

Supplementary guidance:

the inspection of information
and communication
technology (ICT) in schools

Autumn 2017

The purpose of Estyn is to inspect quality and standards in education and training in Wales. Estyn is responsible for inspecting:

- ▲ nursery schools and settings that are maintained by, or receive funding from, local authorities
- ▲ primary schools
- ▲ secondary schools
- ▲ all-age schools
- ▲ special schools
- ▲ pupil referral units
- ▲ independent schools
- ▲ further education
- ▲ independent specialist colleges
- ▲ adult community learning
- ▲ local authority education services for children and young people
- ▲ teacher education and training
- ▲ Welsh for adults
- ▲ work-based learning
- ▲ learning in the justice sector

Estyn also:

- ▲ provides advice on quality and standards in education and training in Wales to the National Assembly for Wales and others
- ▲ makes public good practice based on inspection evidence

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What is the purpose of this supplementary guidance?

To provide guidance to inspectors for evaluating ICT standards and provision. This provides further guidance for inspectors to use alongside the sector guidance for inspection.

For whom is it intended?

For all inspectors of maintained primary, secondary and special schools.

From when should the guidance be used?

September 2017

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Supplementary guidance

The key Estyn documents that guide inspection activity are the inspection guidance handbooks for each sector. However, we also produce supplementary guidance to help inspectors to consider specific aspects of education and training further.

The supplementary guidance documents set out some key principles, considerations and resources for inspectors. They relate to all sectors that Estyn inspects, unless they state that they are for a specific sector. They expand on certain aspects of education/training (e.g. the inspection of literacy) or on ways of conducting inspections (e.g. the use of learning walks) or specific inspection arrangements (e.g. guidance on inspecting church schools).

The supplementary guidance documents do not aim to be comprehensive. Inspectors are not required to work through them exhaustively when covering any specific aspect on an inspection. However, inspectors may find them useful when responding to specific emerging questions that arise during inspections or when they wish to reflect or investigate further.

The supplementary guidance documents may help providers gain an understanding of Estyn's inspection arrangements. They may also be helpful to providers in evaluating specific aspects of their own provision.

Our inspection work is based on the following principles:

- Inspectors will approach inspection with a positive mindset to ensure it is the best possible professional learning experience for the staff in each provider
- Inspectors will take a learner-focused approach to inspection
- Inspectors will always focus strongly on the quality of teaching and learning
- Inspectors will seek out well-considered innovative practice
- Inspectors will tailor the inspection activities according to the circumstances in each provider as far as possible
- Inspectors will be agile and responsive to emerging findings and will use the increased range of inspection tools and approaches available
- Inspectors will consider everything in the inspection framework, but will only report on the key strengths and weaknesses within each provider

Introduction

Under the NIA framework, Estyn will continue to inspect ICT across the curriculum, until the Digital Competence Framework is to be implemented. We will continue to report on pupil standards in using ICT across the curriculum on every inspection. Each inspection report will include a paragraph on pupils' standards in applying ICT across the curriculum in 1 Standards as well as recording evidence in 1.3 Standards and progress in skills.

Please note that the subject is ICT and **not** IT as was previously the case in the 2000 NC orders. As a result, both the subject and the key skill share the same title. This has led to significant confusion in schools. This confusion will hopefully disappear with the introduction of the Digital Competence Framework and the Science & Technology Area of Learning and Experience as part of the development stemming from 'Successful Futures'.

ICT as a skill and a subject

The basis on which we inspect ICT in schools is the non-statutory Skills Framework for 3 to 19-year-olds in Wales (WAG January 2008) and the skills from the *Information and communication technology in the National Curriculum for Wales* Order. The Skills Framework includes skills from the ICT Order that offer opportunities for cross-curricular delivery and the support of learning and teaching in a range of subject areas.

Appendix 12 of this supplementary guidance includes the six stages of progression set out in the Skills Framework and based on the ICT subject orders. This demonstrates the spread of skills expected from the Foundation Phase to post-16.

The ICT section of the Skills Framework for 3 to 19-year-olds in Wales has two strands (ICT, the skill):

- finding and developing information and ideas
- creating and presenting information and ideas

These closely reflect the two strands in the *Information and communication technology in the National Curriculum for Wales* Order (ICT, the subject):

- find and analyse information
- create and communicate information

As the strands in both the ICT subject orders and the ICT Key Skills requirements of the non-statutory Skills Framework are so similar, the agreed approach to inspecting ICT is to base our inspection on the coverage of the ICT orders in other subjects. This would reflect the accepted approach that schools teach the skills discreetly through the subject ICT with planned opportunities to apply these in other subjects/areas of learning across the curriculum.

Both the Skills Framework and the subject orders place a great importance on safe and appropriate use of ICT and this should be embedded throughout all activities. Please check for this as it also has an impact on your discussions on safeguarding in

4.3. Inspectors should find further information on each school’s approach to online safety in the self-evaluation form that schools complete before their inspection (‘Self-evaluation form for Safeguarding and Child Protection’). The information is most likely to appear under ‘Provide details of how the school ensures that pupils use the internet safely and know how to stay safe online’.

A key document to help inspectors to consider pupils’ progress in ICT is ‘Information and communication technology – Guidance for Key Stage 2 and 3’ (WAG, 2009). This provides key messages for planning learning and teaching in ICT. It also includes levelled work from pupils in communicating, data handling and modelling. This provides valuable background information that will help during inspection. Section 2 of the document has a helpful section on expectations and progression in ICT. The original tables shows progression from Level 1 to Exceptional Performance in the central activities of using ICT in communication, data handling and modelling.

However, the ‘Information and communication technology – Guidance for Key Stage 2 and 3’ (WAG, 2009) document does not contain guidance on expectations and progression in ICT pre Level 1. The Digital Competence Framework (DCF) has developed these steps and these can be used as and when needed. We have included steps pre Level 1 from the DCF to the original table as pointers for what you might see in Foundation Phase provision in schools where there are pupils with complex needs.

The following tables shows progression from A steps to Exceptional Performance in the central activities of using ICT in communication, data handling and modelling.

| Progression in ICT pre Level 1 | | | |
|--|--|--|--|
| With increasing independence learners: | | | |
| | Communicating | Data handling | Modelling |
| A steps | <p>communicate own choices for a small selection of objects and interactions, <i>e.g. choose from phone/video chat by selecting appropriate device.</i></p> <p>interact with technology in order to produce an image, sound or video output</p> <p>show a preference for different multimedia components including image, sound and video.</p> | <p>explore and match objects from a choice of two by copying an adult.</p> <p>indicate a preference within a digital activity, e.g. select preferred DVD or music from picture on screen</p> | <p>copy actions, demonstrating a start and finish</p> <p>remember learned responses over an extended period of time.</p> |

| | | | |
|----------------|---|---|---|
| <p>B steps</p> | <p>communicate their own choices in a variety of places for a selection of objects and interactions, <i>e.g. choose video/phone/picture to communicate by selecting appropriate device</i></p> <p>intentionally create different text, image, sound or video outputs</p> <p>choose preferred multimedia component from a limited choice of image, sound and video.</p> <p>show awareness of what is needed to complete a task, <i>e.g. use given digital equipment to do a familiar task such as draw a picture/take a photograph</i></p> | <p>match identical objects or pictures independently</p> <p>understand that one item can be represented by another means, <i>e.g. familiar object to a photograph of that object.</i></p> <p>use an icon on screen to access a specific application or website, <i>e.g. select music CD or video DVD from on-screen icons, preferred website page, etc.</i></p> | <p>show a growing awareness of sequences and patterns</p> <p>follow one-step instructions</p> |
| <p>C steps</p> | <p>use different forms of digital communication, <i>e.g. experience and participate in simple voice video or text communications.</i></p> <p>create output for different purposes using different multimedia components including text, image, sound, animation or video.</p> | <p>match non-identical objects or pictures</p> <p>identify items that do not belong to a set</p> <p>separate objects that share a specified attribute, <i>e.g. big/little, blue/green.</i></p> <p>navigate through a series of icons/images to find the desired item (information/software/media), <i>e.g. scroll through familiar</i></p> | <p>copy simple patterns and sequences</p> <p>follow two-step instructions</p> |

| | | | |
|---|---|--|--|
| | choose what is needed to complete a task from given options, e.g. select camera to take photo, keyboard to make music | website/software to find familiar activity. | |
| Progression in ICT from Level 1 to Level 8 | | | |
| Level | Communicating | Data handling | Modelling |
| 1 | Pupils use ICT to move objects on screen for a defined purpose and use words and pictures to communicate ideas. | Pupils explore, with support, different types of information held on ICT systems. | |
| 2 | Pupils consider, create and communicate information and ideas in different forms using text, images, pictures and sound. | Pupils enter information into a record with some assistance. | Pupils explore the effects of making changes in models or simulations. |
| 3 | Pupils use ICT to create, organise, amend and present information and ideas. They send and receive information electronically, with support. | Pupils use ICT to search, sort and/or graph data to follow simple lines of enquiry. | Pupils understand how changing one variable affects another in models or simulations. |
| 4 | Pupils combine a variety of information and media when creating and developing their ideas, with a sense of purpose and audience. They send and receive information electronically. | Pupils begin to check the validity of data. They add and amend records in databases. | Pupils use ICT to explore patterns and relationships. They make simple predictions about how changing one variable affects another in models or simulations. |

| | | | |
|-------------------------|---|--|--|
| 5 | Pupils combine a variety of information and media when creating, refining and developing their own ideas and information. Their presentations are fit for purpose and meet the needs of their intended audience. They use ICT to send and receive files electronically. | Pupils create their own databases and search or sort on more than one field to follow particular lines of enquiry. | Pupils create their own models or simulations and investigate the effect of changing data. |
| 6 | Pupils use ICT to create and refine their work using information from a range of sources, recognising the need for different styles for different audiences. | Pupils use databases to follow complex lines of enquiry and draw conclusions. | Pupils use models or simulations of increasing complexity, vary the rules within them and test hypotheses. |
| 7 | Pupils refine their choice of selected information to match the needs of a specific purpose or audience. | Pupils design a database making appropriate choices within a data-handling application, using its specialised functions. | Pupils design computer models and procedures, with variables, to meet specific needs. |
| 8 | Pupils create presentations for others to meet specific requirements. | Pupils design and implement ICT systems for others to use. | |
| Exceptional performance | Pupils design, implement and document systems for others to use, predicting some of the consequences that could arise in use. | | |

Progression in ICT is characterised by refinement of ICT skills and their application to tasks that move from simple to complex, concrete to abstract, and familiar to unfamiliar. Pupils progress from needing close supervision and support to independent and interdependent working. There is also a developing sense of purpose and audience for the work and increasing competence and sophistication in the creative use of ICT software.

In practice, progression may not necessarily be regular or linear. Pupils might regress in some aspects of their work, they might reach a plateau for a while or they

might progress significantly in one or more aspects. They will have strengths and areas for development and partial success in a more complex task has to be judged against a very successful outcome in a less challenging task. The familiarity of the context, the complexity of the task and the degree of individual responsibility (or support needed) all have to be considered. It should be remembered that support can come from a variety of sources, including the pupil's teacher, other pupils or the software itself.

The main indicators of progression in ICT capability are:

- a developing sense of purpose and audience for their work
- increasing competence and sophistication in the creative use of software functions
- the gradual change from using given ICT resources to choosing and selecting resources to suit the task and purpose

The teaching of ICT in schools

The way that schools teach and use ICT can vary markedly from school to school. Various factors can contribute to this and these are usually linked to the number of computers available, the needs of the pupils, physical constraints of buildings or the vision of the senior management. Special schools (and mainstream settings where there are pupils who have significant communication needs) will use a range of assistive technologies to enhance communication and support teaching and learning. Secondary schools usually have a few ICT suites where they teach ICT discretely as a subject and which other departments book out for cross-curricular use. This may not be the case in primary schools. Usually classes/departments also have a few computers in the classroom at the point of teaching. A few schools have portable trolleys with a number of laptops that can be moved from room to room. These laptops usually connect to the internet using a wireless connection.

Within the past four years, the number of primary schools using tablets and other mobile technologies in the classroom has certainly increased. These mobile technologies are now becoming a more common sight in secondary schools. There may be an issue of continuity and progression of ICT skills for Year 7 pupils who regularly used tablets in all lessons in the primary school and who find themselves in a secondary school that does not use them or allow pupils to bring their own. Please also check that Year 7 pupils, who have transferred from primary schools who mainly use tablets, have the necessary mouse control skills and file management skills.

Many primary schools have purchased tablets and a majority of these use them to support literacy. More and more secondary schools are now purchasing tablets, but generally use them less well. However, inspectors need to be aware of schools purchasing tablets:

- without the knowledge of what to do with them
- not having budgeted for the host of apps that need purchasing to truly make tablets educational tools
- without the wireless infrastructure in place to allow the use of the tablets
- without having planned suitable training to support their effective use

Whatever approach to teaching and using ICT a school uses, it is important to check that all pupils have equal access and ample opportunities. You also need to find out how the school:

- ensures that all aspects of the ICT skills framework are covered and developed, including the use of databases and spreadsheets across the curriculum, which are commonly weak in schools
- ensures that all learners have regular access to ICT resources to enrich their learning experiences
- plans ICT experiences in other subjects appropriately making sure the skills developed build upon the requirements of the ICT subject orders
- monitors the use of ICT to ensure that all subjects cover a range of skills appropriately rather than constantly repeating certain skills to the detriment of other skills
- plans for progression and challenge as well as for continuity of learning, by mapping out where ICT capability can be applied and developed purposefully, and in new contexts;

Effective curriculum mapping takes into account what learners have been taught in ICT lessons. It can show how and where pupils apply and develop this across a range of subjects and contexts in order to support pupils' progression in ICT capability.

How to inspect the use of ICT across the curriculum

Schools will already be aware of the change in how we will report on the use of ICT across the curriculum from September 2016. The school self-evaluation report will continue to include a section on the use of ICT across the curriculum in 1.3 Standards and progress in skills.. You will need to verify the accuracy of this (if this is inaccurate then it could impact on either 3.3 Provision for skills, 5.1 Quality and effectiveness of leaders and managers, including the governing body or 5.2 Self-evaluation processes and improvement planning.).

Look for evidence of ICT in other curriculum areas while observing lessons and in both classroom and whole-school displays as you walk around the school. Many schools have pupil portfolios that hold examples of ICT work. Schools usually hold examples in folders on school servers or on Hwb , but we do not need access to these unless we are discussing the work with the learners. In this case, pupils themselves will have the necessary passwords to access the work. We do **not** require schools to print off materials that learners have completed and we will not ask schools or learners to do so. The school website can also be a source of valuable evidence.

However, nothing compares to observing and discussing ICT work with the learners themselves. It is therefore expected that you meet with a group of learners (not necessarily all 'digital leaders' within the school) as we do when we listen to readers as part of inspecting literacy. This will allow inspectors to view and to discuss the work with pupils in front of a computer so that learners can access, show and discuss their work.

In the same way as we meet with the literacy and numeracy coordinator it will be important to meet with the teacher responsible for ICT across the curriculum (this person is not always the head of department for ICT the subject) to discuss how they plan and monitor the use of ICT across the curriculum.

Appendix 1: Additional guidance on the use of information and communication technology (ICT) in special schools

Appendix 2: Possible range of ICT skills pre Level 1

Appendix 3: Possible range of ICT skills in the Foundation Phase

Appendix 4: Possible range of ICT skills in key stage 2

Appendix 5: Possible range of ICT skills in key stage 3

Appendix 6: Possible range of ICT skills in key stage 4

Appendix 7: Questions for listening to learners in the Foundation Phase and key stage 2 for ICT

Appendix 8: Questions for the senior manager overseeing the work of the co-ordinator(s) for ICT

Appendix 9: Questions for the ICT skills co-ordinator

Appendix 10: Prompts for evaluating the effectiveness of transition between primary and secondary schools

Appendix 11: 3.3 Provision for skills

Appendix 12: Developing ICT across the primary and secondary curriculum based on the Skills Framework for 3 to 19-year-olds in Wales (WAG, 2008)

Appendix 1

Additional guidance on the use of information and communication technology (ICT) for pupils with significant communication needs (mainly special schools, but also in resource bases and mainstream classes)

Inspectors should expect pupils with additional learning needs to use ICT to find, analyse and communicate information in line with their individual strengths and needs.

However, for many pupils with significant communication needs, ICT will also play an important part in enabling pupils to communicate, access learning and develop independence. It is likely therefore that inspectors will comment on pupils' use of ICT to support their wellbeing in 1.2 of the current common inspection framework. Similarly, a comment on the provision of assistive technology to enable pupils to access learning may be suitable in section 2.1 of the current framework.

Assistive technology – is an umbrella term that includes assistive, adaptive, and rehabilitative devices to help people learn, communicate and live more independently. It includes both low-tech devices such as paper based symbols / PECs, and high tech devices using ICT.

High tech assistive technology devices used in special schools include:

Accessible computer input: adapted or alternative keyboards and mouse, switches, word prediction, speech recognition, symbol based software to communicate, text to speech, VOCAs (voice output communication devices), gesture software, screen magnifiers and readers, Braille translation software, eye gaze devices and head tracker systems.

Mobility systems: self-controlled hoists and mobility platforms, chairs adapted to develop driving skills using hand switches, head switches or joysticks.

Environmental control systems: talking clocks and watches, liquid level indicators, electronic devices to control the living or working environment such as switches to open doors, operate lights and heating, and control the TV.

Appendix 2

A possible range of ICT skills – pre Level 1

| ICT skill | Possible activities | Areas of Learning |
|---|---|---|
| <p>Creating and presenting information and ideas via text / picture or sound</p> | <p>Communicating their own choices for a small selection of objects and interactions, e.g. choosing from phone/video chat by selecting appropriate device</p> <p>Interacting with technology in order to produce an image, sound or video output</p> <p>showing a preference for different multimedia components including image, sound and video</p> <p>communicating their own choices in a variety of places for a selection of objects and interactions, e.g. choose video/phone/picture to communicate by selecting appropriate device</p> <p>intentionally creating different text, image, sound or video outputs</p> <p>choosing preferred multimedia component from a limited choice of image, sound and video</p> <p>using different forms of digital communication, e.g. experience and participate in simple voice video or text communications</p> <p>creating output for different purposes using different multimedia components including text, image, sound, animation or video</p> | <p>Personal and Social Development, Well Being and Cultural Diversity</p> <p>Language, Literacy and Communication Skills</p> <p>Mathematical Development</p> <p>Welsh Language Development</p> <p>Knowledge and Understanding of the World</p> <p>Physical Development</p> <p>Creative Development; and RE</p> <p>All subjects but especially all languages</p> |

| ICT skill | Possible activities | Areas of Learning |
|---|---|--|
| <p>Finding and developing information and ideas</p> <p>find information from a variety of sources for a defined purpose, and select suitable information and make simple judgements about sources of information</p> | <p>indicating a preference within a digital activity, e.g. selecting preferred DVD or music from picture on screen</p> <p>using an icon on screen to access a specific application or website, e.g. selecting music CD or video DVD from on-screen icons, preferred website page, etc.</p> <p>matching non-identical objects or pictures</p> <p>navigating through a series of icons/images to find the desired item (information/software/media), e.g. scrolling through familiar website/software to find familiar activity</p> | <p>All areas of learning and RE</p> <p>All subjects but especially all languages</p> |
| <p>Finding and developing information and ideas</p> <p>Data handling</p> | <p>exploring and matching objects from a choice of two by copying an adult</p> <p>matching identical objects or pictures independently</p> <p>understanding that one item can be represented by another means, e.g. familiar object to a photograph of that object</p> <p>identifying items that do not belong to a set</p> <p>separating objects that share a specified attribute, e.g. big/little, blue/green</p> | <p>Mathematical Development</p> <p>Most subjects but especially mathematics, geography and science</p> |

Supplementary guidance for the inspection of information and communication technology (ICT) in schools

| ICT skill | Possible activities | Areas of Learning |
|----------------------|--|--------------------------|
| Online safety | identifying their own work/that of others, e.g. show recognition that a piece of work is theirs when viewed on screen understanding that some devices require a simple password/action to access them, e.g. swipe a device to activate it | |

Appendix 3

A possible range of ICT skills – Foundation Phase

| ICT skill | Possible activities | Areas of Learning |
|--|---|---|
| Creating and presenting information and ideas via Word | Use a mouse if using a PC – also shows fine motor skills Can open and close apps on a tablet and move objects across the screen Find a few letters on the keyboard Use enter arrows, capital letters, full stop and delete as well as menus Understand cursor position Change font, colour and size Poem Poster Postcard Newspaper front page using template | Personal and Social Development, Well Being and Cultural Diversity Language, Literacy and Communication Skills Mathematical Development Welsh Language Development Knowledge and Understanding of the World Physical Development Creative Development; and RE |
| Creating and presenting information and ideas via pictures / images | Graphics package Simple animation Use a digital camera Use a video camera | Creative Development Language, Literacy and Communication Skills; All areas of learning and RE All areas of learning and RE |
| Creating and presenting information and ideas via sound | Creating sound Using keyboards Recording digital audio files and evaluating performance | Creative Development Creative Development Language, Literacy and Communication Skills; Creative Development |
| Finding and developing information and ideas find information from a variety of sources for a defined purpose, and select suitable information and make simple judgements about sources of information | Guided searches on the internet Simple research using a CD or DVD (if still used) | All areas of learning and RE |

Supplementary guidance for the inspection of information and communication technology (ICT) in schools

| ICT skill | Possible activities | Areas of Learning |
|--|--|---|
| <p>Finding and developing information and ideas</p> <p>Graph work</p> | <p>Put numbers into a table Create a graph with help Use a data collection sheet 'live' graphs using pupils, Pictogram, Block graph, Bar Graph re progression</p> | <p>Mathematical Development</p> |
| <p>Finding and developing information and ideas</p> <p>Database</p> | <p>Getting answers from a database</p> | <p>Mathematical Development</p> |
| <p>Finding and developing information and ideas</p> | <p>Simulations - Hwb Cymru have online examples Using programmable devices</p> | <p>Knowledge and Understanding of the World; Mathematical Development, Physical Development, Knowledge and Understanding of the World</p> |
| <p>Online safety</p> | <p>Pupils should be taught that information can be shared safely with others</p> | <p>All areas of learning</p> |

Appendix 4

A possible range of ICT skills for key stage 2

| ICT skill | Possible skills | Subjects |
|--|---|--|
| <p>Communicating and presenting information and ideas via Word</p> | <p>Change font, colour and size Poem Acrostic poem Poster Letter Newspaper report Newspaper front page Multi-media Presentation Email Classroom Blog VLE</p> | <p>All subjects but especially all languages.</p> <p>Please check that these elements are not the only ones that are utilised across the subject, overuse of multi-media presentations</p> |
| <p>Communicating and presenting information and ideas via pictures / images / design</p> | <p>Graphics package Animation Use a digital camera Use a video camera to analyse and refine performances Create a digital story / virtual tour Manipulating images Creating and editing MP4 files (video)</p> | <p>Art, D&T Art, D&T, languages All subjects All subjects</p> <p>All languages, RE, history, geography, Art, D&T, most subjects Most subjects but especially languages</p> |
| <p>Communicating and presenting information and ideas via sound</p> | <p>Creating sound Recording MP3 tracks / WAV files Using keyboards Composing</p> | <p>Languages, music</p> <p>Most subjects but especially music and language</p> <p>music music</p> |
| <p>Finding and developing information and ideas find information from a variety of sources for a defined purpose, and select suitable information and make simple judgements about sources of information</p> | <p>Research on the internet Research using a CD or DVD (if still used)</p> | <p>All subjects</p> |

Supplementary guidance for the inspection of information and communication technology (ICT) in schools

| ICT skill | Possible skills | Subjects |
|---|---|---|
| Finding and developing information and ideas Graph work | Block graph Bar Graph Line graphs Scatter graphs | Most subjects but especially mathematics, geography and science |
| Finding and developing information and ideas Database / questionnaire | Creating and interrogating a database (statutory) or questionnaire Branching database or Tree diagram (neither statutory) | Most subjects but especially mathematics and science Science |
| Finding and developing information and ideas Modelling | Spreadsheet | Most subjects but especially mathematics, geography and science |
| Finding and developing information and ideas | Data logging Using programmable devices | Science, D&T and geography Mathematics, PE, language |
| Finding and developing information and ideas | Simulations Hwb have online examples | Most subjects but especially Science, D&T, RE and PSE |
| Finding and developing information and ideas | Using Video Conferencing / web cams | All subjects – interviewing specialists in the subject, linking with museums online |
| Online safety | Pupils should be taught in how to use ICT comfortably, safely and responsibly, and to consider the hazards and risks in their activities <i>e.g. the importance of not disclosing personal details to strangers.</i> | All subjects |

Appendix 5

A possible range of ICT skills for key stage 3

| ICT skill | Possible activities | Subjects |
|---|--|---|
| <p>Communicating and presenting information and ideas via text</p> | <p>Change font, colour and size; change a single column of text into a newspaper layout Poem Acrostic poem Poster Letter Newspaper report Newspaper front page Multi-media Presentation Email Blog Twitter VLE QR Augmented Reality application, i.e. Aurasma</p> | <p>All subjects but especially all languages.</p> <p>Please check that these elements are not the only ones that are utilised across the subjects i.e. death by multimedia!</p> |
| <p>Communicating and presenting information and ideas via pictures / images / design</p> | <p>Graphics package Animation Use a digital camera Use a video camera to analyse and refine performances Create a digital story / virtual tour / QR tours/ Aurasma presentations Manipulating images Creating and editing MP4 files (video)</p> | <p>Art, D&T Art, D&T, languages All subjects All subjects All subjects</p> <p>Art, D&T, most subjects Most subjects but especially languages</p> |
| <p>Communicating and presenting information and ideas via sound</p> | <p>Creating sound Recording MP3 tracks / WAV files Using keyboards Composing</p> | <p>Languages, music Most subjects but especially music and language music music</p> |

| ICT skill | Possible activities | Subjects |
|---|---|--|
| <p>Finding and developing information and ideas</p> <p>find information from a variety of sources for a defined purpose, and select suitable information and make simple judgements about sources of information</p> | <p>Research on the internet through practical tasks</p> <p>Research using QR codes or Aurasma</p> | <p>All subjects</p> |
| <p>Finding and developing information and ideas</p> <p>Graph work</p> | <p>Bar Graph Line graphs Pie charts Scatter graphs</p> | <p>Most subjects but especially mathematics and science</p> |
| <p>Finding and developing information and ideas</p> <p>Database / questionnaire</p> | <p>Creating and interrogating a database (statutory) or questionnaire Branching database or Tree diagram Purposeful searches on the internet through practical tasks – a pupil given a set amount of money to ‘make over’ a bedroom and search an online site for items; or a task of finding a car for not more than £5k that is suitable for a learner driver</p> | <p>Most subjects but especially mathematics and science</p> <p>Science</p> |
| <p>Finding and developing information and ideas</p> <p>Modelling</p> | <p>Spreadsheet Add and amend a given ICT model to solve a problem through a review of the rules and variables. Be able to ask "What if?" and consider if the results are realistic. e.g. pupils explore the relationship between area and perimeter using a spreadsheet.</p> | <p>Most subjects but especially mathematics and science</p> |

Supplementary guidance for the inspection of information and communication technology (ICT) in schools

| ICT skill | Possible activities | Subjects |
|---|--|---|
| Finding and developing information and ideas | Data logging Logo CAD/CAM | Science, D&T and geography Mathematics, D&T D&T |
| Finding and developing information and ideas | Simulations HWB have online examples | Most subjects but especially Science, D&T, RE and PSE |
| Finding and developing information and ideas | Using Video Conferencing / web cams / Skype / FaceTime | All subjects – interviewing specialists in the subject, linking with museums online |
| Online safety | Pupils should be taught in how to use ICT comfortably, safely and responsibly, and to consider the hazards and risks in their activities e.g. <i>the importance of not disclosing personal details to strangers.</i> | All subjects |

Appendix 6

A possible range of ICT skills for key stage 4

| ICT skill | Possible activities | Subjects |
|--|---|---|
| Communicating and presenting information and ideas via text | Blog Wiki Tweet Wordle Word-pictures Glossaries VLE Announcements Email feedback on peer work | All subjects |
| Communicating and presenting information and ideas via pictures / images / design | Infographics Photo-editing Poster creation Logo creation Image-editing Comic strips | All subjects Art, DT, ICT All Subjects Art Art, DT, ICT All subjects |
| Communicating and presenting information and ideas via sound | Podcast 'Radio' blog Radio advert 'News' report Revision guide Soundation or garageband music creation | All Subjects- radio adverts could be about 'up-coming' lectures or events of interest to particular subjects, or a 2 minute audio revision podcast – like audio twitter |
| Finding and developing information and ideas find information from a variety of sources for a defined purpose, and select suitable information and make simple judgements about sources of information | Use different search engines to compare results for same search term Google Bing Yahoo Look to buy a birthday present for a child – find several locations from which it is available and justify final purchase choice in terms of price, delivery time and cost, whether to buy online or reserve and collect, reputation of store/seller | All subjects, but ICT in particular could go into depth about the skills of using key words and how to search effectively. |

| ICT skill | Possible activities | Subjects |
|--|--|---|
| <p>Finding and developing information and ideas</p> <p>Graph work</p> | <p>Surveys – local wildlife, job types in local area etc Sports day participation House points Eisteddfod points Science results Use Hwb+ survey tool or O365 excel survey Combining numerical and graphical information to visualise data using infographics – use of web 2.0 tools such as piktochart.</p> | <p>All subjects but particularly science and humanities could find a reason for pupils to conduct a survey.</p> |
| <p>Finding and developing information and ideas</p> <p>Database / questionnaire</p> | <p>Searching Ebay or similar shop database for a specific item – noting filters, sorts and key words used Creating a yearbook database Survey using a questionnaire – results stored in a database. Results analysed and reported on. E.g. music buying habits of people of different ages – genres plus download against physical media, file sharing etc</p> | <p>Most subjects could engineer a situation in which pupils need to find the price of a replacement item or for a new classroom device. Different subjects could contribute fields to the database (favourite topic, best experiment etc)</p> |
| <p>Finding and developing information and ideas</p> <p>Modelling</p> | <p>Scratch Computer Game making Kodu Gamemaker Spreadsheet modelling – grades/holiday costs/ school trip Follow on from survey, questionnaire, database task where findings from survey are used as input to variables in a spreadsheet. For example the spreadsheet could be used to model the income/expenditure for a music event and the survey tells us how many people are likely to attend the event and how much they would be willing to pay.</p> | <p>Uses in Maths, Science, MFL and other subjects – ranging from calculators, to scripted jokes or plays</p> <p>ICT in particular, but other subjects could use spreadsheets to model situations like changing ingredients in chemical reactions, total costs of materials in a DT project or recipe.</p> |

Supplementary guidance for the inspection of information and communication technology (ICT) in schools

| ICT skill | Possible activities | Subjects |
|---|---|--|
| Finding and developing information and ideas | Simulations – bridge design in DT Science simulations – blood flow, electricity in circuits, chemical reactions | Most subjects could find simulations that are already available online |
| Finding and developing information and ideas | Data logging, robot control (eg lego mindstorms) | DT, Science, Computing, Geography |
| Finding and developing information and ideas | Using Video Conferencing / web cams / Skype / Face | All subjects – interviewing specialists in the subject, linking with museums online |
| Online safety | Create a method of communicating to younger pupils the top 5 pieces of advice on how to stay safe online. Dangers of online ‘presence’ being examined by future employers, etc. Acceptable/sensible behaviour on social networks. | Any subject – the reason for the task could be because of the creation of new videos of pupils learning in the classroom, that are to be posted online and shared. |

Appendix 7

Questions for listening to learners – please choose and adapt questions for children and pupils with complex needs based on their stage of development

Younger pupils in the Foundation Phase

Communicating

What do you like about working with the computer / tablet?

Can you show me a picture/photo/the icon for a preferred activity/the tablet/PC ?

What did you do?

Show me how you can open and close apps on a tablet e.g. to use a drawing app.

Show me how you can move objects across the screen on the computer or how to draw a picture.

Can you take a picture? Show me?

Data handling

Possible awareness of live' graphs using pupils and progressing onwards to use a Pictogram

Can you sort these objects? – with objects/on screen

Modelling

What do you like about working with a programmable toy (i.e. BeeBot etc)

Can you make it go?

What does it do?

How do you control / use it?

Online safety

Who is this? – looking at picture of self/ familiar person

Year 2 pupils in the Foundation Phase

Communicating

What do you like about working with the computer / tablet?

Can you show me examples of what you have done?

Can you show me a story/presentation that you've done using the tablet or computer?

How do you change the size or colour of words on a page – or how they look (changing font)?

Can you show me examples of pictures you've taken using a camera or tablet?

What do you do if you need help?

Could you change it? Make it better? How?

How do you share your work?

How do you save your work?

Data handling

Can you show me examples of graphs that you have created using a tablet or computer? – progression is usually from 'live' graphs and pictograms in N/R/Yr1 to block (Yr1) and bar graphs in Yr2

More able pupils may be able to show you examples of getting answers from a database.

Can you think of an example of where you used the internet to look for information?
How did you do this?

Modelling

How do you control / use a programmable toy (i.e. BeeBot etc)?

Can you show me how to move the programmable toy around the smallest square it can normally create? How about a rectangle? (For more able pupils you could ask what changes they would have to make to create a square double the smallest size).

Online safety

How do you stay safe online?

What do you do if you find something that's not nice on the computer?

How do you share information?

Pupils in lower key stage 2

Communicating

What do you like about working with the computer / tablet?

Can you show me examples of what you have done?

Can you show me a story/presentation that you've done using the tablet or computer?

How do you change the size or colour of words on a page – or how they look (changing font)? How do you add pictures or a video or sound?

Can you show me examples of pictures etc you've added to a piece of work?

Can you play me any sound you've created using an app e.g. GarageBand?

Can you show me any videos or animations that you've created?

Data handling

Can you show me examples of graphs that you have created using a tablet or computer? – progression is usually from 'live' graphs and pictograms in N/R/Yr1 to block (Yr1) and bar graphs in Yr2 to bar and line graphs in Yr3&4

Can pupils show you examples of getting answers from a database or using a database in thematic work e.g. a data file on 'Ourselves' or how they classified animals or materials using a branching database?

Can you give you a range of examples of where they have used the internet to look for information? How did you do this?

Modelling

Can they explain how to control a programmable toy to create various simple shapes? (*Are they beginning to understand how changing one variable affects another in models or simulations e.g. doubling the size of a square created using a programmable toy or creating rectangles of various sizes?*)

Can they talk you through how they used a simulation online e.g. XYZ in Hwb?

Online safety

How do you stay safe online?

What do you do if you find something that's not nice on the computer?

How do you share information?

Tell us a rule about how the internet should be used here at school?

Pupils in upper key stage 2

Communicating

What do you like about working with the computer / tablet?

Can you show me examples of what you have done?

Can you show me a story/presentation that you've done using the tablet or computer for a specific purpose or audience?

How do you change the size or colour of words on a page – or how they look (changing font)? How do you add pictures or a video or sound?

Can you show me a front page of a newspaper that you've created i.e. a columned document with pictures?

Can you show me examples of pictures etc you've added to a piece of work?

Can you play me any sound you've created using an app e.g. GarageBand?

Can you show me any videos or animations that you've created?

Can you show me how you send and receive information electronically?

Data handling

Can you show me examples of graphs that you have created using a tablet or computer? – progression is usually from 'live' graphs and pictograms in N/R/Yr1 to block (Yr1) and bar graphs in Yr2 to bar and line graphs in Yr3&4 to bar, line and scatter graphs in Yr 6

Can pupils show you examples of how they added to or amended a database? More able pupils may be able to show you how they created a database (Level 5)

Can you please show me how you can search and sort on more than one field on a database – e.g. how many pupils have blonde hair and blue eyes?

Can you give you a range of examples of where they have used the internet to look for information? How did you do this?

Modelling

Can they explain how changing one variable affects another in models or simulations e.g. doubling the size of a square created using a programmable toy or creating rectangles of various sizes; or the effect of a 15% rise in costs on the fruit on their Fruit Shop spreadsheet?

Can they explain how to use a spreadsheet as a currency converter or to calculate the area and perimeter of a room?

Can they talk you through how they used a simulation online e.g. XYZ in Hwb?

Online safety

How do you stay safe online?

What do you do if you find something that's not nice on the computer?

How do you share information?

Tell us a rule about how the internet should be used here at school?

Pupils in key stage 3

Communicating

Can you show me a story/presentation that you've done for a specific purpose or audience using the tablet or computer? Can you talk me through how you prepared/found and combined the various pieces of information and media? Can you show me various copies of that shows how you refined the work and came to the finished piece of work?

Can you show me a front page of a newspaper that you've created i.e. a columned document with pictures?

Can you show me examples of pictures etc you've added to a piece of work?

Can you play me any sound you've created using an app e.g. GarageBand?

Can you show me any videos or animations that you've created?

Can you show me how you send and receive information electronically?

How do you use ICT to check accuracy and plausibility of information? (by comparing information from different sources, making choices to meet the needs of a specific purpose or audience).

Data handling

Can you show me examples of graphs that you have created and explain how you did this?

Can you show an example of a database you created?

How do you use databases to follow complex lines of enquiry and draw conclusions? e.g. can you please show me how you can search and sort on more than one field on a database – e.g. how many pupils have blonde hair and blue eyes or how many pupils weigh > than 40kg and are < than 120cm tall?

Can you give you a range of examples of where they have used the internet to search and sort on more than one field on a database e.g. a Ford Focus with 5 doors and worth between £4000 - £4500. How did you do this?

Modelling

Can you explain how changing one variable affects another in models or simulations e.g. the effect of a 17.5% rise in costs on the profit made by the seller?

Can you explain clearly what a formula does inside a cell?

Can you explain how to use a spreadsheet to calculate the area and perimeter of a room?

Can you talk me through how you used a simulation online e.g.

<https://hwb.wales.gov.uk/search?query=simulations> – can they vary the rules within them and test hypotheses?

Online safety

How do you stay safe online?

Tell us a rule about how the internet should be used here at school?

What opinions do you have about issues raised by the use of ICT?

What are the dangers associated with misuse of the internet/related technologies?

What are the implications of using networks?

Pupils in key stage 4

Communicating

Can you show me a publication/presentation/video/animation that you've done for a specific purpose or audience using the tablet or computer?

Can you talk me through how you planned the work?

Can you show me various copies that shows how you refined the work and came to the finished piece of work?

How did you refine your choice of selected information to match the needs of a specific purpose or audience?

How do you identify the advantages and limitations of different applications and select and use suitable ICT facilities?

Data handling

Can you show me examples of graphs that you have created and explain how you did this?

Can you show me how you designed a database (i.e. making appropriate choices within a data-handling application, using its specialised functions)?

Modelling

Can you show me how you designed a computer model to meet a specific need?

Online safety

How do you stay safe online?

Tell us a rule about how the internet should be used here at school?

Can they discuss in an informed way the social, economic, ethical and moral issues raised by ICT?

Appendix 8

Questions for the senior manager overseeing the work of the co-ordinator(s) for ICT in schools.

Select the most appropriate questions according to lines of inquiry:

| | |
|-------------|---|
| IA 1 | What is your view on standards of ICT across the curriculum in the school? |
| IA 2 | What is your view on how well pupils know how to keep safe online? How do you know |
| IA 3 | What actions have you taken to promote the development of ICT and online safety throughout the school? How are you planning to develop learners' skills? |
| IA 5 | How well is this ICT work co-ordinated and managed? What is the impact of the school's ICT policy in helping learners develop skills systematically, over time and in a broad range of contexts? |
| IA 5 | Are there any barriers preventing pupils developing good ICT skills? |
| IA 3 | How do you ensure the curriculum provides appropriate opportunities for learners to develop their ICT skills? |
| IA 4 | How do you track and monitor pupils' progress in ICT? |
| IA 4 | Is information on pupils' skills developments shared effectively between phases? Evidence? |
| IA 4 | How secure are your online safety procedures? How well do they use 360 Degree Safe Cymru to review and improve their online safety policies and practice? What do they use if they have not registered or not active in using 360 degree Safe Cymru? Is this robust enough? |
| IA 5 | How do you ensure that the teacher with responsibility for the use of ICT across the curriculum has ensured that progression and the breadth of ICT skills are covered in all age groups and areas of learning / subjects? |
| IA 5 | How do you review and evaluate the impact of your ICT policy? |
| IA 5 | What training and support have staff received to improve the use ICT across the curriculum? |
| IA 5 | How do you ensure value for money when procuring ICT equipment and training? |

Appendix 9

Questions for the ICT skills co-ordinator in schools

Select the most appropriate questions according to lines of inquiry:

| | |
|-------------|---|
| IA 1 | What is your view of standards of ICT across the curriculum in the school? |
| IA 1 | How much difference are you making to learners' progress and development in using ICT across the curriculum? |
| IA 2 | What is your view on how well pupils know how to keep safe online? How do you know? |
| IA 5 | How do you plan to raise standards in the use of ICT across the curriculum? |
| IA 3 | How do you identify and map skills and develop them progressively? |
| IA 3 | What is the impact of the school's ICT policy in helping learners develop skills systematically, over time and in a broad range of contexts? |
| IA 5 | What factors are preventing pupils developing good ICT skills? |
| IA 4 | Do you know how well learners are progressing? |
| IA 4 | How secure are your online safety procedures? How well do they use 360 Degree Safe Cymru to review and improve their online safety policies and practice? What do they use if they have not registered or not active in using 360 degree Safe Cymru? Is this robust enough? |
| IA 5 | How do you ensure that all teachers contribute effectively and purposefully to the development of pupils' ICT skills? |
| IA 3 | How do you ensure that progression and the breadth of ICT skills are covered in all age groups and areas of learning / subjects? |
| IA 5 | How do you ensure that all teachers provide pupils with relevant opportunities to develop their ICT skills in meaningful contexts? |
| IA 5 | How do you review and evaluate the impact of ICT initiatives? |
| IA 5 | What are you doing to improve the development of pupils' skills during transition? |
| IA 5 | What training do you provide for teachers, support staff, learning coaches and peer buddies so there is a consistent approach to the development of pupils' skills? |
| IA 5 | How do you ensure value for money when procuring ICT equipment and training? |

Appendix 10

Prompts for evaluating the effectiveness of transition between providers

- Do staff from different providers share information about pupils' prior achievements and learning needs in ICT so that teaching can be at the right level and the work can be appropriately challenging?
- How effectively do primary and secondary school staff assess and moderate the work of Year 6 pupils?
- Is there continuity between phases in schemes of work, assessment practices, pedagogy and planning for pupils' skills development?

Appendix 11

IA 3 Provision for skills

You will need to examine documentation about the school's provision for ICT. However, the range and extent of this work will depend on the nature and extent of the issues raised at the pre-inspection stage and as a result of the ongoing inspection work.

The guidance that follows is intended to support you when examining and judging the quality of the school's provision.

You may consider whether:

- the school has a comprehensive and robust ICT policy
- the development of ICT skills and the preparation for the Digital Competency Framework have a high priority in the school improvement plan
- samples of short-term planning, such as lesson plans, show how well staff exploit opportunities to develop ICT skills in purposeful contexts

Schemes of work across the areas of learning and the curriculum

You may consider how well staff have:

- embedded ICT skills into learning experiences across all subjects and/or areas of learning or individual educational plans
- developed links between subject schemes of work and/or areas of learning in developing progression in pupils' skills
- ensured that pupils' skills gained in discreet ICT lessons in schools are reinforced, enhanced and developed further in other subjects and/or areas of learning
- adapted programmes of study when pupils are working significantly below or above expected levels of ICT skills
- planned in the Foundation Phase to provide a good balance between structured activities for direct teaching of ICT and active approaches, including play-based learning
- planned opportunities for pupils to apply ICT skills in areas of continuous provision both indoors and outdoors and in role-play areas
- progressively increased the level of challenge in the work
- ensured that all ICT skills are developed consistently and specifically that data handling work and modelling skills are developed to the same standard as communication skills
- taught online safety

Appendix 12

Developing ICT across the primary curriculum based on the Skills Framework for 3 to 19-year-olds in Wales (WAG January 2008)

| Strand | Beginning of Foundation Phase | End of Foundation Phase | End of key stage 2 |
|--|---|--|---|
| Finding and developing information and ideas | Become aware that information exists in a variety of forms. | Begin to find different sources of information with support. | Find suitable information from given sources using simple searches, to support a range of activities. |
| | | Begin to develop information and ideas, combining text and images | Develop/model information and ideas by processing data from given sources to support their activities in a range of subjects, and begin to ask questions about bias of information sources. |
| Creating and presenting information and ideas | Become aware that ICT can be used to communicate ideas. | Use given ICT resources to help create, present and safely share their ideas, including text/word-banks, images. | Create and present their ideas for a given purpose by combining different forms of information, including text, images, sound, with some sense of audience. |
| | | | Safely share information with others, including the use of e-mail; virtual learning environments (VLEs). |

Learners' progression in developing ICT is described as you read across the columns from left to right. Progression is cumulative; skills identified in each stage of progression will have been demonstrated – at least at a simple level – by learners before they move to the next stage.


Progression can be seen in terms of the refinement of these skills and by their application to tasks that move from: concrete to abstract; simple to complex; personal to the 'big picture'; familiar to unfamiliar.

Learners progress from needing support to more independent working. They move from listening and interacting with others in a general way to a situation where they choose to work with others as a deliberate strategy for reaching understanding. In these ways they become both independent and interdependent learners

Developing ICT across the secondary curriculum based on the Skills Framework for 3 to 19-year-olds in Wales (WAG January 2008)

| Strand | End of key stage 3 | End of key stage 4 | Post 16 |
|---|--|--|--|
| Finding and developing information and ideas | Find relevant information from a variety of sources using key word and multiple word searches on data files and internet sources. | Find different types of information from a range of ICT sources, including data files, DVDs, internet, and non-ICT sources, including written notes, lists, diagrams, selecting relevant information | Identify suitable sources of information, search for information using multiple search criteria, and interpret and select what is needed for different purposes. |
| | Develop/model information and ideas for specific purposes by processing data from a variety of sources, checking accuracy and plausibility of information. | Develop and refine information, making informed judgements about its plausibility, accuracy and relevance. | Derive new information on which to make judgements and draw conclusions. |

Supplementary guidance for the inspection of information and communication technology (ICT) in schools

| | | | |
|--|---|---|---|
| Creating and presenting information and ideas | Create and present information and ideas by combining a variety of different forms of information, including text, images, graphs, music files, with a developing sense of audience for their work. | Create and present information and ideas in consistent ways for different purposes by combining information from different sources, matching the needs of the audience. | Create and present information and ideas to meet the intended purpose and audience, selecting and using different layouts and techniques for different tasks. |
| | Safely share different forms of information with others in appropriate ways, including the use of e-mail with attachments; virtual learning environments (VLEs). |  | |

End of key stage 4 and post-16 columns also relate to Key Skills qualifications, Levels 1, 2 and 3 and it is hoped that learners who have the appropriate skills will also meet the challenge of attaining the appropriate qualifications.