ICT, amenability and the BBC digital curriculum service in Scotland:

Becta's report to the DCMS

Report on the subjects and age ranges to be covered by the BBC in its Year 1 commissioning plans for Scotland

Becta

British Educational Communications
and Technology Agency

Foreword

I am pleased to present Becta's report to the Secretary of State for Culture, Media and Sport on ICT, amenability[1] and the BBC digital curriculum service in relation to Scotland and with reference to the 5–14 national guidelines for Scotland. This report sits alongside equivalent reports for England, Northern Ireland and Wales, with reference to their own curricula and circumstances.

The report is the outcome of work carried out by Becta as part of the approval conditions for the BBC digital curriculum service presented in the Schedule to the Secretary of State's decision letter of 8 January 2003, in particular condition 7. The report sets out in detail the principles and criteria Becta has used to develop a practical process for determining which learning outcomes are amenable to being taught by ICT in the context of the digital curriculum service, and the activities Becta has undertaken in reaching its conclusions.

The report should be seen in the broader context of the totality of the approval conditions. Becta has acted in the knowledge and spirit of the approval conditions, recognising that permission to develop such a service has been given in expectation that it can serve learners and teachers through distinctive and innovative approaches and the exploitation of the BBC's rich media archive.

Becta has worked in close collaboration with its stakeholders in order to develop a process for determining amenability that is appropriate to the needs of learners and teachers. I would like to record our thanks to all those who have contributed to this work, particularly the companies that took part in Becta's consultation with the commercial sector, and Learning and Teaching Scotland for its support and detailed advice in relation to the 5-14 guidelines .

The annex to the report contains Becta's verdicts on the amenability of learning outcomes to being taught by ICT in the subjects to be resourced by the digital curriculum service in its first year. It is Becta's intention to supplement this report periodically as we consider the remaining subjects to be resourced through to 2008. The supplements will provide an opportunity to review amenability as necessary, given the likelihood that it will change as technology and practice develop.

Becta has very much welcomed the opportunity to undertake this work and we view it as a key element in a coherent overarching strategy to improve the availability and use of high-quality digital content. We look forward to continuing to work effectively with our stakeholders on this important issue.

Owen Lynch
Chief Executive Becta

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[1] Amenable or amenability: for the purposes of this exercise and in this context, amenable or amenability is taken to mean the extent to which something could be learnt or taught through or with the use of ICT.

1. Introduction

The BBC first put forward the concept of a 'digital curriculum service' in 2000. A period of discussion and debate with interested parties followed. The BBC sought approval for its final version from the Department of Culture, Media and Sport (DCMS) on 3 May 2002. The proposals were given detailed consideration, which included assessment of the potential market impact and also took into account various market features, such as the ongoing provision of electronic learning credits (eLCs) to schools in England via Curriculum Online. Following public consultation, the Rt Hon Tessa Jowell MP, Secretary of State for Culture, Media and Sport, gave consent to the BBC digital curriculum service, subject to limits and constraints, on 9 January 2003. The European Commission gave clearance in September 2003.

The BBC digital curriculum service will provide a multimedia online resource, consisting of content and a limited learning platform. It will be based on current UK curricula and is intended for use by learners at home and school. It will be formally launched in January 2006.

In general, the Secretary of State has required the BBC digital curriculum service to:

- stimulate, support and reflect the diversity of the UK

- innovate continually and to promote technological and pedagogical experimentation

- be distinctive from, and complementary to, services provided by the commercial sector.

Among other things, the BBC is required to:

- cover up to a maximum of 50% of learning outcomes in each subject amenable[1] to being taught by ICT. The remit for deciding which outcomes are amenable in this context has been placed with Becta

- spend a maximum of 22% on core subjects and a maximum of 30% on non-core subjects in each year

- spend a minimum of 26% on resources for the nations and Welsh translations and a minimum of 22% on minority subjects overall

- spend an average of 50% of its content budget over five years on commissioning work from external suppliers

- publish commissioning plans according to the DCMS schedule

- make 'clear and prominent reference' to other sources of supply when promoting the BBC digital curriculum service.

The Secretary of State will review the service within two years of its launch. This review will include an independent assessment of the BBC digital curriculum service's impact on the market and a public consultation.

Further information about the digital curriculum service can be obtained from the Department of Culture, Media and Sports and the BBC websites.

- details of the BBC's application and the associated consultation process can be found on the Department of Culture, Media and Sport website at: **http://www.culture.gov.uk/CREATIVE/ digital_curriculum.html.**

- latest information from the BBC and the activities within the digital curriculum service can be found on the **http://www.bbc.co.uk/info/policies/digital_curriculum.shtml.**

- the letter from Tessa Jowell, Secretary of State, to the BBC approving the proposal can be found on the Department of Culture, Media and Sports website at: **http://www.culture.gov.uk/global/press_ notices/archive_2003/dcms04_2003.html.** The schedule attached to the letter sets out the constraints and limits on the BBC and includes Becta's remit for determining amenability (condition 7).

[1] *Amenable or amenability: for the purposes of this exercise and in this context, amenable or amenability is taken to mean the extent to which something could be learnt or taught through or with the use of ICT.*

2. Becta's remit

The Department of Culture, Media and Sport asked Becta to take on responsibilities in relation to the BBC's proposed digital curriculum service. In particular Becta is tasked with adjudicating in the question of amenability as set out in condition 7 of the DCMS conditions for the approval of the digital curriculum service:

The BBC must not produce resources covering more than 50% of those learning outcomes amenable to being taught by ICT. Since the proportion of learning outcomes amenable to being taught by ICT will vary from subject to subject and over time, the BBC must consult Becta as to which learning outcomes are so amenable in each subject. In the event of a dispute as to whether or not a particular learning outcome is amenable to being taught by ICT, Becta will have the final judgement. In reaching such a judgement, Becta will be looking to maximise the use of ICT in delivering the curriculum.

The judgements reached by Becta about which aspects of the national curricula 'are' and 'are not' amenable to ICT have potential relevance beyond the immediate exercise. The requirement that the BBC must not cover more than 50% of the amenable outcomes in any subject will limit the extent of BBC coverage of the national curricula for each subject and at each key stage (or equivalent age range in the UK countries). The findings on amenability and the issues relating to the 50% limit could also potentially influence how we view pedagogic practice with ICT as well as impacting on the education suppliers' market. Becta does not underestimate the relevance of the judgements to the commercial sector and the potential commercial impact. The decision to allow the BBC to make available a large number of potentially high-quality, free resources in a commercial market is significant.

While this report focuses on condition 7 of the DCMS conditions for the approval of the digital curriculum service, there are, it should be noted, other interrelated conditions which place additional constraints on the BBC. For example, condition 4 states:

The service must innovate continually, and exploit the extensive archives of the BBC and its media-rich resources, and promote technological and pedagogical experimentation. The service, taken as a whole, should be distinctive from and complementary to services provided by the commercial sector.

This condition, along with others, illustrates that ICT amenability is one aspect of a multi-faceted approval framework to which the BBC is bound by the DCMS conditions.

3. Becta's response to the remit

In carrying out its DCMS remit, Becta has sought at all times to act in accordance with the spirit of the Secretary of State's intentions as set out in the letter of approval of 9 January, 2003 and in a fair and transparent way. Becta has acted without prejudice or bias in reaching judgements about ICT amenability and when dealing with stakeholders, while seeking to promote the effective use of ICT and e-learning in education.

Becta has a key role in the strategic development of ICT in learning and teaching. As such the research, information and advice it disseminates form part of a coherent vision for the development of ICT. This vision is based on key underpinning beliefs, derived from the available evidence, about the nature of learning and teaching with ICT. From these, Becta has developed principles specific to the work it has taken on in relation to amenability:

- that ICT can, used effectively, support the learner in achieving learning outcomes

- that ICT is in the main best applied to give concrete representation to abstract ideas, rather than as an abstract alternative to tangible, real-life experience where this is appropriate and readily available

- that ICT alone does not provide the range of learning experiences that amounts to a broad and balanced curriculum, and that a variety of ICT-based and non-ICT-based resources should be employed in the effective delivery of a curriculum

- that even though an amenable learning outcome can be learnt or taught via ICT, this does not imply that it *should* be taught by ICT

- that 'structure and balance' recommendations should be taken fully into account when planning digital curriculum service resources (in terms of recognising the scope of ICT in the Scottish curriculum)

- that, wherever possible, resources should provide opportunities for learners to develop and apply their ICT capability

- that the role of ICT in learning and teaching should be sustainable for learners and teachers

- that materials developed using public money should take the interests of the individual UK nations fully into account while at the same time being shared where possible in order to make the best use of the investment

- that the particular needs of learners of the Gaelic language and in Gaelic-medium education are recognised and addressed as part of the commitment to minority languages and nations

- that materials developed with public money should be structured to allow inexpensive ongoing translation into the various languages of the UK, even after the originator's own work on them has ceased

- that the adoption of international standards and specifications is vital to the development of a sound market for e-learning content and resources. (This ensures that resources and content can be shared and moved between systems, and in the case of the BBC digital curriculum service will maximise the value of this public investment in e-learning.[2])

- that digital learning resources should be created and designed to be accessible, usable (and re-usable) and inclusive to meet the needs of end-users

- that amenability will change over time as technologies and practices evolve.

[2] *The Learning and Teaching Scotland content development guidelines should be made use of: http://www.ltscotland.org.uk/ about/guidelines/index.asp*

Becta's overriding principle is to best reflect the needs of UK learners. This implies on the one hand maximising the appropriate use of ICT, and on the other not encouraging the use of ICT for its own sake, or as the only means of teaching or learning. The BBC is encouraged to make use of the guidelines and information available on Becta's ICT Advice site at **www.ictadvice.org.uk/Scotland.**

4. Becta's approach to the task

Becta has developed its approach to the task through thorough consideration of the four UK national curricula and consultation with a wide variety of stakeholders. These include the curriculum authorities for the nations, teachers and others experienced in the use of ICT for teaching and learning, and the commercial sector. This report is one of four, which between them show the principles Becta has developed as they apply to all four UK curricula. As the BBC continues the roll out of its digital curriculum service, our dialogue with the appropriate curriculum bodies will continue.

For each nation, much of the information required to establish amenability and develop measures of '50%' is contained in custom and practice and national expectations. This is particularly true of the 50% measures. This work inevitably involves matters of professional judgement, and Becta will look to Learning and Teaching Scotland and the Scottish Executive Education Department for detailed advice when reviewing the BBC's commissioning plans for resources for Scotland.

4.1   Defining 'learning outcomes'

Becta needed to determine what is, for the purposes of this exercise, a 'learning outcome'. In particular, Becta wished to develop an approach that would be coherent across the four nations. In the case of the curriculum in Scotland, Becta, in consultation with Learning and Teaching Scotland, has opted to use the statements of learning outcomes associated with each strand and level within the Scottish 5–14 national guidelines as these set out the learning intentions.

However, Becta also recognises the force of a comment made in the commercial sector consultation:

'Learning outcomes, couched as they are in simple language, belie the complex nature of their origins and the challenges of their reconstruction into a coherent personalised programme of study.'

Becta notes that the Scottish curriculum is entering a period of review. The outcomes of the review process are likely to take some years to appear in terms of new or revised guidelines. Should the roll out of the digital curriculum service overlap with the emergence of new or revised guidelines, then Becta will consult with Learning and Teaching Scotland on determining amenability in relation to the new guidelines.

4.2   Defining 'ICT amenability'

ICT amenability is not a term that has a standard definition in education and so it has been necessary to develop a consensual understanding of what is meant by the term 'ICT amenability'. For this reason in developing its approach Becta has consulted with:

- expert practitioners
- the statutory curriculum bodies in each country [ACCAC in Wales, CCEA in Northern Ireland, Learning and Teaching Scotland in Scotland, QCA in England]
- the commercial sector (as defined by the list of Curriculum Online producers/suppliers held on Becta's database)[3].

Those consulted recognised that:

'establishing whether a learning outcome is, or is not, unambiguously ICT amenable is clearly problematic. Determining ICT amenability will depend on a number of factors, some of which are subjective in nature.'

(response from a major private sector company to Becta's consultation)

[3] In further consultations, Becta and Learning and Teaching Scotland will also consult the multimedia companies accredited for the NGfL Scotland content procurement framework agreement Stream 3.

4.3 Developing criteria for making judgements

As a first step, Becta consulted subject experts and asked them to consider the concept of ICT amenability 'in principle' – that is to say without taking into account any practical elements such as suitability, available technology, or appropriateness. Becta then considered criteria that could be used to determine which of the learning outcomes deemed amenable in principle were also amenable in practice, within the context of the proposed BBC digital curriculum service. These criteria were the subject of consultation and were posted on the Becta website on 6 July 2004.

In general, those consulted welcomed 'the systematic approach that Becta is seeking to apply to the concept of amenability.' (Response from private sector company)

It was also commented that 'the criteria to be used must be as objective as possible, to the extent that one would expect different panels applying the criteria to a particular outcome to produce the same yes/no answer.' (Response from private sector company)

As a result of the consultation, Becta developed the following criteria for judging ICT amenability within the context of this exercise:

4.3.1 Amenable learning outcomes should be generally suitable for the online medium of the proposed BBC digital curriculum service.

For the purposes of this exercise the term 'ICT amenable' is used to refer to digital assets, applications and tools that:

- can be accessed online (in real time) or in cached format from a local server (for example in a school network)

- can be used by a teacher or learner with a reasonable level of ICT capability, based on the expected outcomes for the New Opportunities Funded training for teachers[4] and the appropriate expectations within the relevant ICT curriculum for learners.

4.3.2 The technologies required to exploit the resources available in the proposed BBC digital curriculum service should be generally accessible and affordable.

For the purposes of this exercise the term 'accessible and affordable technology' is used to mean technologies (commercially or freely available) that have potential for general adoption within the school and home environment within the timeframe of the proposed development.

For example, it would be possible to produce a downloadable software voice recorder music tool which could be made generally available. This would then require the use of a microphone. Such technology is both accessible and affordable.

However, it is also possible to produce downloadable assets and applications that require the use of sophisticated equipment such as high-end heart-monitoring equipment or sophisticated industry-standard software such as that used to produce realistic three-dimensional animations. These types of technologies are not generally accessible and affordable for schools and homes.

Becta considered taking a more restrictive view, limiting the BBC's proposed development to those technologies that are *currently* available in the majority of schools and homes. After due consideration, it was decided that this restriction could unduly hinder the BBC's ability to innovate. Becta believes that a key aspect of the 'distinctiveness' of the BBC's offering could include support for, and promotion of, emerging technologies and practices.

[4] *Becta believes that the existing expected outcomes provide a reasonable basis for making decisions on what might be expected of teachers' ICT capability and that anything less demanding would unduly restrict the BBC's ability to innovate.*

4.3.3 The use of ICT should be fit for purpose and appropriate in terms of pupil age and need, the use of time, and effectiveness.

For the purposes of this exercise the terms 'fit for purpose' and 'appropriate' are used to mean ICT-based activities that offer an authentic, meaningful way of developing children's knowledge, skills and understanding of the subject matter.

Certain aspects of children's learning depend largely on their physical experience of 'real world' phenomena. For example, an understanding of the concept of 'temperature' is built on practical experiences of, for instance, touching cold, tepid and warm water and experiencing subsequent physical reactions. It is not possible to develop a full, meaningful understanding and experience of the concept of temperature through a purely ICT-based activity. This contrasts with the use of ICT, for example, to make patterns visible within abstract data, which is fit for purpose and appropriate. In essence, Becta believes that ICT is generally best applied to make concrete representations of abstract ideas, rather than as an abstract alternative to concrete, real-life experience, where this is appropriate and available.

For the purpose of this exercise, activities not considered fit for purpose include:

- activities on screen whose principal aim is to substitute for activity that could better be addressed through physical, concrete experience and where that physical, concrete experience reflects sounder pedagogy
- activities which introduce an unrealistic, additional burden on learners or teachers in terms of the ICT skills needed or the time taken.

In relation to any resources planned by the BBC for pupils with additional support needs, Becta recognises that consideration should be given to amenability in terms of the specific needs and requirements of these pupils. Given that additional support needs cover a spectrum of need, it is difficult to make specific judgements in advance of learning more from the BBC about the approach it will take in any particular case. In these cases Becta will engage in dialogue with the BBC, take further advice as required, and make any appropriate refinements to its view on amenability in a particular subject.

4.3.4 The ICT-amenable learning outcomes, taken together, should provide the basis of a coherent offering for a particular curricular area, age and stage.

Some learning outcomes taken in isolation and considered out of context would appear not to be amenable to ICT. Examples from the 5–14 guidelines include:

Pupils show the ability to plan ahead, select and organise their work, and control materials in order to solve a specified problem or task
Expressive arts 5–14, Art and design, level C

Pupils should be able to describe changes that have led to present circumstances, give reasons why these changes took place, and give examples of continuity to their own lives.
Environmental studies 5–14, People and place, level B

However, such learning outcomes address key aspects of the subject and describe 'holistic' or 'integrated' skills that are part of effective learning in that subject. Other examples include the skills of enquiry and investigation in science, and of listening, performing and composing in music. These holistic or integrated skills are part and parcel of a meaningful learning experience and when combined with the other learning outcomes constitute a coherent offering.

For the purposes of this exercise, it is appropriate, therefore, to judge learning outcomes which address holistic or integrated skills as amenable to ICT. This allows the BBC to address the outcomes that represent the holistic skills of the subject, ensuring that the proposed BBC materials are coherent and pedagogically sound. Becta considers it inappropriate to rule these out as doing so would require the BBC to produce unsound materials. These holistic skills are also the most likely to be required by the curricula of all four nations, and, where it does not interfere with the development of materials that address the distinctive needs of the individual UK nations, Becta would wish to encourage the development of materials that can be shared by all.

The structure and balance recommendations in the Scottish curriculum 5–14 national guidelines cannot, in Becta's view, be assessed for amenability. These recommendations refer to the overall range of experiences that learners should encounter through the age range concerned. However, the BBC must take these requirements into account in their planning. The structure and balance recommendations help to clarify the correct balance of learning experiences in the curriculum, and so can help to provide a clearer view of the appropriate scope of ICT in the curricular area and level concerned. The resources developed by the BBC should be in line with the structure and balance recommendations.

4.4 Other aspects of amenability

For the purpose of fulfilling the DCMS remit, Becta has considered the question of ICT amenability of learning outcomes on a case-by-case basis, in order to judge which learning outcomes are and are not amenable in this context. Those judged to be not amenable lie outside the scope of the proposed BBC digital curriculum service.

Becta maintains that any judgements reached on the ICT amenability of learning outcomes are made for the purposes of this exercise only and are restricted to use in this context. Any judgements made by Becta do not imply that 'amenable' learning outcomes should be taught by ICT, nor do they imply any view on *how much* ICT is appropriate for any level in any curricular area.

Indeed, Becta recognises that a curriculum should not be learned or taught solely via ICT, as ICT resources alone do not provide the range of learning experiences that amount to a broad and balanced curriculum. Even where it may find a subject to be wholly amenable in relation to the learning outcomes considered, Becta does not wish to suggest or imply in any way that a subject could or should be resourced entirely by ICT. For all subjects, an appropriate balance should be struck between the time pupils spend working at the screen, and the time spent elsewhere.

In addition, while a learning outcome may be judged amenable, it is still the case that any particular learning or teaching resource developed may or may not be effective and appropriate. Becta strongly recommends that the BBC, as it moves forward with its planning, takes account of the advice provided in the sections of the 5–14 national guidelines on teaching and learning using ICT.

4.5 Determining the BBC's coverage of a maximum 50%

In general, the national guidelines in Scotland list holistic or integrated skills[5] of a curricular area separately from the statements that relate to relevant knowledge and understanding. Although this separation can be helpful for the purposes of planning and assessment, the two types of requirement are wholly integrated in terms of any teaching and learning activity. For this reason, to treat both types of requirement as countable towards the maximum 50% ruling would constitute 'double counting' of the underlying requirements in subjects such as science and mathematics. Therefore, the learning outcomes drawn from the curricula do not include these holistic or integrated skills for the purposes of determining the extent of the BBC's 50% coverage and the BBC is free to treat these skills in their resources.

4.6 The primary intentions of BBC digital curriculum service resources

Becta recognises that it is both impossible and undesirable to prevent creative teachers from utilising a resource aimed at one learning outcome to support another. For example, a creative teacher may choose to use a music resource to help teach sound within the science curriculum or a resource targeted at one level could be used to support learners with additional needs at a different level.

For this reason Becta proposes that the BBC's primary intended purposes for any resource form the basis of calculating 50% of the learning outcomes for any subject at any age.

4.7 The BBC's right to appeal

The learning outcomes for each subject at each age range that meet these criteria will make up the amenable outcomes from which the BBC may select to produce resources that cover up to 50%. We note, however, that the DCMS remit allows the BBC to challenge Becta's decision where it feels it has evidence to show that a learning outcome is already, or might be made, amenable. Becta will deal swiftly with any individual appeal and in reaching judgement will look to maximise the use of ICT in learning and teaching.

[5] *Becta's judgement on how these types of outcome should be treated for the purpose of defining ICT amenability is dealt with in 4.3.4.*

In indicating how 50% of amenable learning outcomes is to be measured in each subject, no comment is implied as to which outcomes the BBC should cover. However, Becta would wish to draw the BBC's attention to particular features of the current digital content market and sources of information.

For much of the curriculum the commercial sector has already produced well-received material, which the BBC is no doubt considering very carefully. Becta would wish to endorse a key message of its recent consultation with the commercial sector that this investment of public money is best placed in breaking new ground and extending the use of ICT: that is, in creating resources for currently under-resourced areas of the curriculum and for developing innovative and experimental approaches to extending and deepening learning through ICT.

The BBC will also want to consider the current use of ICT in schools and homes and how this can be developed and extended. For schools in Scotland, information from the reports of Her Majesty's Inspectorate of Education and other sources such as the Scottish Executive Education Department, Becta and Learning and Teaching Scotland themselves will be of great value, and Becta would wish to encourage the BBC to seek out and use such sources. Further, as discussed in the remit from DCMS, the BBC will wish to give close attention to the recommendations of the Curriculum Online Content Advisory Board and any Scottish equivalent recommendations as these are released over time.

Annex

5–14 National Guidelines for Scotland: amenability for subjects and age ranges in the BBC's Year 1 commissioning plans.

1a)   **English Language 5–14, age range 5–7, levels A–B**

The attainment targets (outcomes) for the English Language 5–14 guidelines are organised into four sections: listening, talking, reading and writing. The attainment targets have been examined for amenability.

In the listening and talking sections, one might consider the majority of these targets non-amenable if taken in isolation and out of context. While it would be difficult to argue that the requirements under these headings could be taught via ICT, it is clear that ICT might be used to support and extend learning. Furthermore, these requirements address key aspects of the subject, and describe 'holistic' or 'integrated' skills that are part of effective learning in the subject. Given these considerations, it is appropriate to judge these learning outcomes as amenable to ICT.

Measuring 50%

The set of attainment targets (outcomes) is large enough to provide a reasonable basis for measuring the 50% in terms of amenable outcomes.

Amenability statement

The following outcomes are judged to be **not** amenable:

- Talk to others in a group led by a known adult or in one-to-one activities, and with support contribute to the purpose of the activity (A)

- Talk to others in a group led by a known adult or in one-to-one activities, and contribute appropriately to the purpose of the activity by responding when prompted by the adult (B)

- Listen to others in group or one-to-one activities in order to establish relationships, and respond by contributing, with support, to the purpose of the activity (A) Listen to others in group or one-to-one activities and respond by making a relevant comment (B)

- Form letters and space words legibly for the most part (A)
  Form letters and space words legibly in linked script (B)

In this case, as elsewhere, Becta's judgement on the amenability of learning outcomes should not be interpreted as a requirement or recommendation that they should be taught or supported by ICT-based resources.

Context

For the purpose of fulfilling the DCMS remit, Becta has considered the question of ICT amenability of learning outcomes on a case-by-case basis, in order to judge which learning outcomes are and are not amenable in this context. Those judged to be not amenable lie outside the scope of the proposed BBC digital curriculum service.

Becta maintains that any judgements reached on the ICT amenability of learning outcomes are made for the purposes of this exercise only and are restricted to use in this context. Any judgements made by Becta do not imply that 'amenable' learning outcomes *should* be taught by ICT, nor do they imply any view on *how much* ICT is appropriate for any age range in any subject.

Indeed, Becta recognises that a curriculum should not be learned or taught solely via ICT, as ICT resources alone do not provide the range of learning experiences that amount to a broad and balanced curriculum. Even where it may find a subject to be wholly amenable in relation to the learning outcomes considered, Becta does not wish to suggest or imply in any way that a subject could or should be resourced entirely by ICT. For all subjects, an appropriate balance should be struck between the time pupils spend working at the screen, and the time spent elsewhere.

In addition, while a learning outcome may be judged amenable, it is still the case that any particular learning or teaching resource developed may or may not be effective and appropriate. Becta strongly recommends that the BBC, as it moves forward with its planning, takes account of the advice provided in the sections of the 5-14 national guidelines on teaching and learning using ICT.

1b) Environmental studies (geographical study – people and place), age range 5–11, levels A–D

Geographical study (knowledge and understanding: people and place) within the Environmental studies guidelines is developed through four strands:

- Using maps
- The physical environment
- The human environment
- Human-physical interactions.

Across the strands that deal specifically with geographical study are the *skills* and *developing informed attitudes* strands. These are expected to be integrated across the different areas of study, and as such are regarded as holistic in nature (see section **4.3.4**).

At first sight one might regard as non amenable an attainment target (outcome) such as:

Compare and contrast their daily routine with children elsewhere and identify everyday links between Scotland and other countries, e.g. food we eat, schools

(The human environment, level B)

However, ICT-mediated resources might reasonably be developed to support, consolidate and extend this learning.

Measuring 50%

The requirements for environmental studies (geographical study) form a set of holistic or integrated skills as described in section **4.3.4**. As stated in section **4**, much of the information required to establish the 50% measures is contained in custom and practice and national expectation. Becta will look to Learning and Teaching Scotland for detailed advice when reviewing the BBC's commissioning plans for resources in environmental studies (geographical study).

Amenability statement

There are no outcomes judged to be **not** amenable in the environmental studies (knowledge and understanding – people and place) guidelines (levels A–D).

In this case, as elsewhere, Becta's judgement on the amenability of learning outcomes should not be interpreted as a requirement or recommendation that they should be taught or supported by ICT-based resources.

Context

For the purpose of fulfilling the DCMS remit, Becta has considered the question of ICT amenability of learning outcomes on a case-by-case basis, in order to judge which learning outcomes are and are not amenable in this context. Those judged to be not amenable lie outside the scope of the proposed BBC digital curriculum service.

Becta maintains that any judgements reached on the ICT amenability of learning outcomes are made for the purposes of this exercise only and are restricted to use in this context. Any judgements made by Becta do not imply that 'amenable' learning outcomes *should* be taught by ICT, nor do they imply any view on *how much* ICT is appropriate for any age range in any subject.

Indeed, Becta recognises that a curriculum should not be learned or taught solely via ICT, as ICT resources alone do not provide the range of learning experiences that amount to a broad and balanced curriculum. Even where it may find a subject to be wholly amenable in relation to the learning outcomes considered, Becta does not wish to suggest or imply in any way that a subject could or should be resourced entirely by ICT. For all subjects, an appropriate balance should be struck between the time pupils spend working at the screen, and the time spent elsewhere.

In addition, while a learning outcome may be judged amenable, it is still the case that any particular learning or teaching resource developed may or may not be effective and appropriate. Becta strongly recommends that the BBC, as it moves forward with its planning, takes account of the advice provided in the sections of the 5-14 national guidelines on teaching and learning using ICT.

1c) Environmental studies (historical studies – people in the past), age range 5–11, levels A–D

The guidelines for 5–14 (historical studies) are organised into four strands:

- People, events and societies of significance in the past
- Change and continuity, cause and effect
- Time and historical sequence
- The nature of historical evidence.

Together, these strands and the attainment targets they contain describe a set of holistic or integrated knowledge and skills of the type described in section **4.3.4** above. Since pupils develop these in the context of each other – for example, *time and historical sequence in the context of change and continuity, cause and effect* – to require the BBC digital curriculum service to deal with some of them but not others would be to require it to produce pedagogically unsound resources.

Measuring 50%

The requirements for environmental studies (historical studies) form a set of holistic or integrated skills as described in section **4.3.4.** As stated in section **4**, much of the information required to establish the 50% measures is contained in custom and practice and national expectation. Becta will look to Learning and Teaching Scotland for detailed advice when reviewing the BBC's commissioning plans for resources in environmental studies (historical studies).

Amenability statement

Based on both the inspection of individual outcomes and an assessment of the role of ICT in the holistic development of skills in relation to *knowledge and understanding – people in the past,* Becta judges that there are no outcomes that are not amenable in the environmental studies guidelines (knowledge and understanding – people in the past) at levels A–D.

In this case, as elsewhere, Becta's judgement on the amenability of learning outcomes is restricted to the purposes of this exercise and should not be interpreted as a requirement or recommendation that they should be taught or supported by ICT-based resources.

Context

For the purpose of fulfilling the DCMS remit, Becta has considered the question of ICT amenability of learning outcomes on a case-by-case basis, in order to judge which learning outcomes are and are not amenable in this context. Those judged to be not amenable lie outside the scope of the proposed BBC digital curriculum service.

Becta maintains that any judgements reached on the ICT amenability of learning outcomes are made for the purposes of this exercise only and are restricted to use in this context. Any judgements made by Becta do not imply that 'amenable' learning outcomes *should* be taught by ICT, nor do they imply any view on *how much* ICT is appropriate for any age range in any subject.

Indeed, Becta recognises that a curriculum should not be learned or taught solely via ICT, as ICT resources alone do not provide the range of learning experiences that amount to a broad and balanced curriculum. Even where it may find a subject to be wholly amenable in relation to the learning outcomes considered, Becta does not wish to suggest or imply in any way that a subject could or should be resourced entirely by ICT. For all subjects, an appropriate balance should be struck between the time pupils spend working at the screen, and the time spent elsewhere.

In addition, while a learning outcome may be judged amenable, it is still the case that any particular learning or teaching resource developed may or may not be effective and appropriate. Becta strongly recommends that the BBC, as it moves forward with its planning, takes account of the advice provided in the sections of the 5-14 national guidelines on teaching and learning using ICT.

1d)   Mathematics 5–14, age range 5–7, levels A–C

The guidelines for mathematics 5–14 are organised into four sections:

- Problem-solving and enquiry
- Information handling
- Number, money and measurement
- Shape, position and movement.

Of these sections, the attainment targets (outcomes) presented in *problem-solving and enquiry* are judged to be of the type described in section **4.3.4** above, for which good pedagogy requires that they should be taught and learnt in an integrated way. These then are considered to be amenable for the purposes of this exercise but, as detailed in section **4.5**, will not be included when determining the question of 50% coverage.

The remaining outcomes have been examined for amenability. For many of these, appropriate learning and teaching requires first-hand physical exploration and experience of the real world as described in section **4.3.3**. An example of this is:

Classify shapes by simple properties.
Mathematics 5–14 national guidelines, p38

It would not be fitting or appropriate to introduce the teaching and learning of this type of aspect of mathematics through an ICT medium. However, it is feasible that an ICT-based resource might be used to consolidate and apply understanding of the previously learnt concepts.

As the guidelines mention:

Many of the best activities for this purpose [developing the underlying concepts] will require some problem-solving and enquiry skills. (Mathematics 5–14 national guidelines p10)

The BBC has made it clear to Becta that in developing resources for mathematics at age 5–7 it intends to focus on developing skills of problem solving, and using and applying knowledge and understanding rather than the teaching of concepts. It is in this sense, then, that the amenability of the learning outcomes has been determined as shown below. However, mathematics in this age range is not considered entirely amenable: there are some outcomes where using and applying knowledge or problem solving would most appropriately be done through a concrete, real-world experience.

Measuring 50%

The BBC may select up to 50% of those outcomes judged to be amenable by Becta. For the purposes of determining 50%, the *problem-solving and enquiry* outcomes in mathematics are not included in the equation, as this would constitute double counting (see **4.5**). Those outcomes judged to be not amenable are listed below.

Amenability statement

The following outcomes are judged to be **not** amenable:

Measure and estimate (levels A-C)

- Measure in convenient non-standard units; measure in easily handled standard units; measure in standard units

- Estimate length; realise that length can be conserved; select appropriate measuring devices and units

Context

For the purpose of fulfilling the DCMS remit, Becta has considered the question of ICT amenability of learning outcomes on a case-by-case basis, in order to judge which learning outcomes are and are not amenable in this context. Those judged to be not amenable lie outside the scope of the proposed BBC digital curriculum service.

Becta maintains that any judgements reached on the ICT amenability of learning outcomes are made for the purposes of this exercise only and are restricted to use in this context. Any judgements made by Becta do not imply that 'amenable' learning outcomes *should* be taught by ICT, nor do they imply any view on *how much* ICT is appropriate for any age range in any subject.

Indeed, Becta recognises that a curriculum should not be learned or taught solely via ICT, as ICT resources alone do not provide the range of learning experiences that amount to a broad and balanced curriculum. Even where it may find a subject to be wholly amenable in relation to the learning outcomes considered, Becta does not wish to suggest or imply in any way that a subject could or should be resourced entirely by ICT. For all subjects, an appropriate balance should be struck between the time pupils spend working at the screen, and the time spent elsewhere.

In addition, while a learning outcome may be judged amenable, it is still the case that any particular learning or teaching resource developed may or may not be effective and appropriate. Becta strongly recommends that the BBC, as it moves forward with its planning, takes account of the advice provided in the sections of the 5-14 national guidelines on teaching and learning using ICT.

1e) Modern languages 5–14, age range 11–14, levels C–F

The nature of language learning is such that there is constant interplay between different skills. While it is possible to focus on one aspect of language learning at a particular time, other skills inevitably come into play. Otherwise the language learning experience would be unnaturally distorted.

The guidelines for modern languages at levels C–F are structured in four sections:

- Listening
- Speaking
- Reading
- Writing.

Together, the attainment targets (outcomes) within these sections comprise a set of 'holistic' or 'integrated' skills of the type described in section **4.3.4**. Since pupils develop these skills in the same contexts – for example, 'writing in an appropriate format providing information asked for' may well be carried out in the context of '[reading] and [understanding] short texts' (which contain the information required) – to require the BBC digital curriculum service to deal with up to 50% of these, but not deal with the others, would be to require it to produce pedagogically unsound resources.

We note, however, that some outcomes are not amenable – in particular:

Listen and react to others, including native-speakers, non verbally and verbally
Listening, Listening and reacting to others

This outcome is considered non-amenable in this context of listening and speaking, though would be amenable in the context of writing, for instance to establish personal contact with a native speaker in another country. It is possible that developments in technology will alter this position, and this outcome may be reviewed at some point in the future.

Measuring 50%

The requirements for modern languages form a set of holistic or integrated skills as described in section **4.3.4**. As stated in section **4**, much of the information required to establish the 50% measures is contained in custom and practice and national expectation. Becta will look to Learning and Teaching Scotland for detailed advice when reviewing the BBC's commissioning plans for resources in modern languages.

Amenability statement

The following outcome is judged to be **not** amenable (in the context of listening and speaking):

Listen and react to others, including native speakers, non-verbally and verbally

Context

For the purpose of fulfilling the DCMS remit, Becta has considered the question of ICT amenability of learning outcomes on a case-by-case basis, in order to judge which learning outcomes are and are not amenable in this context. Those judged to be not amenable lie outside the scope of the proposed BBC digital curriculum service.

Becta maintains that any judgements reached on the ICT amenability of learning outcomes are made for the purposes of this exercise only and are restricted to use in this context. Any judgements made by Becta do not imply that 'amenable' learning outcomes *should* be taught by ICT, nor do they imply any view on *how much* ICT is appropriate for any age range in any subject.

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In addition, while a learning outcome may be judged amenable, it is still the case that any particular learning or teaching resource developed may or may not be effective and appropriate. Becta strongly recommends that the BBC, as it moves forward with its planning, takes account of the advice provided in the sections of the 5-14 national guidelines on teaching and learning using ICT.

1f) Expressive arts 5–14: music, age range 5–11, levels A–D

The outcomes for music are organised into three broad themes:

- Using materials, techniques, skills and media
- Expressing feelings, ideas, thoughts and solutions
- Evaluating and appreciating

Each of these broad themes contain strands which delineate elements contributory to the theme as a whole; for example, the strands within **Expressing feelings, ideas, thoughts and solutions** are *Creating and designing and Communicating and presenting*.

Together, the outcomes and their strands describe a set of holistic skills of the type described in section **4.3.4** above. Since pupils develop these skills in the context of each other, for example, *using instruments in the context of communicating and presenting*, to require the BBC digital curriculum service to deal with some of them but not others would be to require it to produce pedagogically unsound resources.

One strand in particular, taken in isolation, would appear not to be amenable. This is *Using the voice* at level B:

Show a greater ability to sing in tune with others … control rhythm, speed and leaps in melody

However, ICT-based resources might reasonably be developed that will support the teaching and learning of singing, for example by stimulating interest, modelling possibilities and offering opportunities for reflection and analysis. We understand that the BBC is currently planning resources of this kind.

Measuring 50%

The requirements for music form a set of holistic or integrated skills as described in section **4.3.4**. As stated in section **4**, much of the information required to establish the 50% measures is contained in custom and practice and national expectation. Becta will look to Learning and Teaching Scotland for detailed advice when reviewing the BBC's commissioning plans for resources in music.

Amenability statement

Based on both the inspection of individual outcomes and an assessment of the role of ICT in the holistic development of skills in music, Becta judges that there are no outcomes in the programme of study for music in Scotland (levels A–D) that are not amenable to ICT.

In this case, as elsewhere, Becta's judgement on the amenability of learning outcomes is restricted to the purposes of this exercise and should not be interpreted as a requirement or recommendation that they should be taught or supported by ICT-based resources.

Context

For the purpose of fulfilling the DCMS remit, Becta has considered the question of ICT amenability of learning outcomes on a case-by-case basis, in order to judge which learning outcomes are and are not amenable in this context. Those judged to be not amenable lie outside the scope of the proposed BBC digital curriculum service.

Becta maintains that any judgements reached on the ICT amenability of learning outcomes are made for the purposes of this exercise only and are restricted to use in this context. Any judgements made by Becta do not imply that 'amenable' learning outcomes *should* be taught by ICT, nor do they imply any view on *how much* ICT is appropriate for any age range in any subject.

Indeed, Becta recognises that a curriculum should not be learned or taught solely via ICT, as ICT resources alone do not provide the range of learning experiences that amount to a broad and balanced curriculum. Even where it may find a subject to be wholly amenable in relation to the learning outcomes considered, Becta does not wish to suggest or imply in any way that a subject could or should be resourced entirely by ICT. For all subjects, an appropriate balance should be struck between the time pupils spend working at the screen, and the time spent elsewhere.

In addition, while a learning outcome may be judged amenable, it is still the case that any particular learning or teaching resource developed may or may not be effective and appropriate. Becta strongly recommends that the BBC, as it moves forward with its planning, takes account of the advice provided in the sections of the 5-14 national guidelines on teaching and learning using ICT.

1g)   **Religious and moral education 5–14, age range 7–11, levels A–D**

The guidelines present sections on **Christianity, Other world religions** and **Personal search**. Within each of these are a number of strands that contain attainment targets (outcomes). These targets within the strands have been assessed for amenability. The strands are deeply interrelated, for example, in **Personal search**, an attainment target such as:

Pupils will recognise that there are different points of view
Personal Search, Ultimate Questions (level B)

it is likely that knowledge from the common strands of **Christianity** and **Other world religions** will contribute to a pupil's attainment of this target.

Together the attainment targets in the strands of the guidelines describe holistic or integrated skills and knowledge of the type described in section **4.3.4.** Since pupils develop these skills and knowledge in the context of each other, to require the BBC digital curriculum service to deal with some of them but not others would be to require it to produce pedagogically unsound resources.

Measuring 50%

The requirements for religious and moral education form a set of holistic or integrated skills as described in section **4.3.4.** As stated in section **4**, much of the information required to establish the 50% measures is contained in custom and practice and national expectation. Becta will look to Learning and Teaching Scotland for detailed advice when reviewing the BBC's commissioning plans for resources in religious and moral education.

Amenability statement

Based on both the inspection of individual outcomes and an assessment of the role of ICT in the holistic development of skills in religious and moral education, Becta judges that there are no attainment targets within the guidelines (levels A–D) that are not amenable to ICT.

In this case, as elsewhere, Becta's judgement on the amenability of learning outcomes is restricted to the purposes of this exercise and should not be interpreted as a requirement or recommendation that they should be taught or supported by ICT-based resources.

Context

For the purpose of fulfilling the DCMS remit, Becta has considered the question of ICT amenability of learning outcomes on a case-by-case basis, in order to judge which learning outcomes are and are not amenable in this context. Those judged to be not amenable lie outside the scope of the proposed BBC digital curriculum service.

Becta maintains that any judgements reached on the ICT amenability of learning outcomes are made for the purposes of this exercise only and are restricted to use in this context. Any judgements made by Becta do not imply that 'amenable' learning outcomes *should* be taught by ICT, nor do they imply any view on *how much* ICT is appropriate for any age range in any subject.

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In addition, while a learning outcome may be judged amenable, it is still the case that any particular learning or teaching resource developed may or may not be effective and appropriate. Becta strongly recommends that the BBC, as it moves forward with its planning, takes account of the advice provided in the sections of the 5-14 national guidelines on teaching and learning using ICT.

1h)   **Environmental studies: science (5–14), age range 7–11, levels A–D**

Skills in science – investigating lists a group of related 'holistic' or 'integrated' skills of scientific investigation. These skills are judged to be of the type described in section **4.3.4** above, for which good pedagogy requires that they should be taught and learnt in an integrated way. These then are considered to be amenable for the purposes of this exercise but, as detailed in section **4.5**, will not be included when determining the question of 50% coverage.

The outcomes in the *Knowledge and understanding* sections have been examined for amenability. For many of these, appropriate learning and teaching requires first hand physical exploration and experience of the real world as described in section **4.3.3**. An example of this is:

Pupils are able to make observations of differences in the properties of common materials
Knowledge and understanding – Materials from Earth (level B)

It would not be fitting or appropriate to introduce the teaching and learning of this type of aspect of science through the medium of ICT, since pupils' understanding in the abstract of patterns of behaviour of natural phenomena is founded on their personal physical experience of the real world. However, it is also the case that ICT-based resources might be used to consolidate, extend and apply understanding of these previously encountered concepts.

The BBC has made it clear to Becta that in developing resources for science in the 7–11 age range, it intends to focus on developing skills of problem solving, using and applying knowledge and understanding, and investigation rather than the teaching of concepts. It is in this sense, then, that the learning outcomes are considered amenable, and only to the extent that resources develop and apply experience that has come from the real world.

Measuring 50%

The BBC may select up to 50% of those outcomes judged to be amenable by Becta. For the purposes of determining 50%, only the outcomes in *Knowledge and understanding* in science need be counted; the *Skills in science – investigating* outcomes are regarded as holistic (see section **4.3.4**) and are not to be counted as part of the 50%.

Amenability statement

There are no outcomes judged to be **not** amenable at levels A–D in the environmental studies 5–14 guidelines for science.

Context

For the purpose of fulfilling the DCMS remit, Becta has considered the question of ICT amenability of learning outcomes on a case-by-case basis, in order to judge which learning outcomes are and are not amenable in this context. Those judged to be not amenable lie outside the scope of the proposed BBC digital curriculum service.

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In addition, while a learning outcome may be judged amenable, it is still the case that any particular learning or teaching resource developed may or may not be effective and appropriate. Becta strongly recommends that the BBC, as it moves forward with its planning, takes account of the advice provided in the sections of the 5-14 national guidelines on teaching and learning using ICT.