidly changing technologies. They learn to think and intervene creatively to improve quality of life. Learners become autonomous and creative problem solvers as individuals and as members of a team. They look for needs, wants and opportunities and respond to them by developing a range of ideas and making products and systems. Design and technology helps to prepare learners to contribute to a world in which many of the jobs they will fill have yet to be invented.

Learners combine practical skills with an understanding of aesthetics, social and environmental issues, function and industrial practices. As they do so, they reflect on and evaluate present and past design and technology, its uses and effects. Through

design and technology, learners can become discriminating and informed users of products, and innovators. The subject will also help supply creative and innovative designers, engineers and food technologists to a growing economy.

What do we need to do?

Build on effective practice

The national curriculum provides a design and technology pedagogy. Where this pedagogy is understood and effectively implemented there are examples of very good and, in some cases, world-class practice. The challenge for the subject is to spread and build on this effective practice so that it becomes the experience for all learners in all schools.

Explore and exploit relationships with other subjects

Design and technology draws on, and makes use of, knowledge and skills from a wide range of other subjects, including science, mathematics and art and design. Vocational GCSE courses in manufacturing and engineering also provide an opportunity to

explore and exploit the relationship between elements of the design and technology experience.

Establish a learning community for teachers

A learning community, informed by recent and relevant research, would benefit the subject. Currently, design and technology education does not provoke much research, so such a group could identify, instigate and support appropriate research activity. This is particularly important as new technologies are rapidly changing some of the fundamental aspects of the subject. Teachers need more opportunities to engage in professional debate about the subject and curriculum development.

Exploit new technologies, but keep craft skills

New technologies enable learners to produce work more quickly and to a higher standard than before. This in turn allows more time for the creative process of designing better and more effective products. These changes also have significant implications for how the subject is assessed. However, conventional making skills should not be neglected. They provide an important creative outlet and allow

'Design and technology is about making things that people want and that work well. Creating these things is hugely exciting: it is an inventive, fun activity.'

James Dyson,
Chairman, Dyson Ltd

learners to develop understanding of the possibilities of a range of materials and processes.

Improve strategic planning

The DfES Design and Technology Strategy Group made nine recommendations in 2003. An action group needs to be established to develop a strategic plan to take these and other recommendations forward. To be most effective, the group would need to involve all the key players, including government departments, charitable institutions, professional associations, business and industry.

Make explicit links between design and technology and the curriculum's aims

Many of the aims of the national curriculum are addressed through pupils learning how to intervene effectively and creatively in the designed and made world and being taught the unique cognitive activity of designing. Design and technology also develops learners':

- personal effectiveness – the ability to succeed and to get things done
- perseverance – the ability to see things through
- practical skills – drawing, modelling and making as ways of developing solutions.

More could be done to make the relationship between the subject and the whole-curriculum aims more explicit.





The importance of English in a future curriculum

English will continue to have a critical place in the future because spoken and written language will remain fundamental to learning from the earliest years. Verbalising is important for cognitive and social development, and learning in the curriculum is highly dependent on the skilful use of words.

Imagination and creativity are integral to individual development and to the country's economic health. Learning to appreciate literature and how others use language imaginatively, and learning to craft words and meanings, are significant for all learners. English has a central role to play in this.

Communication may take many forms and this is at the heart of the English curriculum. This includes oral interaction either

face to face or on the phone, written communication on paper or screen and many mixtures of the two. Technological developments are increasing the ease and speed of this communication; it is changing its form but is still reliant on the word.

In the twenty-first century English has become the global language for commerce and intercultural communication. All learners will need fluency and accuracy in the language.

Today, as a result of technology such as voice recognition software and text messaging, oral language has a higher profile; both formal and informal language are extending. Similarly, the range and type of texts are expanding with the new challenges of reading web pages and using hypertext to create individual, non-linear texts for a reader. Ways of reading are changing to take account of this and English will need to adjust to these changes.

What do we need to do?

The following points emerged from English 21 – a QCA programme about how English should develop as a subject over the next decade.

Encourage imagination and creativity

Many participants were interested in how to encourage imagination, creativity and

'Studying English... at school was my first, and probably my biggest, step towards mental freedom and independence. It was like falling in love with life.'

Ian McEwan,
novelist

involvement with literature through more contact with people committed to these dimensions, for example novelists, actors, librarians, journalists and non-fiction writers.

Consider our literary heritage

Several debates have focused on how we might think about the literary heritage in the future. Some debates centre around what are seen as the competing claims of relevance, high quality and literature, and the place of different heritages in school reading.

Investigate new forms of language study

Respondents have discussed the need to increase understanding of English as the main global language and how other languages fit in the English classroom, particularly in relation to

opportunities for learners with more than one language. Recent work on the grammar of talk, and the availability of research into spoken language, allow us to study speech in ways that were not possible before. This new form of language study has yet to be fully explored in the classroom.

Raise the status of speaking and listening skills

Speaking and listening skills have often taken second place to reading and writing. There is a sense that this needs to be changed so that learners and teachers communicate effectively and learn through talking. These communication skills are essential for life and work.

Use new technologies to enhance learning

Technology now offers new possibilities for reading and writing. This means that the repertoire is expanding. Older forms, such as the book, are not defunct, but learners need to acquire new literacy skills. On-screen texts are increasingly multimedia and non-linear. This will

lead to some hard choices about what should be the focus of classroom teaching.

Ensure that assessment supports, not narrows, learning

Assessing spoken language has always posed problems in the examinations context, because speech is not permanent. New

technologies could help make this assessment more reliable. Teachers frequently stress that assessment needs to support, not narrow, the curriculum.



Do you see assessment as an important issue?

Contribute to the debate through the QCA futures online forum at www.qca.org.uk/futures/.





'What is our knowledge worth if we know nothing about the world that sustains us, nothing about natural systems and climate, nothing about other countries and cultures?'

Jonathan Porritt,
Forum for the Future

The importance of geography in a future curriculum

Geography draws from across the physical, cultural, economic and political spheres to illuminate key issues for the present and the future. Examples of these issues include environmental change and sustainable development, social and cultural diversity, population change and migration, impacts of globalisation, and economic growth and decline.

Geography has a crucial role to play in ensuring that such issues are explored at all scales from the personal to the local and the global.

In investigating such issues, learners develop a range of enquiry skills and techniques including those involving maps, visual images and ICT, especially geographical information systems (GIS). Fieldwork and outdoor education are essential to geography and contribute to young people's social and personal development in a distinctive way.

Through geography learners extend their knowledge and understanding of some central geographical ideas, including:

- a sense of place and spatial awareness

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- interdependence – the complex and diverse interconnections and interrelationships operating in a dynamically changing world
- scale and scale linkages – how all scales, from the personal and local to the global, are linked and the importance of recognising this in the way we conduct our lives
- environmental interactions – the way in which people interact with their physical, cultural and perceived environments and the impacts of their interactions.

Through geographical enquiry learners engage in *affective learning* by:

- valuing and building upon their own experiences
- being involved in an active and critical approach to environmental issues
- developing their political literacy as they explore values through issues
- developing social and cultural awareness and emotional literacy through examining issues affecting people's lives.

What do we need to do?

Move towards an aims-based curriculum

Geography should be regarded not as a discrete chunk of content but as a resource capable of contributing to the fulfilment of learners' needs and to wider educational goals. An aims-based curriculum, driven by

consideration of key issues for the future of people on earth, would help with this.

Develop a more flexible curriculum

The subject frameworks should be clear about the distinctive role and entitlement to each subject for different age groups, but minimal enough and flexible enough to enable teachers to set the curriculum in their schools.

Promote the importance of geography

More could be done to ensure that there is clear public understanding and recognition of geography's distinctive contribution to the education of young people in a rapidly changing and globalised world.

Enhance understanding of learning and progression in geography

Further study and research are needed as to how pupils learn and progress in geography. These findings should influence curriculum planning and resource preparation.

Strengthen support for teachers

Teachers need nationwide support systems and subject-based professional development so that they can meet, share good practice and learn the skills of curriculum design. In particular, the subject-specialist input to primary teacher education could be improved, leading to more well-qualified geography specialist teachers in primary schools.

Develop a sound conceptual and skill-based framework

A sound conceptual and skill-based framework for geography would be beneficial, together with clear guidance for non-specialists and specialists on how to select content, ensure topicality and plan for progression.

Improve links with higher education

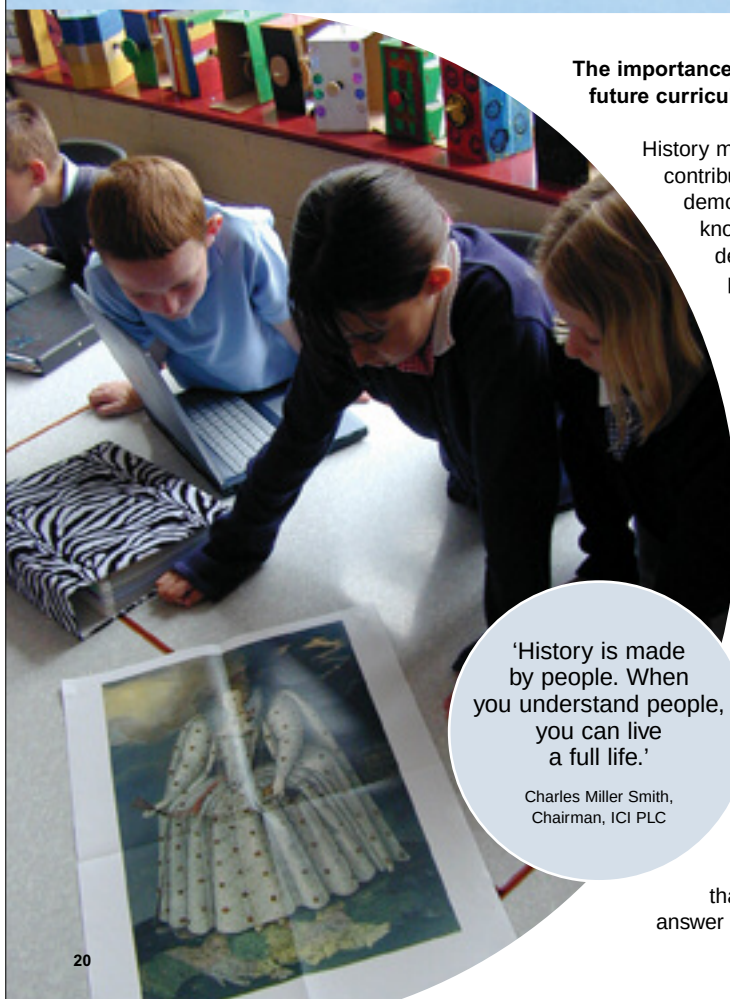
Learning in geography would benefit from further strengthening the links and dialogue between the secondary and tertiary sectors. Sharing new approaches to and developments in geography will help keep the subject relevant and up to date, a particular need for the 14–19 curriculum.

Improve links between subjects

Making real and relevant connections is a key part of learning. More could be done to strengthen the relationship between geography and:

- other subjects, such as science or history
- other dimensions, such as citizenship or vocational education
- cross-curricular skills and approaches, such as ICT, work experience and community links.

History



The importance of history in a future curriculum

History makes a fundamental contribution to the core values of democracy. School history teaches knowledge and understanding of democracy, government, participation, human rights, justice and resistance. It shows how individuals and groups have participated in the past, how they have affected events and effected change, why they have done this and with what consequences.

History teaches learners to ask and answer important questions. It practises a process of 'fearless enquiry' and offers different versions of the past. Studying history calls on the learner to identify and evaluate different interpretations in a critically analytical manner. It encourages understanding that there may be more than one answer to a question.

'History is made by people. When you understand people, you can live a full life.'

Charles Miller Smith,
Chairman, ICI PLC

History is all about people and their stories, what they have done, why and with what consequences. This focus on real people and their experiences makes a unique contribution to the development of learners' emotional literacy, including a sense of self.

The phrase 'think about how things got to be the way they are' (*Adelaide declaration of national goals for schooling in the 21st century*) further justifies the important role for the subject in the school curriculum. What makes history unique is its focus on the past as a context for learning.

We need to know our roots and the roots of others in order to address critical questions for today and the future, for example those concerned with questions about citizenship. History has a vital contribution to make towards the understanding of personal and common identity.

What do we need to do?

Promote the importance of history

There is a need to clarify what teaching and learning is appropriate in history. The curriculum should be relevant and should demonstrate how history develops learners who can flourish in today's demanding and changing world. Not everybody outside the

subject community fully appreciates the contribution learning history can make to a person's life, including developing their thinking processes, and to society as a whole. More should be done to make the value of learning history explicit.

way as to bring out its significance both to the past and to learners' own lives.

Develop a more flexible curriculum

A future history curriculum framework should help planning across all key stages, thus ensuring continuity and progression. It should also leave scope for teachers to be creative and to tailor aspects of the curriculum to pupils.

Improve links between subjects

The subject provides many opportunities to contribute to curriculum dimensions such as vocational education and citizenship as well as to the objectives of the literacy, numeracy and key stage 3 strategies. These opportunities should be exploited so that learners can relate and apply their acquisition of history knowledge, skills and understanding to their present needs.

Innovate with the history curriculum and assessment

New and diverse approaches to the history curriculum and qualifications should be adopted, building on the expertise of the subject community. These should provide access to both the academic and vocational dimensions of history.

Strengthen support for teachers

Teachers need access to high-quality professional development if they are to offer effective history programmes and have the confidence to innovate and take risks.

Balance skills, knowledge and understanding

While it is usual to learn the skills associated with history in the context of acquiring historical knowledge and understanding, an appropriate balance between these three aspects needs to be maintained. Skills development in the curriculum as a whole, including history, should be related to questions of genuine significance.

'We need more time for in-depth and immersive learning experiences that make connections across subjects.'

Has your school developed a successful approach?

Let us know through the QCA futures online forum at www.qca.org.uk/futures/.

Engage and motivate learners

History teaching should powerfully motivate learners by engaging and communicating with them. Content should be organised in such a

Information and communication technology

The importance of information and communication technology (ICT) in a future curriculum

With the increasing use of technology in all aspects of society, confident, creative and productive use of ICT is an essential skill for life. In this information age, effective learners and citizens need ICT skills. ICT enables us to find, explore, analyse, create, exchange and present information. A curriculum rich in ICT will help prepare learners to participate fully in a constantly changing world.

The impact of events unfolding on the other side of the world is no longer limited to that locality. Experiences and ideas from a wide range of people, communities and cultures can be rapidly accessed using ICT. Communication and collaboration with others across the globe becomes easy when using technology.

ICT capability promotes initiative and independent learning. Technology can be used to support logical reasoning and problem solving, analysis, research, creativity and design across the curriculum. Developing generic ICT capability is

an indispensable component of the curriculum, not least because it supports other learning and helps individuals respond to change.

What do we need to do?

Promote e-confidence

Some people think ICT capability is a set of basic skills and do not recognise the importance of higher-order thinking skills and purposeful application in learning and life outside school. There is a need for a clearer understanding of ICT capability and what it means to be an e-confident learner.

Clarify the roles of ICT

ICT can play an important role as a generic skill, as an integral part of other subjects and as a specialist subject. There is a need to further define the relationship between these three aspects of ICT and to clarify the difference between ICT as a generic skill and ICT as a specialist subject. There should be a broader view of specialist ICT in key stage 4.

Improve links between subjects

Although a subject dimension to the curriculum is helpful, more could be done to break down the barriers between subjects and identify links between them. Are there lessons to be learnt

from the way that ICT has successfully become an integral part of other subjects? Better links could be made if all subjects were explicit about the contribution they make to more general learning across the curriculum.

Assess what we value

The nature of assessment has a profound effect on the received curriculum. In ICT it is particularly important to assess process rather than just knowledge of facts or an end product. It is important to use assessment as a force for positive change, to support learning, and to ensure that we assess what is important rather than what is easily assessed. The potential of e-assessment to support this process should be exploited.

Clarify progression

There is a need for clearer progression routes in ICT to create a seamless transition from 3 to 19, breaking down age barriers and clearly identifying next steps. Greater coherence across a range of modern ICT qualifications would be useful for both ICT users and ICT specialists.

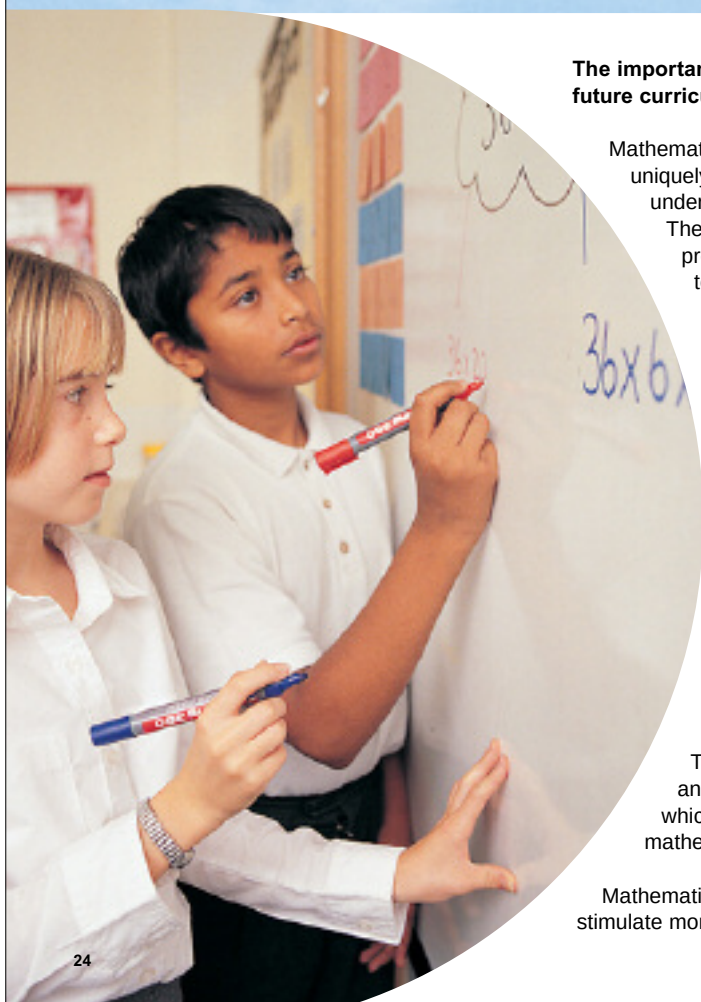
Explore potential for technology-driven change

Technology means that learning can take place almost anywhere. The potential for 24/7 learning, removing the constraints of places or modes of learning and involving parents, educators and organisations outside school, needs to be explored.

'ICT has enormous potential not just for a national curriculum. It will change the way we learn as well as the way we work.'

Chris Yapp, ICL Fellow
for Lifelong Learning





The importance of mathematics in a future curriculum

Mathematics equips learners with a uniquely powerful set of tools to understand and change the world.

These tools include logical reasoning, problem-solving skills and the ability to think in abstract ways.

Mathematics is important in everyday life, many forms of employment, science and technology, medicine, the economy, the environment and development, and in public decision making.

Different cultures have contributed to the development and application of mathematics. The subject transcends cultural boundaries and its importance in developing techniques and procedures that are useful in daily life is universally recognised.

The importance of thinking skills and conceptual understanding, which are fundamental to mathematics, is less well recognised.

Mathematics is a creative discipline. It can stimulate moments of pleasure and wonder

when a learner solves a problem for the first time, discovers a more elegant solution to that problem or suddenly sees hidden connections.

What do we need to do?

Reconsider what we mean by mathematics

In a technological age, concepts are more important than techniques. The curriculum needs to emphasise the big ideas. For some people this will require reappraising what mathematics is.

Promote mathematics' contribution to the development of thinking skills

We tend to justify mathematics instrumentally. For example, mathematics supports employers' desires for a workforce with improved numeracy skills. But employers are also asking for employees with other 'hybrid' skills, for example the blend of ICT, design, creativity and mathematic skills used in architecture. The national curriculum encourages teaching problem solving, reasoning and communicating in each topic. More can be done to make this explicit so that teachers and learners are clear about how mathematics contributes to the development of thinking skills.

Help learners see mathematics' relevance

Teachers make an important contribution to communicating the importance of mathematics

to learners, helping them to understand its role in a modern technological society. This includes, but is more than, communicating applications of particular topics. When a curriculum neglects the importance of thinking skills it can have a negative impact on learner motivation and engagement in mathematics. Helping learners recognise the value of financial literacy and the mathematical needs of the workplace can help to increase engagement with the subject.

Use new technologies to enhance learning

Much of mathematics is about change and movement. Technology enables us to show this directly, thus making the concepts easier to understand. Interacting with dynamic environments enables learners to make and test mathematical hypotheses. However, in some instances, for example databases, the software obscures the mathematics. This reduces the need for a routine user to have a mathematical understanding of the database. There needs to be balance in the relationship between mathematics and technology.

Make mathematics more enjoyable and accessible

The formal study of mathematics begins at an early age in the UK compared to some countries, which may contribute to learners' low opinion of the subject later on. In some cases this leads to 'mathsphobia' in adult life.

Strategies to make mathematics more enjoyable and accessible should be developed and integrated into teaching programmes.

Assess what we value

For assessment to have a positive effect, it should assess the achievements we value in learners.

Assessment, such as the national curriculum tests, should support teaching and creativity and not restrict learning.

Improve links between subjects

Most schools assume that because the curriculum is divided into subjects, it should be taught as such. This is not necessarily the most effective way of helping learners to see the relevance of what they are learning or make connections between their learning experiences.

Improving links between subjects could help to create a more coherent experience for learners. For example, both mathematics and science deal with logical reasoning; the concepts of measurement and dimension

(length, area, volume and capacity) taught in mathematics are critical to learning in a design and technology context. Better organised learning could make the most of this interconnectedness.

'Maths is the study of patterns abstracted from the world around us – so anything we learn in maths has literally thousands of applications, in arts, sciences, finance, health and leisure!'

Professor Ruth Lawrence,
University of Michigan



Modern foreign languages

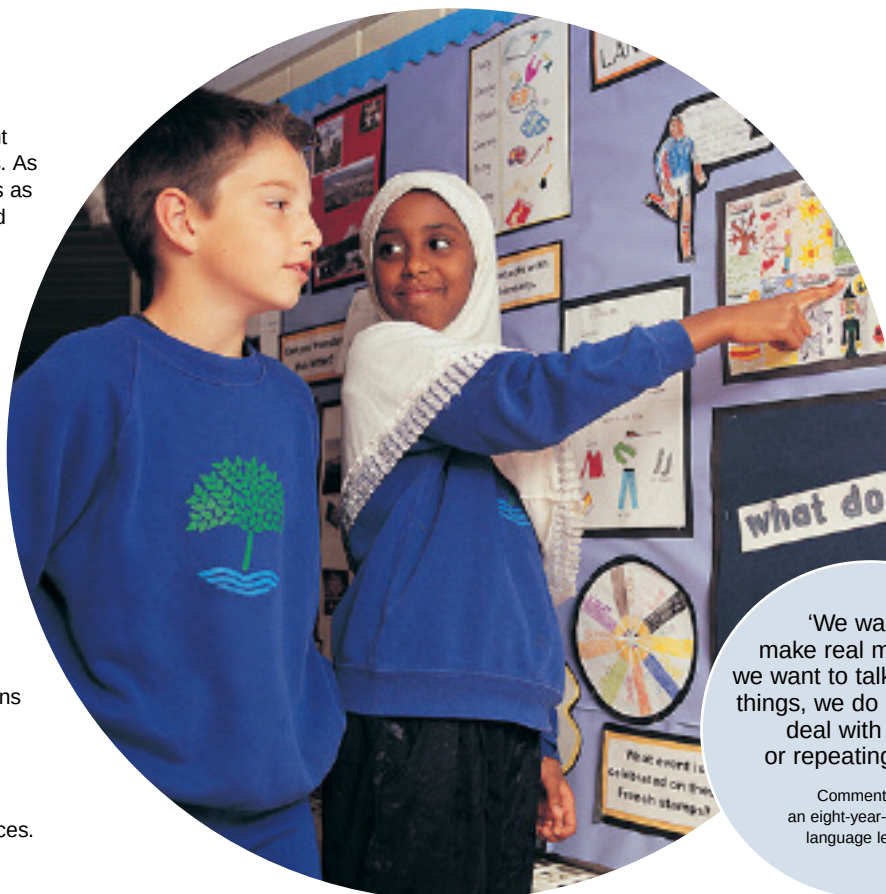
The importance of modern foreign languages (MFL) in a future curriculum

Through the study of foreign languages learners understand and appreciate different countries, cultures, people and communities. As they do so they begin to think of themselves as citizens of the world as well as of the United Kingdom. Through learning languages, learners are encouraged to open their hearts and minds to 'otherness'.

Learners also learn about the basic structures of language. They explore the similarities and differences between the foreign language they are learning and English or another language, and learn how language can be manipulated and applied in different ways.

Their listening, reading and memory skills improve, and their speaking and writing become more accurate. Developing these skills, together with learners' knowledge and understanding of the structure of language, lay the foundations for future study of other languages.

Learners can develop these skills and attributes through whichever language or context is most relevant to their circumstances.



'We want to make real meanings, we want to talk about real things, we do not want to deal with nouns or repeating things.'

Comment from an eight-year-old about language learning

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What do we need to do?

Assess what we value

Language learners need to develop a range of competences that include:

- communication skills
- self-confidence
- independence and motivation
- understanding of grammatical concepts
- language awareness
- intercultural competence.

Further research could create a better understanding of how these aspects are best learnt and taught and how they can be appropriately assessed. The current mechanisms for recognising achievement are not compatible with a more flexible curriculum. The Languages Ladder has the potential to provide an effective assessment tool, but could still be used inappropriately, encouraging 'teaching to the test', meaning that key elements of language learning could be missed.

Make language learning more relevant

MFL is currently isolated, both structurally and conceptually, from other areas of the curriculum. Many learners find it hard to see the connections with other disciplines or the relevance of languages to a future career. We could do more to ensure that learners' experience of language learning better reflects the plurilingual nature of our society. If all

areas of the curriculum had an international dimension, language learning could be useful and relevant for all subjects.

Organise time for effective learning

Language learning is not facilitated by the typical organisation of a school timetable, which is age-related and split into regular chunks of teacher-directed learning. Greater flexibility in the school day with more focus on self-instruction and distance learning could help learners to make better progress.

Encourage learning to learn

The organisation of language learning in many schools can make learners quite dependent on the teacher. Developments in understanding about learning have been incorporated into the new key stage 3 framework, which is proving successful in helping pupils to learn how to learn languages. Harnessing technology effectively could help to build on this success and with support, the learning relationship in languages could be shifted.

Encourage more learners to study languages

A strategy could be developed to overcome some of the reasons for declining language uptake at 14–16, such as building on the work in primary schools, improving pupils' learning experience at key stage 3 and:

- better highlighting MFL's relevance
- ensuring that content and teaching

approaches are as engaging as possible

- challenging the perception of MFL as 'difficult'
- challenging and clarifying the 'mixed messages' from employers: some stating they do not need employees with language skills, while others recruit from elsewhere in Europe to get the language skills they need.

Find out more about what young people think

At the moment we do not know enough about what young people think about learning languages. Negative attitudes have often set in by the time pupils are 13, influenced not only by their school experience but also by parental and societal attitudes. Pupils' perceptions and expectations of the curriculum, their learning experiences and the ways they think they learn best should all inform curriculum changes.

'We now live in a world that is becoming increasingly interconnected, in which distant events can affect us as never before... To encourage children to think about the global implications of everything they do, it is essential that the global dimension is embedded within all subjects of the curriculum.'

Lesley Longstone,
Director, DiES International Strategy

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The importance of music in a future curriculum

Music is a powerful, unique form of communication that can change the way learners feel, think and act. It brings together intellect and feeling and enables personal expression, reflection and emotional development.



As an integral part of culture past and present, it helps learners understand themselves and relate to others, forging important links between the home, school and wider world. The breadth of cultural experiences in a well-balanced music curriculum opens minds to global perspectives.

Music develops learners' ability to listen to and appreciate a wide variety of music and to make judgements about musical quality, developing independent thinking skills. It encourages active involvement in different forms of amateur music making, both individual and communal, developing a sense of group identity and

togetherness. A rock band, for example, is made up of several players who have individual tasks that call upon their acquired and developing skills and knowledge.

Learning music also increases self-discipline, aesthetic sensitivity and fulfilment. The problem-solving dimensions of composing and improvising stimulate creativity, curiosity and enquiry.

What do we need to do?

Build on learners' interests and experiences

A lot of learning in music takes place beyond the amount of time allocated within the formal school day. Many learners get involved in informal voluntary music activities offered by schools, as well as choosing to spend their own time and money on making music out of school. Building on learners' interests and experiences is a challenge for teachers, but is essential if the scope of their experiences is to be extended.

Allow learners to make choices

The most successful music teaching allows

learners to exercise some choice in what and how they learn, as music has a personal significance for many. Enabling the music of individual or group cultures to be part of learning music in schools can impact positively on motivation.

Use opportunities to inspire

The inspiration to learn music often derives from some particularly powerful musical experience as either performer or audience. We need to use artists and professionals to inspire learners with a range of musical styles and complex art forms from across the world.

Innovate with time use and mixed-age classes

The typical weekly school timetable works very well for building practical skills in music, but is often unhelpful for work involving creative ideas such as extended composition. Learning in music would benefit from a flexible timetable so that an appropriate range of formal and informal sessions can be offered, for example offering sessions for groups of learners whose ages differ but whose musical maturity is similar.

'Music makes a kind of liquid link between the study of languages, literature and the other arts, history and the sciences – joining them together in the outer world of feelings and relationships and the inner world of the imagination.'

Dr Robin Holloway,
composer

Use new technologies to enhance learning

There are many opportunities to use technology in music for composition and performance, for example in sound recording, editing and synthesis. Many learners enjoy using and developing their ICT skills in this creative and enjoyable environment. There is potential for further development of this across all schools and for all learners.



Recognise the contribution of music to the economy

Music contributes significantly to the British economy. It is a major source of export earnings and the international success of composers, songwriters, performers and conductors across all genres and styles is remarkable. Music should be seen as economically valuable as well as beneficial for each individual, and music education needs to celebrate the successes of the industry and equip learners to build on those successes in the future.

Strengthen support for teachers

Most people who have lifelong involvement with music have been inspired by role models who

gave them not only knowledge but also a deep commitment to music. Music is also a global study, covering a host of different cultures and styles. These are not easy remits for any one teacher to meet. The challenge is to find the most effective training and development of teachers that will provide the confidence and skills needed to inspire and challenge all learners in music. We need to give teachers effective training so that they can inspire and challenge all learners.

'Timetables offered in most schools serve organisational needs rather than learning needs... Taking a day to paint a picture or participate in a music workshop could be a much more fulfilling experience than the current one that most pupils are offered.'

Professor Kate Myers,
University of Cambridge



Personal, social and health education

The importance of personal, social and health education (PSHE) in a future curriculum

PSHE helps learners to develop the knowledge, skills and understanding they need to lead confident, healthy and independent lives, adapt to change and respond to new challenges.

PSHE helps young people learn to recognise and manage risks, resist unhelpful pressure and challenge offending behaviour such as prejudice, bullying, racism and discrimination. Self-knowledge is essential to achieving this. PSHE helps young people to understand how they are developing personally and socially and to tackle many of the moral, social and cultural issues that are part of growing up in the changing society of the twenty-first century.

The personal and social development of learners should be at the heart of the curriculum and be a focus for all subjects and areas of learning.

What do we need to do?

Increase the focus on personal development

Establishing PSHE as a national curriculum subject framework has helped raise the profile

of learners' personal, social and emotional development in schools, as have developments such as healthy schools and PSHE certification. However, time and other constraints can counterbalance these positive moves in some schools. If personal and social development is placed at the heart of the curriculum, learning across all subjects should reflect this, placing the learner at the centre of curriculum design.

Clarify progression in PSHE

Many primary schools have been successful in developing whole-school approaches for PSHE and citizenship, giving children much responsibility for their own learning and opportunities for active participation in school decision making. There are good examples where this responsibility is continued in year 7 and beyond. More could be done to ensure continuity and progression in PSHE from the primary phase into and through secondary education, and current work on establishing

end-of-key-stage statement standards should raise expectations of what learners can achieve, which will help with progression.

Encourage a whole-school approach

The best examples of whole-school PSHE provision occur where senior managers ensure a whole-school approach to the subject. The five outcomes for children set out in the Children Act 2004 (be healthy, stay safe, enjoy and achieve, make a positive contribution and achieve economic well-being) could be used to reinforce the importance of PSHE across schools.

Strengthen support for teachers

Ofsted has reported that PSHE is often poorly taught. This can be improved through professional development such as the DfES certificate for the teaching of PSHE. The standards of this certificate are discrete, progressive and describable, and learners whose teachers have undergone certification have benefited from the programme.

How should the curriculum better support the five outcomes of *Every child matters*? These outcomes are:

- stay safe
- be healthy
- enjoy and achieve
- make a positive contribution
- achieve economic well-being.

Let us know your ideas through the QCA futures online forum at www.qca.org.uk/futures/.

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Help teachers to be aware of their own well-being

The requirements for qualified teacher status (QTS) should help newly qualified teachers to understand how to consider the personal and social development needs of learners and what they can do to meet them. It is important that teachers are aware of their own personal well-being, including their emotional and physical health, as this will help them teach PSHE more successfully.

Review the PSHE frameworks

Reviewing and revising the PSHE frameworks would provide an opportunity to highlight the whole-school nature of provision. One way of improving PSHE provision in schools is to organise the curriculum and school day around how learners learn, rather than subjects. Classroom organisation, ways of teaching, how learners learn and relationships are as important as knowledge.



'PSHE is about helping young people to find their way in a world in which they face more conflicting pressures and more complex choices than ever before. It is one of the most important concerns that education can have.'

Dr Graham Haydon, Lecturer in Philosophy of Education, Institute of Education

Physical education



'Physical education is about pupils learning about themselves: their capabilities, their potential and their limitations. It is the foundation of all sports participation. But it goes beyond the individual and understanding themselves – it's learning how to work with and to respect others.'

Lucy Pearson, England cricketer and teacher

The importance of physical education (PE) in a future curriculum

A PE curriculum that has a positive impact on learners develops their physical competence so that they are coordinated, balanced, athletic, agile and thinking performers. It creates young people who have the confidence to take part in a range of sport and dance activities and the desire to make healthy physical activity a central part of their lives both in and out of school.

So what should we be looking for in a PE curriculum? According to the booklet *High quality PE and sport for young people* (DfES/DCMS, 2004), a good PE curriculum should produce learners who:

- are committed to PE and sport and make them a central part of their lives
- know and understand what they are trying to achieve and how to go about doing it
- understand that PE and sport are an

- important part of a healthy, active lifestyle
- have the skills and control that they need to take part in a range of competitive, creative and challenge-type activities, both as individuals and as part of a team or group
- think about what they are doing and make appropriate decisions for themselves
- show a desire to improve and achieve in relation to their own abilities
- have the stamina, suppleness and strength to keep going
- enjoy PE, school and community sport.

When a PE curriculum is most effective, the ripple effect is felt far beyond sport and dance. The commitment, enjoyment, desire to improve and confidence that are engendered by high-quality PE become an integral part of the learner and are transferred to other areas of study, leisure and work.

What do we need to do?

Inspire learners to get involved

At the moment, many learners choose not to take part in school- or community-based dance or sport. Some also opt out of PE or take part unwillingly. Many stop being physically active after they have left school.

If we are going to inspire more learners to get involved and stay active, we need to make

significant changes to the way the PE curriculum is designed and taught.

We need to take time to find out about learners' interests in order to design a curriculum that is relevant and challenging. The future PE curriculum needs to reflect physical activity in society today and be linked much more closely to learners' experiences outside school.



Image: Marc Kirsten

Planning the curriculum around what learners will achieve, rather than a set of experiences, will help them to recognise and choose

pathways to long-term involvement in sport, dance and health-based activities. For example, if learners have the opportunity to gain experience and qualifications as leaders, officials, managers and organisers – as well as performers – they are more likely to find roles that they enjoy and want to pursue beyond school.

Use new technologies to enhance learning

There is some evidence that the growth in

computers and video games has reduced the amount of time young people spend taking part in physical activity. However, selective use of technology – particularly digital video cameras and interactive whiteboards – can have a very positive effect on learners' progress in PE. The challenge is to harness young people's interest and expertise in new technology to increase enthusiasm for, and raise standards in, PE.

Assess what we value

Assessment in PE should help learners to succeed, enable them to identify what to get involved in, show them how to improve the quality of their work and motivate greater involvement in dance, sport and healthy activity.

To ensure that assessment is as effective as possible, we need to broaden the interpretation of success in the current curriculum and make a wider range of PE-related qualifications available in schools.



Image: Marc Kirsten

These subject pages reflect the views of people who attended the subject summits. We would like to know what you think. Let us know through the QCA futures online forum at www.qca.org.uk/futures/

Religious education



The importance of religious education in a future curriculum

Religious education makes a significant contribution to learners' spiritual, moral, social and cultural development. It provides learners with opportunities to explore questions of meaning and develop key skills such as communication and evaluation.

It is a key subject in combating prejudice and discrimination; it promotes community cohesion through understanding others' perspectives and deeply held convictions and through learning to work with people with whom you disagree. It helps people of all religious and non-religious backgrounds feel included in society.

What do we need to do?

Build teachers' confidence to deal with controversial issues

One of the compelling aspects of religious education is that it deals with controversial issues. Understandably teachers do not want to cause offence when dealing with these kinds

of issues and some may shy away from dealing with them in any depth. We could do more to help teachers build the confidence they need to handle difficult issues appropriately.

Encourage innovative teaching approaches

Religious education is a risk-taking subject, interested in powerful questions of meaning, purpose and truth, and complex ethical issues. Appropriate pedagogy can help learners develop crucial skills for living in a tolerant society that promotes respect for all. In the secular and religious classroom mix, it is important to create learning experiences that:

- encourage learners to reflect critically, even if that reflection is in direct conflict with the beliefs and values of other learners in the classroom
- allow regular opportunity for stillness and quiet reflection
- use all of the senses
- creatively link religion and beliefs with learners' ideas, values and experiences.

Support learners' personal identities

Many learners from secular backgrounds have deeply held views on religious and moral issues. Likewise, sensitivity to the needs of learners with a faith is important. We need to consider how the curriculum can support learners to see their own faith and beliefs as integral to their personal identity.

Use a question-led approach

The debate about religious education needs to move from a focus on the balance of content between religions to dealing with the larger questions. Focusing on questions rather than content offers far more opportunities for learners to develop their skills in the subject.

Use new technologies to enhance learning

ICT can expand the scope of religious education by giving learners access to a greater breadth of modern religious communities. The potential for enhancing religious education with ICT has not been fully

explored. We could do more to help teachers develop the confidence and skill they need to use technology effectively in religious education.

Enhance the global dimension

The religious education curriculum is locally developed, which may encourage the agreed-syllabus conference (ASC) to focus more on the local dimension. Training and support of standing advisory councils on religious education (SACREs) and the ASC could be enhanced to ensure that the global dimension is better covered.

Overseas-trained teachers may have much to offer through their experiences of beliefs and practices in different cultures. They may also need more support to understand the nature of religious education in the curriculum. It would be useful to publish some case studies of overseas teachers successfully using their knowledge and skills to model best practice.

Promote the importance of religious education

We need to do further work to give religious education a clear rationale and to help everyone understand its aims and purposes. Religious education's position as a statutory subject sitting outside the national curriculum means that it is sometimes excluded from national initiatives such as developing support material and guidance for teachers. The balance between local and national initiatives is critical for helping teachers and learners to understand the value of a religious education.

'One important thing is to know and develop your way of thinking, and I think RE helps do this. It also helps to teach respect, and to be true to others, and so also yourself. Also I think it is good, and even necessary, to have an open, educated mind, and it is interesting to learn about what other people – and very large groups of people – believe and why.'

Keri, age 17



'A science curriculum that is relevant and imparts key knowledge and skills is critical if we are to excite young people about science. It also needs to be flexible enough to meet the needs of all individual students and enable teachers to use creative and innovative approaches and resources.'

*Science and innovation investment framework 2004–2014
(HM Treasury, 2004)*

The importance of science in a future curriculum

Science education helps learners find out what it is to be human. It addresses personal contexts by answering questions such as how our brains work and how we learn, but does not shy away from deeper questions such as the origins of the universe and our own humanity.

Science education should be enjoyable, fulfilling, satisfying and engaging. Teachers

can show learners what it means to learn like a scientist, stimulating creativity and imagination.

What do we need to do?

Move away from a knowledge-based culture

There is ample evidence of the successes of the current science curriculum and this needs to be built on. However, the knowledge-based culture in science education needs to be shifted more towards skills and their application. The impact of science education on all aspects of schooling needs to be questioned, including current organisation of learning groups, timetables and the length of the school day. Curriculum materials and in-service training should be developed to help facilitate any changes.

Improve links between subjects

General skills, such as problem solving, depend on context. Following simple linear steps cannot develop these skills; rather, science subject knowledge needs to be brought together with knowledge from other disciplines to find solutions. Science can provide special contexts and skills that can contribute to meeting the aims of a wider curriculum.

Learn from other subjects

Learning in science can benefit from problems

that require a multidisciplinary approach and allow for collaboration. Subjects such as history and geography encourage learners to look at alternative ways of interpreting evidence. This approach could be developed more in the teaching of science.

Encourage learners to take responsibility for their learning

Learners are capable of taking more responsibility for their learning and should be encouraged to set their own targets within the framework of a specified and managed science curriculum.

Emphasise imagination and creativity

There is considerable evidence that inspired teachers inspire learners. Teachers need to maintain their own enthusiasm for the subject by continuing to be learners. By emphasising imagination and creativity teachers can communicate their enthusiasm for the subject and show learners what it means to learn like a scientist.

Assess what we value

Any assessment mechanism should be appropriate to the aims of the curriculum and not dictate what is taught. Currently an over-emphasis on science knowledge skews the curriculum. The interaction between assessment, teaching and learning, and curriculum needs to be better balanced.



'We should be helping [learners] to develop supple and nimble minds, so that they will be able to learn whatever they need to. If we can achieve that, we will have a world-class workforce comprising people who are innovative and resourceful.'

*Professor Guy Claxton,
University of Bristol*

How can we teach learners how to learn? Contribute your thoughts through the QCA futures online forum at www.qca.org.uk/futures/.

What happens next?

This section explains how you can discuss or comment on ideas raised in this booklet and contribute to QCA's ongoing programme of curriculum and assessment modernisation.

Continuing the debate

This booklet is the first in a series sharing the views that have emerged from our debate about how the curriculum should change. We will use these publications to focus ongoing discussion.

As the debate progresses we will make more information available through our web pages at www.qca.org.uk/futures/. On these pages you can already find short video clips giving a brief, accessible overview on the Futures thinking, think pieces by educationalists and others, and articles on the current issues for subjects.

Involving others

Following on from the subject events described in this booklet we plan further events in the coming months. We will meet with groups of teachers and headteachers. We will be talking with employers. We are working with other agencies, such as the National College of School Leadership (NCSL), using existing networks to ensure the widest participation.

Most importantly, we will talk directly to learners to hear what they would like to gain from a future curriculum.

Promoting innovation

Our work to date indicates that many schools take advantage of existing freedoms in the curriculum to design experiences that inspire and challenge learners. However, there is still a perception that some types of innovation are novel supplements to the curriculum rather than fundamental approaches to learning. Many teachers are unaware of freedoms in the current framework and fear that innovation might compromise performance in inspection and high-stakes tests.

Nevertheless, some common features are emerging from our work on curriculum futures. We are seeing greater engagement and participation where schools take time to listen to pupils and respond by offering greater choice and a more tailored curriculum. Others are making a difference by breaking out of the routine of the traditional timetable and providing immersive experiences, often involving experts from outside the school to inspire and motivate learners.

We will share these stories with you in a series of publications and an online innovation gallery

in 2006. The lessons we learn will influence QCA's work reviewing key stage 3 and developing qualifications and assessment. It will inform our future advice to government.

If you have an innovation story you would like to contribute please email us at futures@qca.org.uk.

Get involved and have your say

We welcome your response to the ideas put forward in this booklet and the 'QCA futures: meeting the challenge' debate more generally. Please contribute your thoughts to the Futures online forum on the QCA website at www.qca.org.uk/futures/forum/.

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Appendix: Think pieces

To stimulate debate on the future curriculum, 18 educational commentators wrote 'think pieces' – brief articles expressing their views on how and why the curriculum should change.



Cary Bazalgette
Literacy and the media



Tim Brighouse
Accidents can happen



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About this booklet

This booklet sets out proposals for change to the curriculum in England, as recommended by participants in the 'QCA futures: meeting the challenge' subject summits 2005.

Views expressed in this report are those of 'QCA futures: meeting the challenge' summit participants and do not necessarily reflect those of QCA.

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