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

Becta's report to the DCMS

Report on the subjects and key stages to be covered by the BBC in its Year 1 commissioning plans for Wales

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 Wales and with reference to the National Curriculum for Wales. This report sits alongside equivalent reports for England, Northern Ireland and Scotland, 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 the Qualifications, Curriculum and Assessment Authority for Wales (ACCAC) for its support and detailed advice in relation to the National Curriculum for Wales.

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 also provide an opportunity to review ICT 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

[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 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's 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 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 Sport 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 can be found at **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 Sport 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 DCMS 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, it should be noted that there are other interrelated conditions which will 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 derived 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 make the abstract concrete, 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 curriculum requirements relating to range and focus should be taken fully into account when planning digital curriculum service resources (in terms of recognising the scope of ICT in the curriculum under consideration)

- that, wherever possible, curriculum 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 any investment

- that it is preferable for resources which are to be presented in the Welsh language to be developed in Welsh (or bilingually) rather than being translated from English after development

- 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.)

- 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 digital learning resources should be created and designed to be accessible, usable (and re-usable) and inclusive for all end-users

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

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 at Becta's ICT Advice site, **http://www.ictadvice.org.uk.**

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 learning and teaching, 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 to roll out its digital curriculum service, Becta's 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 ACCAC in Wales for advice when reviewing the BBC's commissioning plans for resources for Wales.

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 Wales, Becta, in consultation with ACCAC, opted to use the statements (or requirements) of the statutory programmes of study, as these set out the learning intentions in the most specific way.

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 also notes that the Welsh 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 orders. Should the roll out of the digital curriculum service overlap with the emergence of new or revised orders, then Becta will consult with ACCAC on determining amenability in relation to them.

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).

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 commercial-sector company to Becta's consultation)

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 considerations such as suitability, available technology, or appropriateness. Becta then considered criteria that could be used to determine which of the learning outcomes considered amenable in principle were also amenable in practice, within the context of the proposed BBC digital curriculum service. These criteria were the subject of a commercial-sector 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 commercial-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 commercial-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.

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[2] 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 technologies' 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 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.

[2] *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 the abstract concrete, rather than as an abstract alternative to tangible, real-life experience.

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.

With regard to resources presented in Welsh, we note that it is preferable for such resources to be originated in Welsh or in parallel with other versions, rather than translated after development. However, we also note that translations of materials originally prepared in the medium of English may still be amenable and fit for purpose in the sense given above.

In relation to any resources planned by the BBC for pupils with special educational needs (SEN), Becta recognises that consideration should be given to amenability in terms of the specific needs and requirements of these pupils. Given that SEN covers 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 subject and key stage.

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

Pupils should be taught to look at and talk about their own work in relation to that of others.
Art, Key Stage 1, 1.1

Pupils should be taught to ask and answer questions about the past.
History, Key Stage 1, 4.2

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 requirements relating to range and focus in the National Curriculum for Wales cannot, in Becta's view, be assessed for amenability. These requirements refer to the overall spectrum of experiences that learners should encounter during a key stage. However, the BBC should take these requirements into account in its planning. These requirements 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 subject and key stage concerned. The resources developed by the BBC should be in line with the range and focus requirements for each subject and key stage.

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 key stage 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.

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

In general, the programmes of study for Wales list holistic or integrated skills[3] of a subject 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 key stage could be used to support learners with specific needs at a different key stage.

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 key stage.

4.7 The BBC's right to appeal

The learning outcomes for each subject at each key stage that meet Becta's amenability criteria (see **4.3.1** to **4.3.4**) 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.

[3] 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, information from the reports of Estyn (Her Majesty's Inspectorate for Education and Training in Wales) and other sources such as ACCAC, Learning Wales (Welsh Assembly) and Becta itself 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 Welsh equivalent recommendations as these are released.

Annex

National Curriculum for Wales: amenability findings for subjects and key stages in the BBC's Year 1 commissioning plans.

1a)   English at Key Stage 1

The learning outcomes for English at Key Stage 1 are organised into three attainment targets: oracy, reading and writing. The outcomes (excluding range) have been examined for amenability.

In oracy, much of the skills section (2) might be considered non-amenable if taken in isolation and out of context. While it would be difficult to argue that all the outcomes under these headings could be taught via ICT, it is clear that ICT might be used to support and extend the learning. Furthermore, many of these requirements address key aspects of the subject, and describe 'holistic' or 'integrated' skills that are part of effective learning in the subject (for example, listening and responding). Given these considerations, it is appropriate to judge these learning outcomes as amenable to ICT.

It should be noted that it is vital that all pupils experience English as a 'live' interactive language used by many different individuals and groups in real time and in real contexts. Pupils also need to have real experience of handling printed texts of all kinds as well as to read them on screen, and must be able to write on paper as well as on computer. The tangible and interactive aspects of working in English are particularly pertinent to the teaching and learning in Key Stage 1, although by no means exclusively so. However, there are many contexts in which the programmes of study at all key stages are amenable to ICT, and might be enhanced through the use of ICT.

Measuring 50%

The programme of study at Key Stage 1 contains a large number of outcomes and, as such, provides a reasonable basis for measuring the 50% in terms of amenable learning outcomes.

Amenability statement

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

Writing: 2.8 (spell) – write each letter of the alphabet; write common letter strings within familiar and common words; 2.9 (develop their handwriting) – all bullet points

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 key stage 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 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.

1b) Geography at Key Stage 2

Geography at Key Stage 2 is organised into three sections:

- Geographical enquiry and skills
- Places
- Theme (environmental change).

The first of these, Geographical enquiry and skills, describes a set of 'holistic', or 'integrated', skills. Good pedagogy demands that they should be taught and learned in an integrated fashion, and for the reasons already given (see **4.3.4**), these skills are not included in the list of learning outcomes against which the 50% would be measured.

The remaining outcomes (from Places and Theme) have been examined for amenability. We note that while 1.5:

Observe, collect and record information in the field

might be considered non-amenable at first sight, ICT-mediated resources might reasonably be developed to prepare and support fieldwork, and to consolidate and extend it after the event. Therefore Becta judges outcome 1.5 to be amenable.

Measuring 50%

The BBC may select up to 50% of those outcomes deemed amenable by Becta. These 'countable' learning outcomes do not include the 'Geographical enquiry and skills' section, as mentioned above. As stated in section **4.5**, the BBC is free to treat these skills in their resources, but they will not be counted towards the 50% as this would constitute 'double counting' of the underlying requirements.

Amenability statement

There are no outcomes judged to be not amenable in the programme of study for Wales in geography at Key Stage 2.

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 key stage 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 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.

1c)   History at Key Stage 2

The learning outcomes for history at Key Stage 2 are set out in five sections:

- Chronological awareness
- Historical knowledge and understanding
- Interpretations of history
- Historical enquiry
- Organisation and communication.

Together, the outcomes under these headings describe a set of inter-related holistic 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, *chronological awareness* in the context of *historical enquiry* – to require the BBC digital curriculum to deal with some of them but not others would be to require it to produce pedagogically unsound resources.

Measuring 50%

The five learning outcomes of the programme of study for history at Key Stage 2 form a set of holistic skills and knowledge of the type described in section **4.3.4**. These holistic skills are developed in an integrated fashion through the topics undertaken during the key stage, of which there are four listed in the programme of study. Therefore the BBC may develop resources for the equivalent of up to half of the topics required for the key stage. It should be noted that the equivalence here is to the 'size' and scope of the topics and not to their content.

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 Key Stage 2 history, Becta judges that there are no outcomes that are not amenable in the programme of study for Wales in history at Key Stage 2.

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 key stage 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 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.

1d) Mathematics at Key Stage 1

The 'Using and applying mathematics section' in the mathematics programme of study at Key Stage 1 list sets of 'holistic' or 'integrated' skills. These lists 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 requirements 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.** It is through practical experience with physical objects that children develop abstract ideas of number and shape, what it means to add or subtract, and where to direct their attention when particular features of a shape are being considered. An example of this is:

Pupils should be taught to count reliably collections of objects, checking the total and recognising that if objects are rearranged the number stays the same.

Mathematics Key Stage 1, 1.1

It would not be fitting or appropriate to introduce the teaching and learning of these aspects 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.

The BBC has made it clear to Becta that in developing resources for Key Stage 1 mathematics 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. There are, however, situations where using and applying knowledge or problem solving would still 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 'Using and applying mathematics' section is 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:

Shape, space and measures 3.2

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 key stage 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 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.

1e) Modern foreign languages (MFL) at Key Stage 3

There are very few statements in the National Curriculum programme of study for MFL that can be separated out and covered discretely. 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 learning requirements for modern foreign languages (in this case, French) at Key Stage 3 are organised into four broad themes:

- Language skills
- Language-learning skills and strategies
- Knowledge of language
- Cultural awareness.

Together, the requirements under these headings list a set of holistic skills that contribute towards a holistic capacity in this subject. Since pupils develop these skills in the same contexts – for example, acquiring 'the grammar of the target language' (3.4) in the context of 'working with authentic materials' (4.1) – 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 requirements are not amenable. These are listed below. In particular, 4.2 – which requires pupils to 'develop their knowledge and understanding of other countries and cultures through communication with native speakers' – is considered non-amenable in the context of speaking and listening and responding, though amenable in the context of reading and writing. 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%

Since the requirements of the programme of study for MFL at Key Stage 3 form a holistic skill set, the BBC may develop resources required to cover up to half the areas of experience listed in the curriculum. It should be noted that this measure refers to the 'size' and scope of the areas, and not to their content. The omission of a small number of outcomes judged to be not amenable does not materially affect this assessment. Becta will consult with ACCAC on the BBC's commissioning plans in assessing the 50%.

Amenability statement

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

1.4, 4.2 in terms of speaking and listening only, 5.4

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 key stage 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 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.

1f) Music at Key Stage 2

The learning requirements for music at Key Stage 2 are organised into three broad themes:

- Performing
- Composing
- Appraising.

Together, the requirements under these headings 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, listening skills in the context of composing and performing – to require the BBC digital curriculum to deal with some of them but not others would be to require it to produce pedagogically unsound resources.

One requirement in particular, taken in isolation, would appear not to be amenable. This is requirement 1.1:

Sing an expanding repertoire of unison and simple part songs with increasing control of breathing, posture, diction, dynamics, phrasing, pitch and duration

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. Therefore outcome 1.1 is judged to be amenable.

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 ACCAC for 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 Key Stage 2 music, Becta judges that there are no outcomes that are not amenable in the programme of study for Wales in music at Key Stage 2 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 key stage 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 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.

1g) Religious education (RE) at Key Stage 2

We refer to the document *An exemplar framework for religious education* (ACCAC 2001) throughout this section.

In the exemplar programme of study, pupils are expected to be taught about beliefs, teachings, worship and fundamental moral questions among a variety of other things. All these aspects are deeply interrelated. We note that in order for children to be taught about:

the journey of life and how the various stages are acknowledged and celebrated in religion

it is likely that they will also explore:

places of worship, acts of worship, festivals and celebrations.

Equally, knowledge of religious buildings, celebrations, texts and customs and so on will develop collectively. Taken together, the requirements of the exemplar programme of study at Key Stage 2 describe a set of holistic knowledge and skills of the type described in section **4.3.4** above. Since pupils develop these skills and knowledge in the context of each other, to require the BBC digital curriculum to deal with some of them but not others would be to require it to produce pedagogically unsound resources.

Measuring 50%

The requirements for RE form a set of holistic 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 consult with ACCAC in assessing the BBC's commissioning plans for religious education at Key Stage 2.

Amenability statement

Based on the inspection of individual outcomes and an assessment of the role of ICT in the holistic development of skills in Key Stage 2 religious education, Becta judges that there are no outcomes in the exemplar framework for KS2 that are not amenable to ICT.

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 key stage 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 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.

1h) Science at Key Stage 2

The 'Scientific enquiry' section of the programme of study lists a group of related 'holistic' or 'integrated' skills of scientific investigation. These lists 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 requirements 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 should be taught to compare everyday materials on the basis of their properties, including hardness, strength, flexibility and magnetic behaviour, and to relate these properties to everyday uses of materials.

Science Key Stage 2, Materials and their properties 1.1

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. However, it is feasible that an ICT-based resource might be used to consolidate and apply understanding of the previously learnt concepts.

The BBC has made it clear to Becta that in developing resources for Key Stage 2 science it intends to focus on developing skills of problem solving, using and applying knowledge and understanding, and investigation rather than on the teaching of concepts. It is in this sense, then, that the amenability of the learning outcomes has been determined as shown below.

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 'Scientific enquiry' section is not included in the equation, as this would constitute double counting.

Amenability statement

There are no outcomes judged to be **not** amenable.

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 key stage 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 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.

2a)   Business studies at GCSE

The learning requirements for business studies at GCSE are set out in the specifications set out by ACCAC and approved for teaching by the regulatory authorities in Northern Ireland, England and Wales. The requirements have been examined for amenability.

Some of the requirements describe a 'holistic' or' integrated' group of skills. Good pedagogy demands that these should be taught and learned in an integrated fashion and, for the reasons already given (see section **4.3.4**), these skills are not included in the list of learning outcomes against which the 50% would be measured.

The remaining requirements could, in principle, be taught via ICT (though see section on context below).

Measuring 50%

In this subject, the GCSE specifications (syllabuses) produced by the awarding bodies must be used as the basis for the determination of 50%.

Amenability statement

Based on both the inspection of the learning requirements set out in the specifications and an assessment of the role of ICT in the holistic development of skills in GCSE business studies, Becta finds that there are no outcomes judged to be not amenable in the specifications.

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 which 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 key stage 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 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.

advice   evidence   standards