Children and Young People – School Improvement Service

An ICT Progression for Primary Schools

Years 1 & 2

This document can be downloaded at www.hereford-edu.org.uk/ict

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Cover photograph: Year 2 children at Madley Primary School

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1. Introduction

The purpose of these materials is to provide primary teachers with a long overdue and up-to-date structure for the teaching of ICT. This Progression will assist them in both understanding what ICT capability is and in further developing planned curriculum opportunities where that capability can be developed. The Progression will assist teachers in understanding standards in ICT and help them to raise children's attainment within the context of a personalised curriculum.

The Progression is intended to be the basis of a scheme of work for a school which, once written, will replace the current QCA Scheme of Work. Although the QCA scheme provides a structure to deliver ICT capability it was very much of its time and many schools have moved from this to a point where they embed planned opportunities to develop ICT capability within appropriate curriculum contexts. These materials will assist schools as part of the process of reflecting on, and further developing, their current practice.

The Herefordshire Primary ICT Progression makes explicit a progression of capability through Key Stages 1 and 2. This is shown as expectations across pairs of year groups (years 1 & 2, 3 & 4, and 5 & 6). We have adopted this approach (rather than individual year groups) because we believe there is no specific point at which children should necessarily develop a specific skill in ICT or reach a level of ICT capability; rather more this should be dictated by the demands of the curriculum and the extent to which skills, knowledge and understanding of ICT needs to be in place to support learning across the whole curriculum. As technology develops (and that happens very rabidly) the goal posts move and allocations of skills to individual year groups quickly become out dated (a major problem with the QCA units of work). The paired year group approach will also be more accessible to the many small schools in Herefordshire.

The progression of ICT knowledge, skills and understanding will enable all teachers to gauge a range of expectations that may be appropriate for their children. Subject based examples show how opportunities to develop capability can be planned into both discrete and subject based lessons. Schools will wish to offer children the full breadth of national curriculum entitlement and this document sets out progressions of capability by core themes / applications.

Schools have a statutory requirement to teach children ICT; however it is up to them to decide how this is best delivered. Some schools offer discrete skills based lessons on a weekly basis whilst others plan to develop capability in the extended curriculum by embedding the skills into the wider curriculum. It is certainly the case that ICT capability is best developed when there is a real reason both to develop and apply the particular aspect of ICT and when children have access to resources as a normal part of their learning. A definition of best value would be when the resources and learning spaces available enable children to learn effectively as individuals and in groups as and where it is appropriate.

However a school tackles the teaching of ICT skills, the planned curriculum should include opportunities for children to develop their ICT capability. This means that teachers need to be clear about what the learning objectives are to develop that capability, and assess children's progress in learning techniques, applying these techniques in their learning and in developing their higher order thinking making qualitative judgements about when and when not to use ICT.

Information and communications technologies are embedded in our society. Children are growing up at a time of rapid technological change and are adopting these technologies as a matter of course both at school and at home, for work and in their leisure time. Schools have a responsibly to ensure that children develop the necessary knowledge, skills and understanding in order to be successful citizens of the future. In line with "Every Child Matters" children will need ICT capability to achieve economic well being and will need to understand electronic communications in order to enjoy and achieve and to stay safe. Equally, schools have a duty to make appropriate use of the powerful tools and resources that ICT now offers every child in so much of their learning and across all subjects.

2. What is ICT Capability?

A child has a true ICT capability when it has knowledge and an **understanding** of the concepts involved, has acquired the necessary **skills**, can apply these to new learning situations as appropriate and understands the significance of ICT in the contemporary world, in their learning and life. The extent to which they can do this independently and appropriately, making their own decisions, defines their level of capability.

3. ICT in the Early Years Foundation Stage

Learning about information and communications technology starts from birth because it's the way the world works. Technology is an integral part of all young children's environment and world. They are surrounded by ICT just as they are surrounded by language, print and numbers. In the home, technology includes remote controls for television, DVDs and sound systems, toys that have buttons and buzzers, mobile phones, washing machines, microwave ovens and other machines that require programming, and of course, computers. Outside the home, children are also immersed in the technological world: they see automatic doors, cash machines, bar code scanners, digital tills and weighing machines, and security cameras. Technology is something children are going to grow up with, learn about and master, and use as a tool to increase their understanding in all areas of learning.

Many activities in the early years revolve around children developing an understanding of their environment. Settings encourage children to explore, observe, solve problems, predict, discuss and consider. ICT resources can provide tools for using these skills as well as being examined in their own right, with computers not the only ICT resources. ICT equipment added to role-play reflects the real world, builds on children's experiences and allows them opportunities to understand how, why, when and where different forms of technology are used in everyday life.

Early experiences form a foundation upon which KS1 and KS2 can build and the early learning goals have specific objectives relating to ICT.

By the end of the FS most children will:

- *Show an interest in ICT*
- *Know how to operate simple equipment*
- *Complete a simple program on the computer and / or perform simple functions on ICT equipment*
- *Find out about and identify the uses of everyday technology and use information and communication toys to support their learning.*

The child centred and child initiated ethos of the EYFS makes the organisation found in this ICT Progression inappropriate for this phase. A planned expansion of these materials, in the summer of 2009, will attempt to provide guidance for children in Reception and it is hoped that this will help to link the ICT Progression to the Early Years Foundation Stage. In the mean time, some good examples of the use of ICT in the EYFS will be found in the *Learning and Teaching with ICT* resource which can be found at http://samples.embc.org.uk/primary/

4. ICT in key stages 1 and 2

The National Curriculum sets out the statutory entitlement of what children should learn. This applies to ICT from KS1 to KS3 and expectations of ICT as an area of learning are set out in the programmes of study. The national curriculum indicates that children should also be given opportunities to apply and develop their capability across the curriculum to support their learning. At KS1 Teachers should use their judgement to decide where it is appropriate to teach the use of ICT across subjects. At KS2 there are statutory requirements to use ICT in all subjects apart from PE.

Core aspects of ICT Capability

The programmes of study for ICT group the knowledge, skills and understanding that children require into themes being:

- Exchanging and sharing information
- Finding things out
- Developing ideas and making things happen

A theme running through all of these is that of *reviewing, modifying and evaluating work as it progresses*. Although these themes are described separately in reality these are often merged as a natural consequence of the context that children are working within.

Exchanging and sharing information

This theme is about children being able to communicate effectively with others through the sharing of information and in the presentation of their ideas in electronic format. It is about children understanding the strengths and dangers of electronic communication technologies and being aware of, and having an empathy with, an intended audience. It is about being able to draw upon the multimodality that ICT offers in order to meet the needs of an intended audience. It is about being able to utilize a wide range of electronic formats such as digital images, digital video, text, sound and animations in their work. Exchanging and Sharing Information is about children being able to communicate within and beyond the school including dialogue with experts. An important and growing issue within this theme is that of e-safety where children must develop the knowledge and understanding that will enable them to stay safe on-line.

Finding things out

This theme is about children understanding and using electronic information to handle data and undertake research. It is about understanding that vast amounts of information exist, and about developing effective enquiry skills in order to access information with a view to relevance, bias and accuracy. It is about children understanding the strengths of storing, ordering, presenting and rapidly sorting data in electronic formats, and the importance of this in commerce and society. It is about the use of appropriate technologies and knowing what questions to ask and tools to use in order to solve a problem. It is about children developing enquiry skills to plan, design and implement an investigation using appropriate tools, and predicting possible and unlikely outcomes. In this strand children will develop reasoning skills to determine the quality, reliability and validity of evidence, data and information.

Developing ideas and making things happen

This theme is about children understanding and using elements of control technology, sensing, modelling and simulations in their learning. It is about them making changes and understanding that they can explore options to answer "what if" type questions. It is about children solving problems by prediction, trial and error and in refining instructions following feedback to control something. It is about them knowing that a simulation can represent real or imaginary situations and that this allows you to try things out that may be difficult to do in real life. It is about children identify patterns, sequences, and cause and effect and that solutions can be modelled using ICT tools.

Reviewing and modifying work as it progresses

This theme, which should be integrated into the other themes, is about how children evaluate their learning and that of others and how they use that evaluation to inform further developments. It is about them being clear about learning intentions and evaluating their progress against them through questioning, discussion and evaluation and using the outcomes of these to inform future action. It is about testing and refining, assessing, justifying, predicting and hypothesising, problem solving and checking for accuracy. It is about children understanding the advantages, dangers and moral issues in using ICT to manipulate and to present information to potentially large unknown audiences.

5. How to use the ICT Progression

The progression is based on three pairs of year groups:

- Years 1 and 2
- Years 3 and 4
- Years 5 and 6

Managers and subject coordinators will need to have an overview of all three, class teachers may need to consider the content of more than one pair of year groups in order to cater for those children who are working considerably above or below expectations.

The Progression is based around the first three headings from the KS1 and KS2 Programmes of Study for ICT (explained above) and each of these is broken down into typical ICT applications within the broad heading (e.g. Exploring and Sharing information constitutes text processing and multimedia, digital image, sound and music and electronic communication). In some cases these are then broken down still further.

Each application is broken down into:

- **ICT Skills** - what the children do
- **ICT knowledge and understanding** - which needs to be drawn out by teachers to ensure children develop true ICT capability and not just skills
- **ICT Outcome** – (which can also be used for assessment – see below) consists of three statements (based on NC levels) which should describe children's work.
- **Cross Curricular Outcomes** – Indicates how ICT can enhance learning across the curriculum. This is where planning in ICT should start.

This ICT Progression should be integrated into the medium and short term planning across all subjects. This need not be an arduous task, it can be done simply by referencing the particular ICT theme or application that is being developed / used, and making a reference back to this document. A **medium term planning grid** is available as a simple mapping tool to help ensure that the full range of ICT entitlement is used across each year group. Teachers of single year group classes will need to liaise with their colleagues in the partner year group (Y1/Y2, Y3/Y4, Y5/Y6) to agree more detailed progression.

Each school should also develop its own software map. A sample, containing recommendations for Herefordshire primary schools is available to use as a template and can be downloaded (along with all the supporting resources for this Progression) from http://www.hereford-edu.org.uk/ict/downloads.asp. A software map will provide the detail of precisely which applications have been chosen by the school to be used at each year group.

6. Assessing ICT capability

Assessment is central to classroom practice and is a key professional skill. Effective assessment establishes what a child knows, understands and can do. It also informs the planning of future learning and enables a school to review the effectiveness of the curriculum and teaching.

Schools are required to report annually to parents, describing progress in ICT. This report must contain comments on the child's progress, achievement, strengths, weaknesses and next steps. Teachers will use their professional judgement to determine the most effective method of gathering evidence of pupils' progress but in ICT it will certainly require knowledge of the context in which work was completed rather than simple scrutiny of a finished outcome.

One good approach to assessment of pupil's ICT capability is to consider, perhaps on an annual basis, what a child has accomplished for each of the ICT applications in the Progression. The three statements under the *ICT Outcome* heading outline what a child's ICT capability will look like for that

application based on three relevant NC levels. These statements can be used as a basis for judgements on individual children. The *ICT Outcome* statements will also be found for all levels (1-5) at the end of this booklet.

There is actually no statutory requirement for schools to arrive at a levelled judgement for ICT but the approach to assessment outlined above should mean that levelling can take place with no extra effort beyond that required for Assessment for Learning that would naturally take place.

Teachers in Herefordshire primary schools are increasingly entering pupil assessments directly into SIMS Assessment Manager; the structure you will find there (if you are in a Herefordshire school) has been written to work with the headings in the Herefordshire ICT Progression. Please contact ICT Services SIMS support for assistance or more information.

If levelling of ICT work is attempted, it will be necessary to take into account attainment across all aspects of a child's ICT work and then to use a "best fit" approach when arriving at an overall level. (In Herefordshire, the SIMS Assessment Manager module will take care of this for you.) As with all National Curriculum assessment, the majority of children in KS1 are expected to be working between levels 1 and 3, with the majority of children achieving level 2 by age 7. The majority of children in KS2 are expected to be working between levels 2 and 5, with the majority achieving level 4 by age 11.

7. Supporting documentation

Resources to support this Progression are available for download at www.hereford-edu.org.uk/ict. Other useful sites are as follows:

Herefordshire Primary ICT Progression (these materials and downloads)	www.hereford-edu.org.uk/ict
Herefordshire Children's Services	www.cs.herefordshire.gov.uk
Learning and Teaching Resources from Herefordshire School Improvement Service	www.cs.herefordshire.gov.uk (Curriculum & Resources)
Standards Site	www.standards.dcsf.gov.uk/
Qualifications and Curriculum Authority	www.qca.org.uk/index.html
National Curriculum Online	www.nc.uk.net
National Curriculum in Action	www.ncaction.org.uk/
Department for Children, School and Families	www.dcsf.gov.uk
Office for Standards in Education	www.ofsted.gov.uk/
British Education Communications Technology Agency (Becta)	www.becta.org.uk
National College of School Leadership	www.ncsl.org.uk
Superhighway Safety web site	http://safety.ngfl.gov.uk/schools
Inclusion	http://inclusion.ngfl.gov.uk/index.php?i=1
Learning and Teaching using ICT	http://samples.embc.org.uk/primary/
The Primary Framework (Literacy & Numeracy)	www.nationalstrategies.standards.dcsf.gov.uk/primaryframework
ICT Applications in Literacy	www.standards.dcsf.gov.uk/primaryframework/literacy/ictapplications
QCA Schemes of Work	www.standards.dcsf.gov.uk/schemes3/

Years 1&2 Exchanging and Sharing Information

Text Processing & Multimedia

ICT Skills

- Develop familiarity and correct use of the keyboard – spacebar, backspace, shift (for capital letters – not caps lock), return etc.
- Select appropriate images
- Select or record a sound to add to work
- Add captions to photographs, graphics and sound
- Use word lists to select text (if necessary)
- Use templates and other appropriate support to create simple presentations for different purposes
- Word process short texts.
- Use the return key to create line breaks
- Navigate around text in a variety of ways (mouse, arrow keys) as they edit their work
- Make use of graphics, video and sound to enhance text in multimedia work
- Begin to edit their work in the light of their own discussions and observations

ICT Knowledge and Understanding

- Know that multimedia includes sound, text and graphics.
- Know that ICT can be used to communicate ideas in different ways. (Eg text, images, tables, sound).
- Know that text comes in different colours, sizes and styles.
- Recognise that changes can be made to documents to improve appearance and add new ideas.
- Talk about their use of text, graphics and sound including how the mood of a piece is changed.

ICT Outcome (Levels 1, 2, 3)

- **L1:** Work with others and with support to contribute to a digital class resource which includes text, graphic and sound elements.
- **L2:** Generate their own work, (with help where appropriate with multimedia) combining text, graphics and sound. Save, retrieve and edit their work.
- **L3:** Record and present information integrating a range of appropriate media combining text and graphics in printable form and sound and video for on-screen presentations which include hyperlinks. Begin to show an awareness of the intended audience and seek feed back.

Cross curricular outcomes and links

Years 1 & 2 Text Processing & Multimedia

Literacy

- Children use their own drawings and digital photographs and IWB software to create and publish their own digital picture book. Y1 Nar4 Stories about Fantasy Worlds
- Children write a caption for a non-fiction book Y1 NF4 Information Texts
- Children write captions on photographs of themselves in role play Y1 N1 Stories with familiar settings
- Children create a class book from annotated photographs Y1 NF3 Recount dictionary
- Children write a multimodal text of the story of Little Red Riding Hood with pictures and recorded sound Y2 N2 Traditional stories
- Children design a simple website Y2 NF3 Information Texts
- Children use a PowerPoint template to create a simple class website structure, on a given subject Y2 NF4 Non chronological report
- Children's poems are published, by word processing or presentation software, to combine words and images. Y2 Additional text based unit Really Looking

Mathematics

-

Science

- Children sequencing a process for example making a model or making biscuits – DT1A, DT1D, Sc1C, Sc1F

Other Subjects

- Children sequence images for narrative or non narrative writing (e.g. school incident / route to school / familiar story / life cycles / time line) – Ge1 (see Li above)
- Children sequencing a process for example making a model or making biscuits – DT1A, DT1D, Sc1C, Sc1F
- Children photograph riding a bicycle and add a caption and/or voice recording – H1, G2
- Children use a paint package to create a picture and annotate (e.g. aboriginal art, labelling parts of a plant / body, routes to school, plan a playground / classroom etc) – A2B, DT1B, Sc1B, Ge1
- Children make labels or captions to match objects on display in a class toy museum – H1
- Children use digital images and text to tell the life story of Grace Darling or Florence Nightingale – Hi1
- Children use text, photographs and maps to compare the local area to an island home – Ge1, Ge3
- Children add sound effects to a poem to enhance performance – Mu4

Years 1&2 Exchanging and Sharing Information

Digital Image (Art programs, Photographs, Animation and Video)

ICT Skills

Graphics Packages (painting)

- Use a paint package to create a picture to communicate their ideas
- Explore shape line and colour to communicate a specific idea
- Use brush and pen tools, create lines and textures and use the flood fill spray and stamp tools.
- Use ICT to source, generate and amend ideas for their art work
- Develop a variety of skills using a range of tools and techniques to communicate a specific idea or artistic style / effect

Digital photographs and video

- Use a digital camera or camcorder to take a picture or record their work
- Go on to develop greater control over the digital stills video camera
- Begin to edit digital photographs

Animation

- Create a sequence of images which together form a short animation to illustrate a story

ICT Knowledge and Understanding

- Understand the differences between a graphics package and paper based art activities
- Understand there are a variety of tools in a graphics package and they each have a different purpose
- Understand digital still or video cameras (and later visualiser or scanners) can capture an image.
- Understand the need to frame an image or scene and keep the camera still
- Understand that some packages will enable images to be animated.
- To understand that animation is a sequence of still images
- Talk about their use of a paint package and their choice of tools
- Talk about the differences between a graphics package and paper based art activities (undo, changes quickly and easily made)
- Begin to discuss the quality of their image and make decisions (e.g delete a blurred image)

ICT Outcome (Levels 1, 2, 3)

- **L1:** Use a range of simple tools in a paint package / image manipulation software to create / modify a picture.
- **L2:** Use a range of tools in a paint package / image manipulation software to create / modify a picture so that it communicates a specific idea. Create a simple animation to tell a story.
- **L3:** Manipulate digital images using a range of tools in appropriate software to convey a specific mood or idea. Make a short film / animation from images (still and / or moving) that they have sourced, captured or created.

Cross curricular outcomes and links

Years 1 & 2 Digital Image

Literacy

- Children use a paint program to create two contrasting fantasy settings – Y1 Nar4 Stories about fantasy settings
- Use a simple animation package to show the growth of a seed – Y1 Nar5 Recount
- Children use a hand held video camera or digital camera to record the acting out of story boards they have created

Mathematics

- Children photograph shapes in their local environment and use them in their work on shape

Science

- Children photograph growing cress seeds
- Children use the digital microscope to capture images of small items or time lapse photography – Sc2B

Other Subjects

- Children use a digital camera or camcorder to photograph themselves, their friends and their toys
- Children produce timeline of images – Hi
- Children photograph safety signs around the school and use a digital photograph album to record warnings to match the pictures – Ge1B
- Children use a paint package to produce a face, house, vehicle etc
- Use digital images and art packages to investigate the work of other artists.
- Use an art package to explore techniques (eg. Patterning, tiling, stamping)
- Children design packaging for a product using graphic software – D+T
- Children use paint package and select appropriate images produce maps, diagrams, charts and posters
- Children use digital images and text to tell the life story of Grace Darling or Florence Nightingale – Hi4
- Children use an art program to create a design for Joseph's coat – D+T2D
- Children create T-shirt designs using a graphics program –Ar2B
- Children research "designs in nature" using a digital camera and an art package to create repeat pattern – Ar2B

Years 1&2 Exchanging and Sharing Information

Sound and Music (sound capture and editing, podcasts and music composition)

ICT Skills

Sound Recorders

- Use sound recorders / players to listen to pre recorded sound
- Use sound recorders (at and away from the computer) to record and playback sounds (eg voices, instruments, sounds around them …)
- Experiment with a range of devices which create and record sound

Music

- Explore a range of electronic music and sound devices including keyboards, software and different peripherals
- Use software to explore sound and musical phrases for a purpose
- Compose music using icons to represent musical phrases (Compose World, 2Simple Music Toolkit)

ICT Knowledge and Understanding

- Understand that devices have stop, record and playback functions
- Be aware that sound can be recorded on the computer as a sound file.
- Begin to understand that music and sound can affect mood and atmosphere
- Discuss their work
- Recognise that an electronic keyboard can be used to select and control sounds

ICT Outcome (Levels 1, 2, 3)

- **L1:** Chose suitable sounds from a bank to express their ideas. Record short speech.
- **L2:** Compose music from icons. Produce a simple presentation incorporating sounds the children have captured, or created.
- **L3:** Create a simple podcast, selecting and importing already existing music and sound effects as well as recording their own. Create multiple track compositions that contain a variety of sounds.

Cross curricular outcomes and links

Years 1 & 2 Sound and Music

Literacy

- Create the setting from a familiar traditional tale and provide costumes and props to encourage children to take on particular roles. Provide a tape recorder or digital sound recorder for children to talk into while in role and writing materials for them to write messages and letters in role. Y1 Nar3 Traditional and fairy tales
- Children add sound effects to a poem to enhance performance
- Children record stories for others to listen to
-

Mathematics

-

Science

- Use sound recording devices to record sounds around the school and identify them – Sc1F
-

Other Subjects

- Use sound buttons in a program to hear sounds and link them to pictures
- Use the sound features of programs to add to their work
- Children photograph riding a bicycle and add a caption and/or voice recording – H1, G2
- Children photograph safety signs around the school and use a digital photograph album to record warnings to match the pictures – Ge1B
- Children use ICT to create sounds and simple musical phrases
- Children add sound effect to a poem to enhance performance – Mu4
-

Years 1&2 Exchanging and Sharing Information

Electronic communication (email, video conferencing and VLE)

ICT Skills

- Contribute ideas to a class email and / or blog (perhaps a forum on the VLE)
- Use simple authoring tools to create their own message or page on the VLE
- Author their own pages in their E portfolio adding text and images (link to multimedia)
- With support, write and send a short email from a class account (eg a letter to Santa)

ICT Knowledge and Understanding

- To understand that messages can be sent electronically over distances and that people can reply to them.
- Understand the different ways that messages can be sent, email, text letter, phone … and begin to consider the advantages of each
- Understand that many different people can contribute to the VLE and to blogs
- Understand that communications can be in pictures, sound and text
- Begin to talk about the advantages of using electronic communications
-

E Safety

- Discuss personal safety when using the Internet at home
- Understand and abide by internet safety rules
-

ICT Outcome (Levels 1, 2, 3)

- **L1:** Contribute ideas to a class email to another class / school etc.
- **L2:** Work collaboratively by email to share and request information of another class or story character. Begin to understand the need to abide by school e-safety rules.
- **L3:** Share ICT work they have done electronically by email, VLE, or uploading to authorised sites. Where possible seek and respond to feedback. Abide by school rules for e-safety.

Cross curricular outcomes and links

Years 1 & 2 Electronic communication

Literacy

- Children email authors / poets
- Writing in role using e.g. to another class as fairy story characters
-

Mathematics

-

Science

-

Other Subjects

- Use different forms of communicating in role play areas – telephone, mobile etc
- Children use email set up e mail account for Barnaby bear to send emails home – Ge5
- Use a discussion forum on the learning platform to "Ask the expert"
- Compose a class blog on a diary of a tadpole
- Contact children in other class / school to request information
- Share similar work with children in another class / school
- Ask a visitor to the school questions in preparation for the visit
- Contribute to a discussion about holidays in the past, asking parents and grandparents to share and contribute
-

Years 1&2 Finding things out

Research (Internet and CD ROM)

ICT Skills

- Use appropriate buttons, menus and hyperlinks to navigate web sites / CD ROMs or stored information
- Access different information using a range of equipment (tape recorders, website, TV, DVD etc)
- Enter text into a search engine to find specific given web sites
- Locate specific sites by typing a website address (URL) into the address bar in a web browser.
-

ICT Knowledge and Understanding

- Understand that ICT (the internet) gives rapid access to a wide variety of information and resources
- Talk about their use of ICT and other ways of finding information
- Understand that different forms of information (text, images, sound, multimodal) exist and that some are more useful for specific purposes
- Understand and talk about how the information can be used to answer specific questions
- Begin to develop key questions and find information to answer them
- Be aware of responsible internet use and the school's acceptable use policy

At this stage children's use of the internet needs to be carefully guided by adults. It is not reasonable to allow children unsupervised access to search engines. Appropriately selected CD ROMs provide a good means of achieving this.

ICT Outcome (Levels 1, 2, 3)

- **L1:** As a class exercise children explore information from a variety of sources (electronic, paper based, observations of the world around them, etc.). They show an awareness of different forms of information
- **L2:** Children use a search engine to find specific relevant information to use in a presentation for a topic. They save and retrieve their work.
- **L3:** Using another curriculum area as a starting point, children ask their own questions then use ICT sources to find answers, making use of search engines, an index, menu, hyperlinks as appropriate. Children use the information or resources they have found. Children talk about using ICT to find information / resources noting any frustrations and showing an emerging understanding of internet safety.

Cross curricular outcomes and links

Research - Years 1 & 2

Literacy

- Children talk about their use of a talking book (fiction or non-fiction)
- Compare, contrast and discuss a range of fantastic settings from a variety of paper and ICT sources (films, paintings, picture books, photographs). Themes could include jungles, outer space or under water. *Y1* Nar4 Stories about fantasy worlds
- Explain organisational features of texts, including …. hyperlinks - Y2 – Understanding and interpreting texts

Mathematics

- Answer a question by selecting and using suitable equipment, and sorting information, shapes or objects; display results using tables and pictures – Year 1 Block C
- Follow a line of enquiry; answer questions by … selecting, organising and presenting information in lists, tables and diagrams – Y2 Block C
- Answer a question by collecting and recording data in lists and tables; represent the data as block graphs or pictograms to show results; use ICT to organise and present data – Y2 Block C

Science

- Children use a CD ROM to find out about materials – Sc1C

Other Subjects

- Children explore a given internet page to find out information about toys from the past – Hi1
- Children find out information about one of the places Barnaby visited on his travels from a given webpage or CD ROM – Ge5
- Children use a given webpage to look at images of sculptures – Ar1C
- Children view web pages about Jewish customs – Passover – RE1E
- Children find a suitable song or music track from a list of mp3 files for a music project – Mu
- Children explore a given webpage to find information about Florence Nightingale or Grace Darling – Hi4
- Children explore a given webpage to find information about Sikhism – RE2D
- Children use a given webpage to explore an interactive map linked to an island home – Ge3
- Children use the Barnaby Bear website to find out about his visits and how he travels

Years 1&2 Finding things out

Data Handling (Database, Graphing)

ICT Skills

- Develop simple classification skills by carrying out simple sorting activities (probably away from the computer)
- Use simple graphing programs to produce pictograms and other simple graphs
- Use graphing software to change the way a graph type (eg pictogram to bar chart)
- Interpret graphs, discuss information contained and answer simple questions
- Use simple search tools in a prepared database to answer simple questions (eg how many children have brown hair)
- Sort and classify a group of items by asking simple yes / no questions
- Use a branching database program to sort and identify items

ICT Knowledge and Understanding

- Understand that ICT can be used to sort items and information
- Understand that ICT can be used to create, display and change graphs quite easily
- Understand and describe how ICT makes it quick and easy to add to and change data
- Begin to understand that if data has not been entered accurately it cannot be used to provide correct answers to questions
-

ICT Outcome (Levels 1, 2, 3)

- **L1:** As a class or individually with support, children use a simple pictogram or painting program to develop simple graphical awareness / one to one correspondence.
- **L2:** Use a graphing package to collect, organise and classify data, selecting appropriate tools to create a graph and answer questions. Enter information into a simple branching database, database or word processor and use it to answer questions. They save, retrieve and edit their work.
- **L3:** Children use a simple database (the structure of which has been set up for them) to enter and save and save information on a given subject. They follow straight forward lines of enquiry to search their data for their own purposes. They talk about their experiences of using ICT to process data compared with other methods.

Cross curricular outcomes and links

Years 1 & 2 Data Handling

Literacy

- Identify and record how the minibeasts looks, how they move, etc. Use this information to help in writing poems about minibeasts – Y2 Additional text based unit – Really looking

Mathematics

- Answer a question by selecting and using suitable equipment, and sorting information, shapes or objects; display results using tables and pictures – Year 1 Block C
- Answer a question by recording information in lists and tables; present outcomes using practical resources, pictures, block graphs or pictograms – Year 1 Block C
- Use diagrams to sort objects into groups according to a given criterion; suggest a different criterion for grouping the same objects – Year 1 Block C
- Follow a line of enquiry; answer questions by … selecting, organising and presenting information in lists, tables and diagrams – Y2 Block C
- Answer a question by collecting and recording data in lists and tables; represent the data as block graphs or pictograms to show results; use ICT to organise and present data – Y2 Block C
- Use lists, tables and diagrams to sort objects; explain choices using appropriate language, including 'not' – Year 2 Block C
- Children use a branching database to sort regular 2D shapes

Science

- Children use ICT to sort objects according to whether they are living or not living – Sc1A
- Children collect and analysing class based data about themselves – Sc1A
- Children collect information about minibeasts, represent in a graph and interpret results – Sc2D
- Children identify the minibeasts they have found using a branching database – Sc2D
- Children create a graph linked to plants and animals found in their local environment – Sc2B
- Children create graphs linked to health and growth – Sc2A
- Children sort animals according to their properties perhaps in a branching database – Sc2D

Other Subjects

- Children interpret a pictogram showing the types of houses people live in – Ge1
- Children undertake a traffic survey and interpret a pictogram – Ge1, 2, 25
- Children interpret a graph showing the most popular fruit in the class – DT1C
- Children collect and analysing class based data about themselves – Sc1A, DT1B, DT1C, Ge1, Hi2
- Children talk about images of toys now and then – Hi2
- Children use a database of holiday destinations to investigate preferences – Ge4
- Collect information on school food preferences such as favourite snacks. Graph + interpret.

Years 1&2 Developing ideas and making things happen

Logo and Control

ICT Skills

- Explore remote control toys and devices
- Create / follow instructions to navigate other children and programmable toys around a course
- Explore outcomes when individual buttons are pressed on a robot
- Create and type in instructions to create a simple shape on screen
- Make predictions when controlling devices (actual or on screen) estimating distances and turns
- Have experiences of controlling other devices such as MP3 players, sound recorders, CD players, video recording equipment and digital cameras

ICT Knowledge and Understanding

- Understand that devices respond to commands
- Talk about devices in the home that are controlled by commands.
- Understand that trial and error and prediction are important skills when controlling movement to achieve a specific outcome.
- Know that sequencing skills can be applied to other devices.

ICT Outcome (Levels 1, 2, 3)

- **L1:** Control simple everyday devices to make them produce different outcomes.
- **L2:** Control a device, on and off screen, making predictions about the effect their programming will have. Children can plan ahead.
- **L3:** Children are able to type a short sequence of instructions and to plan ahead when programming devices on and off screen.

Cross curricular outcomes and links

Years 1 & 2 Logo and Control

Literacy

- Children use a tape recorder or MP3 player to record sounds and listen to stories (Mu, Li)
- Children control a floor robot to visit characters in imaginary location

Mathematics

- Use of robot to move along number line.
- Investigate properties of squares and rectangles.
- Compass points and directional vocabulary
- Timing speed of devices
- Relate addition to counting on; recognise that addition can be done in any order; use practical and informal written methods to support the addition of a one-digit number or a multiple of 10 to a one-digit or two-digit number Y1 Block A (and others)
- Understand subtraction as 'take away' and find a 'difference' by counting up; use practical and informal written methods to support the subtraction of a one-digit number from a one-digit or two-digit number and a multiple of 10 from a two-digit number Y1 Block A (and others)
- Visualise and use everyday language to describe the position of objects and direction and distance when moving them, for example when placing or moving objects on a game board Y1 Block D
- Follow and give instructions involving position, direction and movement Y2 Block D

Science

-

Other Subjects

- Use a car on a floor map to explore different routes and deliver mail (Ge1)
- Children use a digital camera or Digital blue video camera to record images (ALL SUBJECTS)
- Use of alarm clocks and simple cooking timers / microwave etc. (DT, SCI, PSHE)
- Children control a floor robot "tractor" and deliver food stuffs to animals in different locations (MATHS, SCI, GEOG)
- Planning a route around the playground (Ge, Ma)
- Plan an escape route (Hi)
- Looking after your programmable devices (PSHE)
- Time-lapse video to support 'life processes and living things' (SCI)
- Plan a route for the Three Wise Men (RE)

Years 1&2 Developing ideas and making things happen

Modelling and Simulations (Adventure Games and Simulations)

ICT Skills

- Use a mouse to move and place items accurately on a screen
- Explore a simulation in other curriculum areas and talk about what happens
- Make choices in an adventure game or simulation

ICT Knowledge and Understanding

- Understand computers can represent real or fantasy situations
- Discuss their use of simulations and compare with reality
- Talk about the rules found in a simulation
- Understand computer representation allows the user to make choices and that different decisions produce different outcomes

ICT Outcome (Levels 1, 2, 3)

- **L1:** Make simple choices to control a simple simulation program.
- **L2:** Children are able to play an adventure game and use a simple simulation, making choices and observing the results. Their conversation shows they understand that computers are good at replicating real life events and allowing them to explore contexts that are otherwise not possible.
- **L3:** Use models and simulations to find things out and solve problems. Recognise that simulations are useful in widening experience beyond the classroom. Make simple use of a spreadsheet to store data and produce graphs.

Cross curricular outcomes and links

Years 1 & 2 Modelling and Simulations

Literacy

-

Mathematics

- Describe ways of solving puzzles and problems, explaining choices and decisions orally or using pictures – Year 1 Block C
- Use and Interactive Teaching Programme (ITP) or Primary Framework spreadsheet file to investigate and model mathematical concepts.
- use a shopping simulation to investigate money

Science

- Children choose clothes and dress Teddy for different weather conditions (Sc1a)
- Children use a given website to explore an imaginary situation (eg complete a circuit using conducting materials. They make choices, note the results and amend if necessary. (Sc2F)

Other Subjects

- Children choose farm yard animals to create a picture
- Children use different colours in a portrait to reflect different feelings (Ar1)
- Children use a simple modelling software or website to explore choices and make something happen (eg Charlie Chimp's Modelling Party, Teddy bears Picnic)
- Children create a design (eg an ideal home) (DT1d)
- Children use a visual simulation of feeding animals.
- Children research a place of worship, or some other setting, by using online virtual tours (RE2d)
- Children explore the world by navigating around aerial photographs (eg Google Earth) (Ge)

Years 1&2 Developing ideas and making things happen

Data Logging

ICT Skills

- Children are not expected to develop their own skills in using data logging equipment in KS1. Whole class demonstrations by the teacher on an interactive whiteboard of a data logger monitoring live data (eg changing sound levels over time) can be used very effectively.

ICT Knowledge and Understanding

- Be aware that digital devices (such as thermometers and microphones) can be used to show external changes

ICT Outcome

-

Cross curricular outcomes and links

Years 1 & 2 Data Logging

Literacy

-

Mathematics

- Answer a question by recording information in lists and tables; present outcomes using practical resources, pictures, block graphs or pictograms Y1 Block C
- Answer a question by collecting and recording data in lists and tables; represent the data as block graphs or pictograms to show results; use ICT to organise and present data Y2 Block C

Science

- The teacher uses a data logger, with and interactive whiteboard to show changes in light levels (Sc1d)
- The teacher uses a data logger, with and interactive whiteboard to show changes in sound levels received at different distances from the source (Sc1f)
- The teacher (perhaps with a group of children) uses a data logger to measure temperature and light levels in different creature's habitats.

Other Subjects

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Assessment Grid - Exchanging and Sharing Information

NC Level & Extract from Attainment Target	Text & Multimedia	Digital Image	Sound and Music	Electronic Communication
1 **Share** ideas using text, images and sounds.	Work with others and with support to contribute to a digital class resource which includes text, graphic and sound.	Use a range of simple tools in a paint package / image manipulation software to create / modify a picture.	Chose suitable sounds from a bank to express their ideas. Record short speech.	Contribute ideas to a class email to another class / school etc.
2 **Generate**, **amend** and **record** work. **Share** ideas in diff. forms including text, tables, images and sound.	Generate their own work, (with help where appropriate with multimedia) combining text, graphics and sound. Save and retrieve and edit their work.	Use a range of tools in a paint package / image manipulation software to create / modify a picture to communicate an idea. Create a simple animation to tell a story.	Compose music from icons. Produce a simple presentation incorporating sounds the children have captured, or created.	Work collaboratively by email to share and request information of another class or story character. Begin to understand the need to abide by school e-safety rules.
3 **Generate, develop, organise** and **present** work. **Share** and **exchange** ideas with others.	Record and present information integrating a range of appropriate media combining text and graphics in printable form and sound and video for on-screen presentations which include hyperlinks. Begin to show an awareness of the intended audience and seek feed back.	Manipulate digital images using a range of tools in appropriate software to convey a specific mood or idea. Make a short film / animation from images (still and / or moving) that they have sourced, captured or created.	Create a simple podcast, selecting and importing already existing music and sound effects as well as recording their own. Create multiple track compositions that contain a variety of sounds.	Share ICT work they have done electronically by email, VLE, or uploading to authorised sites. Where possible seek and respond to feedback. Abide by school rules for e-safety.
4 **Present** information in different forms. Show an **awareness of intended audience**. Show the need for **quality** in presentations. **Exchange info. & ideas with others in a variety of ways** including email.	Use advanced tools in word processing / DTP software such as tabs, appropriate text formatting, line spacing etc appropriately to create quality presentations appropriate for a known audience. Multimedia work shows restrained use of effects that help to convey meaning rather than impress.	Use images that they have sourced / captured / manipulated as part of a bigger project (eg presentation or document). Add special effects, transitions, titles etc. to their films / animations as appropriate, considering the effect they will have on the viewer.	Create and share more sophisticated podcasts and consider the effect that their podcasts will have on the audience. Use ICT to compose appropriate music for podcasts and evaluate its impact.	Create, send and reply to emails, making use of an address book and sending attachments. Participate in video conferencing as a group, appreciating the need to abide by certain rules. Understand the need for e-safety rules and abide by them both in and out of school.
5 **Structure, refine** and **present** information in **different forms and styles** for **specific purpose and audiences**. Exchange info. & ideas with others in a variety of ways including email.	Independently create an interactive presentation, with hyperlinks, using resources they have created or found through research. Make independent choices about the best media to use and consider the needs of their audiences and the impact their presentation will have. Finished presentation demonstrates an understanding of good design principles.	Independently select, use and evaluate appropriate ICT applications to locate, generate, amend and combine digital images / movies from different sources for a specific audiences or tasks. The finished presentation shows an understanding of style appropriate to the tasks / audiences.	Manipulate music and sounds to enhance presentations / films / images / photos relevant to audiences and purpose. Examples will include compositions from music software which include multiple voices mixed on multiple tracks as well as sound captured or sourced independently and edited and mixed using a variety of tools and techniques.	Independently engage in electronic communication (email, VLE, video conferencing, web logs, etc) in the course of work. Identify when such technology is helpful and comment on effectiveness, advantages and disadvantages of it. Understand the implications for e-safety and use the rules they have learned and developed, at all times.

Assessment Grid - Finding things out

NC Level & Extract from Attainment Target		Research (internet & CD ROM)	Handling Information (Database and graphing)
1	**Explore information** from various sources. Show they **know information exists in different forms.**	As a class exercise children explore information from a variety of sources (electronic, paper based, observations of the world around them, etc.). They show an awareness of different forms of information	As a class or individually with support, children use a simple pictogram or painting program to develop simple graphical awareness / one to one correspondence.
2	**Organise** and **classify** information **Present** their findings. **Enter, save** and **retrieve** work	Children use a search engine to find specific relevant information to use in a presentation for a topic. They save and retrieve their work.	Use a graphing package to collect, organise and classify data, selecting appropriate tools to create a graph and answer questions. Enter information into a simple branching database, database or word processor and use it to answer questions. They save, retrieve and edit their work.
3	**Save**, **find** and **use** appropriate information. **Follow straight forward lines of enquiry**	Using another curriculum area as a starting point, children ask their own questions then use ICT sources to find answers, making use of search engines, an index, menu, hyperlinks as appropriate. Children use the information or resources they have found. Children talk about using ICT to find information / resources noting any frustrations and showing an emerging understanding of internet safety.	Children use a simple database (the structure of which has been set up for them) to enter and save and save information on a given subject. They follow straight forward lines of enquiry to search their data for their own purposes. They talk about their experiences of using ICT to process data compared with other methods.
4	Understand the need for **care in framing questions** when **collecting, finding** and **interrogating** information. **Interpret** their findings **Question** plausibility. Recognise that poor-quality information leads to unreliable results. **Add to, amend and combine** different forms of information from a variety of sources.	Make use of copy and paste, beginning to understand the purpose of copyright regulations and the need to repurpose information for a particular audience. They show an understanding that not all information on the internet is accurate. Develop a growing awareness of how to stay safe when using the internet (in school and at home) and that they abide by the school's internet safety policy.	Children work as a class or group to create a data collection sheet and use it to setup a straight forward database to answer questions. Enter information and interrogate it (by searching, sorting, graphing etc). Begin to reflect on how useful the collected data and their interrogation was and whether or not their questions were answered.
5	**Select** the information they need for different purposes, **check** its accuracy and **organise** it in a form suitable **for processing.**	Independently and with due regard for safety, search the internet using a variety of techniques to find a range of information and resources on a specific topic. Use appropriate methods to validate information and check for bias and accuracy. Repurpose and make appropriate use of selected resources for a given audiences, acknowledging material used where appropriate.	Independently solve a problem by planning and carrying out data collection, by organising and analysing data involving complex searches using a database, and by drawing conclusions and presenting findings. The need for accuracy is demonstrated and strategies for spotting implausible data are evident. Children should be able to talk about issues relating to data protection and the need for data security in the world at large (eg health, police databases).

Assessment Grid – Developing ideas and making things happen

NC Level & Extract from Attainment Target	Logo & Control (Control links to D+T)	Modelling and Simulations	Data Logging (links to Science and Maths)
1 Recognise that many everyday devices respond to signals and instructions **Make choices** when using such devices to **produce different outcomes**	Control simple everyday devices to make them produce different outcomes.	Make simple choices to control a simple simulation program.	
2 **Plan** and **give instructions** to make things happen. **Describe** the effects. **Explore** what happens in real and imaginary situations.	Control a device, on and off screen, making predictions about the effect their programming will have. Children can plan ahead.	Children are able to play an adventure game and use a simple simulation, making choices and observing the results. Their conversation shows they understand that computers are good at replicating real life events and allowing them to explore contexts that are otherwise not possible.	
3 Use **sequences of instructions** to control devices and achieve specific outcomes. **Make appropriate choices** when using ICT-based models or simulations to help them find things out and **solve problems**	Children are able to type a short sequence of instructions and to plan ahead when programming devices on and off screen.	Use models and simulations to find things out and solve problems. Recognise that simulations are useful in widening experience beyond the classroom. Make simple use of a spreadsheet to store data and produce graphs.	Begin to use a data logger to sense physical data (sound, light, temperature).
4 Use ICT systems to **control events in a predetermined manner. Sense physical data.** Use models and simulations to **explore patterns and relationships. Make predictions** about the consequences of decisions.	Engage in Logo based problem solving activities that require children to write procedures etc. and to predict, test and modify. Use control software to control devices (using output commands) or to simulate this on screen. Predict, test and refine their programming.	Set up and use a spreadsheet model to explore patterns and relationships. Make predictions. Know how to enter simple formulae to assist this process.	Use a data logger confidently, connected to the computer or remotely, to capture continuous or intermittent data readings. Interpret the results and use these in their investigations. Realise the advantages of using ICT to collect data that might otherwise be problematic.
5 Create sequences of instructions to control events. Understand the need to be precise when framing and sequencing instructions. Understand how ICT devices with sensors can be used to monitor and measure external events. Explore the effects of **changing the variables in an ICT-based model.**	Independently create sequences of commands to control devices in response to sensing (i.e. use inputs as well as outputs). Design, build, test, evaluate and modify the system; ensuring that it is fit for purpose.	Set up and use their own spreadsheet, which contains formulae to investigate mathematical models. Ask "what if …" questions and change variable in their model. Understand the need for accuracy when creating formulae and check regularly for mistakes, by questioning results. Relate their use of spreadsheets to model situations to the wider world.	Children are able to identify their own opportunities for data logging and carry out their own experiments. They check and question results and are able to spot trends in data and identify when problems may have occurred.

Assessment Grid – Reviewing, modifying and evaluating work as it progresses

NC Level & Extract from Attainment Target		
1	**Talk about** their use of ICT.	The elements from this theme have largely been incorporated into the levelled statements for the other three themes in the Progression. For the sake of complete coverage of the attainment target they are set out here as separate statements. The elements from this theme need to be considered when arriving at an overall level for ICT Capability
2	Talk about their experiences of ICT both **inside and outside school.**	
3	**Describe** their use of ICT and its use outside school.	
4	**Compare** their use of ICT with other methods and with its use outside school.	
5	**Discuss their knowledge and experience** of using ICT and their **observations** of its use outside school. **Assess** the use of ICT in their work and are able to **reflect critically** in order to **make improvements** in subsequent work.	