

An ICT Progression for Primary Schools

Years 5 & 6



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

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

Years

5 & 6

Exchanging and Sharing Information

Text Processing & Multimedia

ICT Skills

- Develop and use criteria to evaluate the design and layout when evaluating a range of web sites, pages on Learning Platforms, online resources and presentations
- Understand how pages are linked together and recognise the need for clarity. Produce a diagram to show the links between pages
- Develop their use of hyperlinks to produce more effective interactive, non linear presentations.
- Make effective use of transitions and animations in presentations. Consider the effect on the audience and the appropriateness of such devices.
- Independently select and import images and video from digital cameras, graphics packages and other sources and prepare it for processing using ICT
- Select and import sounds from their own recording, create their own effects and music and import from other sources
- Format and edit work to improve clarity and mood, use a range of tools e.g. cut and paste, justify, tabs, insert and replace
- Make use of reviewing tools in word processors to collaborate in evaluating each other's work.
- Through peer and self evaluation children evaluate their design, and make improvements

ICT Knowledge and Understanding

- Show an increasing awareness of the intended audience
- Understand the potential of multimedia to inform or persuade and know how to integrate words, images and sounds imaginatively for different audiences and purposes.
- Recognise the features of good design in different printed and electronic texts (eg poster, website, presentation, etc) Talk about design in context of their own work
- Independently select the most appropriate ICT tools for their intended purpose and audience.
- Understand the importance of evaluation and adaptation of individual features to enhance the overall presentation

ICT Outcome (Levels 3, 4, 5)

- **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 feedback.
- **L4:** 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.
- **L5:** 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.

Cross curricular outcomes and links

Years 5 & 6 Text Processing & Multimedia

Literacy

- Children produce a narrative , the process aided by recordings of themselves – [Y5 Nar2 Traditional stories, fables, myths and legends](#)
- Children create an audio drama and save it as a podcast – [Y5 Nar6 Dramatic conventions](#)
- Create a TV or news report, e newspaper or website – [Y5 NF2 Recounts on the medium term planning](#)
- Children create an interactive help file with hyperlinks for a piece of computer software – [Y5 NF1 Instructions](#)
- Compose a persuasive piece of writing in a multimodal form – [Y5 NF3 Persuasive writing](#)
- A presentation of poetry through PhotoStory or Multimodal software – [Y5 Poetry2 Classic / narrative poems](#)
- Children collaborate to develop and extend their fiction writing through the creation of a text adventure on screen. – [Y6 Nar2 Extending Narrative](#)
- Children write a multimodal diary – [Y6 NF1 Biography and autobiography](#)
- Children create a virtual guided tour in multimodal software with video, sound and image – [Y6 NF4 Formative / impersonal writing](#)

Mathematics

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Science

- Children present the outcomes of their research about the earth, sun and moon – Sc5E
- Children create a presentation about Science revision for the rest of the class

Other Subjects

- On a local intranet children create a presentation about their school for the community justifying their choice of medium and content
- Children create a presentation about the Ancient Greeks – Hi9
- Children use images and information from the internet to create a river guide for walkers showing features of the river – Ge14
- Plan and create a presentation on any topic, aimed at any audience
- Children create a narrated big book for younger children including sound – Mu9, Mu13
- Presentation of a design and technology project such as building a fairground to potential theme park developers - DT
- Development of a homepage which is easily accessible to visitors

Years

5&6

Exchanging and Sharing Information

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

ICT Skills

Graphics Packages & Digital Photographs

- Enhance a presentation by acquiring, storing, and combining images from different sources
- Through peer and self-evaluation, children refine and make appropriate changes
- Use an object based graphics package to design and develop a plan to find a solution to a specific problem (*e.g. design a child's bedroom, garden, zoo, map, playground, crazy golf*)
- Create images using a range of techniques to develop a particular style
- Independently capture store retrieve and edit digital images to improve them
- Understand issues relating to copyright of images – e.g. when selecting image sources.

Animation & Video

- Plan and create a short animated sequence to communicate a specific idea, using a storyboard and timeline
- Combine stills, video and sound using a video editing package
- Make use of transitions and special effects in video editing software and understand the effect they have on the audience.
- Export movies in a variety of formats and use them in multimedia presentations.

ICT Knowledge and Understanding

- Know that images (still and moving) are used to enhance presentations or communicate ideas.
- Recognise the concept of copyright and apply this to their work.
- Routinely evaluate and improve as part of a design process
- Understand the difference between object based graphic packages and paint packages.
- Begin to be aware when it when it is more appropriate to use an object based drawing package than a paint program.
- Children discuss and evaluate their own and others' movies and refine for given audience/task
- Understand that computers save digital image and graphics as many different file types and that some are better suited to certain purposes than others.

ICT Outcome (Levels 3, 4, 5)

- **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.
- **L4:** 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.
- **L5:** 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.

Cross curricular outcomes and links

Years 5 & 6 Digital Image

Literacy

- Children create a PhotoStory style presentation using images taken from video and add music and narration – [Y5 Nar5 Film Narrative](#)
- Create a TV or news report, e newspaper or website – [Y5 NF2 Recounts on the medium term planning](#)
- A presentation of poetry through PhotoStory or Multimodal software – [Y5 Poetry2 Classic / narrative poems](#)
- Children produce a video of performed poetry – [Y5 Poetry3 Choral and performance](#)
- Children create an extended narrative adventure using still and moving images – [Y6 Nar2 Extending narrative](#)
- Children create a PhotoStory style presentation using scanned images of pupils' drawings and add music and narration – [Y6 Nar4 Short Stories with flashbacks](#)
- Children create a news programme using media of their choice – [Y6 NF2 Journalistic writing](#)
- Children create a virtual guided tour in multimodal software with video, sound and image – [Y6 NF4 Formative / impersonal writing](#)

Mathematics

-

Science

- Create an advert for healthy food, using either live action or animation

Other Subjects

- Design a new playground for the school
- Children create their own silent film with music they have composed
- Create a copy of a TV programme to fit with other work (eg. Weakest Link Henry VIII's wives; historical Through the Keyhole or cookery programme)
- Use animation to illustrate the water cycle
- Children create artwork based on themselves using digital images – Ar7A
- Children use hand held digital video cameras to film a news report of a current event – Ge16
- Presenting work on Britain since 1948, children could create a TV programme incorporating sounds, photographs and video from different decades, with voice-overs and linking pieces. (Video could be genuine footage, newly created footage, animation or a mixture.)
- Different artistic styles could be explored in art packages, and CAD tools could be used to design buildings of different architectural styles as well as predicting those of the future.
- Children record a visit using video and use this as part of their presentation about places of worship – RE, Ar9, Ge6C

Years

5&6

Exchanging and Sharing Information

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

ICT Skills

Sound

- Independently select, edit and combine sound files from internet sources to create a podcast file.
- Develop skills in manipulating sounds (such as reversing sounds, adding echo, altering speed ...) and use them appropriately considering audience and purpose
- Independently select and use a variety of appropriate devices to record musical and non musical sounds.
- Upload and download projects to the VLE / MP3 players / mobile phones / computers etc.

Music

- Create their own sounds and compositions to add to their presentations / films / images / photos.
- Use ICT to perform sounds or music that would otherwise not be possible live (eg playing a multi-track or a very fast piece)
- Use ICT to produce music for a specific purpose, considering the impact on the audience (eg length, style, genre etc.)

ICT Knowledge and Understanding

- Understand issues relating to copyright of music – e.g. when selecting samples
- Be aware of different sound file formats (eg MP3, WAV) and save and use appropriately.
- Judge when it is appropriate to use podcasting as a means of communication.

ICT Outcome (Levels 3, 4, 5)

- **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.
- **L4:** 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.
- **L5:** 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.

Cross curricular outcomes and links

Years 5 & 6 Sound and Music

Literacy

- Children produce a narrative , the process aided by recordings of themselves – [Y5 Nar2 Traditional stories, fables, myths and legends](#)
- Children produce a narrative , the process aided by recordings of themselves – [Y5 Nar2 Traditional stories, fables, myths and legends](#)
- Children create an audio drama and save it as a podcast – [Y5 Nar6 Dramatic conventions](#)
- Create a TV or news report, e newspaper or website – [Y5 NF2 Recounts on the medium term planning](#)
- Composition to accompany a presentation / film / animation / image on a given topic eg People in Motion (Art) – [Y6 Nar4 Short Stories with flashbacks](#)
- Select suitable music and / or sound to add atmosphere and enhance a multimedia presentation / film / image / photo, considering specific audience and purpose - [Y6 Nar4 Short Stories with flashbacks](#)

Mathematics

-

Science

- Use a sound sensor e.g. to control a robot, in science to monitor sound

Other Subjects

- Children give live performances with an ICT generated ostinato or drone as an accompaniment.
- Use art as a stimulus for compositions using ICT – Ar / Mu
- Select music and sound effects appropriate to action and films produced in other subject areas
- Children create a narrated big book which includes sound for a younger audience – Mu9, Mu13
- Add narration over film / video / animation / multimodal writing using a microphone linked to a computer

Years

5&6

Exchanging and Sharing Information

Electronic communication (email, video conferencing and VLE)

ICT Skills

- Use and refine their skills while independently creating, sending and responding to emails, blogs and forums. (With appropriate supervision and due regard for e safety)
- Produce formal or informal messages appropriate to the task or to solve problems (requesting information, sharing data, etc.)
- As a class or group make use of video conferencing technology to exchange ideas and collaborate on projects.

ICT Knowledge and Understanding

- Independently (with appropriate supervision and regard for e safety) select and use appropriate communications to solve problems and answer questions present information in different forms.
- Show awareness of intended audience and use appropriate style and language.
- To understand the importance of personal safety and use rules developed when using email and other electronic communications
- Talk about the different forms of electronic communication, their appropriateness to different tasks, their advantages and disadvantages.
- Understand the need for certain rules of conduct particularly when using live communication (eg taking turns to speak when video conferencing – especially over a slow connection)

E Safety

- Understand the importance of personal safety when using any electronic communications, including some of the wider issues (eg Cyber bullying, inappropriate use of electronic communications).
- Recognise the need for E Safety at home as well as in school.
- Develop and communicate their own appropriate rules for e safety as it relates to electronic communication.

ICT Outcome (Levels 3, 4, 5)

- **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.
- **L4:** 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.
- **L5:** 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.

Cross curricular outcomes and links

Years 5 & 6 Electronic communication

Literacy

- Children email questions to authors or illustrators about their work [Y6 Nar3 Authors and texts](#)

Mathematics

-

Science

-

Other Subjects

- Create a questionnaire and attach to an email to send to a partner school to obtain information about their locality.
- Children create a questionnaire and attach to an email to send to a partner school to obtain information about their locality
- Set up e mail link with another school – receive email that describes in detail painting – like Mondrian – children have to use descriptions to recreate in a paint package. You send descriptions to other school for them to do the same
- Children out on a trip from their school use video conferencing to communicate their feelings back to fellow pupils in school.
- Children correspond with pupils in other countries via email or video conferencing to find out about how they celebrate various festivals, their education system etc.
- As part of a transfer project children exchange e-mail or video conference between Y6 / Y7 pupils about their new school. Possibly using the VLE

Years

5 & 6

Finding things out

Research (Internet and CD ROM)

ICT Skills

- Select an appropriate search engine to find information related to their topic.
- Develop strategies for finding information (using different keywords, cross checking etc).
- Consider the effectiveness of their search results and refine where necessary.
- Discuss issues of copyright and downloading material e.g. mp3s, images, videos etc.
- Develop skills to question where web content might originate from and understand that this gives clues to its authenticity / reliability (by looking at web address, author, linked pages etc.)
- Skim and select information checking for bias and different viewpoints
- Check plausibility of information by using a variety of sources on the same topic
- Reference sources used in their work
- Copy, paste, save and use pictures, text and sound and be able to import into a document for a specific audience or task (links to Exchanging and Sharing Information)

ICT Knowledge and Understanding

- Talk about validity and plausibility and appropriateness of information, especially on the internet. Recognise the impact of using incorrect information in their work.
- Use a range of sources to check validity understand and the possible impact of incorrect data.
- Understand the point of copyright and how it applies to material they find and to their own work
- To understand plagiarism and the importance of acknowledging sources.
- To talk about personal safety when using the internet, at home and in school, and know how to keep safe and what to do if they find inappropriate materials.
- Understand that computers in school (probably at home) attempt to filter internet content.

ICT Outcome (Levels 3, 4, 5)

- **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.
- **L4:** 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.
- **L5:** 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.

Cross curricular outcomes and links

Years 5 & 6 Research (Internet and CD ROM)

Literacy

- Children explore together an autobiography (real or simulated), for example a diary or weblog. - [Y6 NF1 Biography and autobiography](#)
- Collect a range of recounts to read from different media, such as newspapers, e-newspapers - Y5 NF2 Recounts on the medium term planning
- Explore journalistic examples from a range of media: TV news, interactive TV, radio and Internet sites. Consider the way different communication modes are used by different media, and with what impact or effect. Discuss, compare and contrast all of the above. Evaluate the effectiveness of various journalistic forms, modalities and media. - Y6 NF2 Journalistic writing

Mathematics

- Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry - [Year 5 Block C](#)
- Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols - [Year 5 Block C](#)
- Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask - [Year 5 Block C](#)
- Suggest, plan and develop lines of enquiry; collect, organise and represent information, interpret results and review methods; identify and answer related questions. - [Year 6 Block C](#)
- Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask [Year 6 Block C](#)

Science

- Children research where micro organisms grow and how they support all life - Sc6b

Other Subjects

- Children research a contrasting UK locality to ascertain similarities and differences, select key words and phrases to use in a presentation or fact file - Ge13
- Children research religious signs and symbols related to class work e.g. Five Pillars of Islam
- Research topic on which there are few websites suitable for younger children; condense and sift information to present to younger children
- Investigate blogs, wikis etc, for evidence of bias and implausibility. Briefly create inaccurate web page before correcting it.
- Children in role play explore their characters using Victorian census data - Hi11,12,8
- Locate images and information to create a river guide for walkers showing river features - Ge14
- Children find out information about Ancient Greek civilisation - Hi14
- Children use the internet to research famous person or character - Hi20+16
- Children use web based resources to research a viewpoint on a controversial issue - Ge20, 16

Years

5 & 6

Finding things out

Data Handling (Database, Graphing)

ICT Skills

- Design questions using key words, to search a large pre-prepared database.
- Use complex searches (and/or, is greater / less than) to search data when looking for relationships and patterns in data.
- Modify a search pattern in order to find specific information.
- Check for accuracy by checking data, using different views, search tools, and graphing. Identify and correct inaccuracies.
- Solve complex enquiries involving selecting, processing, and presenting data; drawing conclusions from their work (eg is there a relationship between minibeast habitat and diet?)
- Construct, refine and interpret frequency tables, bar charts with grouped discrete data and line graphs; interpret pie charts.
- Present findings to a specified audience and display in other software.

ICT Knowledge and Understanding

- Recognise the need for accuracy when designing entering and interrogating data and how this will affect the quality of the information gained.
- Recognise the consequences of data not being accurate, relate to outside world (e.g. Police / doctors / banks/ school database).
- Discuss how ICT enables you to search and sift through large amounts of different types of information and describe the advantages of using the tools and the need for accuracy.
- Understand which searches and graph types are relevant to a specific problem and types of information.
- To understand the importance of presentation techniques aimed at a specific audience understanding the need for accuracy.
- Understand the need for data protection and some of the rights of individuals over stored data and how it affects use and storage of data in the real world.

ICT Outcome (by the end of Year 6 most children should be able to ...)

- **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.
- **L4:** 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.
- **L5:** 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).

Cross curricular outcomes and links

Years 5 & 6 Data Handling

Literacy

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Mathematics

- Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry – [Year 5 Block C](#)
- Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols – [Year 5 Block C](#)
- Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask – [Year 5 Block C](#)
- Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time – [Year 5 Block C](#)
- Find and interpret the mode of a set of data – [Year 5 Block C](#)
- Suggest, plan and develop lines of enquiry; collect, organise and represent information, interpret results and review methods; identify and answer related questions. - [Year 6 Block C](#)
- Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask [Year 6 Block C](#)
- Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs; interpret pie charts - [Year 6 Block C](#)
- Describe and interpret results and solutions to problems using the mode, range, median and mean - [Year 6 Block C](#)

Science

- Search a large pre-prepared database of the planets and stars to compare them according to a range of criteria
- Children record and analyse the results of an experiment stretching elastic bands – Sc6E
- Children compare data about themselves with a younger class (e.g. do children with longer legs run faster); create a simple database. Use the database to answer the hypothesis. – PE
- Children use a data logger to investigate the effects of exercise on the body and manipulate the resulting graphs – Sc5A, PE14,15

Other Subjects

- Search a large pre-prepared database of Victorian census data to draw conclusions about differences in lifestyles then and now – H11, 12,8
- Children create a simple database to record responses from grandparents about games they played in the playground, etc. They compare this with today's experiences. – Hi13
- Children gather data about local issues and use it to make a presentation to an audience - Ge12
- Children gather and analyse data as part of a river investigation – Ge14

Years

5 & 6

Developing ideas and making things happen

Logo and Control

ICT Skills

- In Logo and / or control work develop more complex flow diagrams / procedure that draw on others.
- Refine procedures to improve desired outcomes.
- Write control sequences which use inputs (using *if ... then ...* type commands) to control events in response to conditions.

ICT Knowledge and Understanding

- Conversation about control work undertaken show an understanding of how their experiences relate to control systems in the real world.
- Understand when it is appropriate to use a control system and appreciate what needs to be built into the programming to ensure that the system is reliable.

ICT Outcome (Levels 3, 4, 5)

- **L3:** Children are able to type a short sequence of instructions and to plan ahead when programming devices on and off screen.
- **L4:** 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.
- **L5:** 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.

Cross curricular outcomes and links

Years 5 & 6 Logo and Control

Literacy

- Instructional writing
- Report writing
- Formal/ informal invitations to opening of fairground ride
- Instructional writing (LIT) [Y5 NF1 Instructions](#)

Mathematics

- Identify, visualise and describe properties of rectangles, triangles, regular polygons; use knowledge of properties to draw 2-D shapes [Y5 Block B](#)
- Draw shapes with increasing accuracy and apply knowledge of their properties [Y6 Block B](#)
- Estimate angles, ... calculate angles in a triangle or around a point [Y6 Block D](#)
- Control a buggy to follow a specified course (Ma, DT)

Science

- Controlling electrical circuits in a variety of contexts (Sc)
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Other Subjects

- Control a set of traffic lights – extend to controlling a pair of lights to control a junction, narrow bridge, etc. (DT)
- Create procedures to control a fairground models that they have made including motors, lights and buzzers (DT 4d, 4e, 6c, 6d)
- Control a castle drawbridge, including motors, lights and buzzers (DT, Hi, Ge)
- Control and environment for an alien involving heat, light, sound (DT 6c, 6d)
- Control a lighthouse with a sequence of lights and warning sounds (DT)
- Control a buggy to change course in response to inputs on push switches (DT 6d)
- Control a car park barrier to lift or fall in response to push switches or light sensors (DT, Sc)
- Control a lighthouse to operate a sequence of sounds and lights only at night (DT, Sc, Ge, Hi; coasts, seaside)
- Control a car / burglar alarm to operate a sequence of sounds and lights if the door has been opened, and to stop if the key is used (DT, Sc)

Years

5 & 6

Developing ideas and making things happen

Modelling and Simulations (Spreadsheets and Adventure Games)

ICT Skills

- Enter labels and numbers into a spreadsheet
- Enter formulae into a spreadsheet and modify the data, (simple calculations + - × ÷)
- Make predictions and changes and check results
- Use 'SUM' to calculate the total of a set of numbers in a range of cells
- Change data in a spreadsheet to answer 'what if...?' questions and check predictions
- Identify and enter the correct formulae into cells, modify the data, make predictions of changes and test them
- Use more advanced formulae (Sum, average, mode etc)
- Copy formulae to create tables of results
- Use a spreadsheet to draw a graphs to help answer specific questions
- Change the data and formulae in a spreadsheet to answer 'what if ...?' questions and check predictions

ICT Knowledge and Understanding

- Understand that changes made to one element of a spreadsheet can impact on the other calculations
- Understand that spreadsheets can automate functions, making it easier to test variables (eg when planning a budget you can change number of items and see the changed total cost)
- Understand that spreadsheets can be used to explore mathematical models
- Understand the need for accuracy and frequent checking when entering formulae. Understand the possible consequences of inaccurate data or formulae.

ICT Outcome (Levels 3, 4, 5)

- **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.
- **L4:** Set up and use a spreadsheet model to explore patterns and relationships. Make predictions. Know how to enter simple formulae to assist this process.
- **L5:** 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.

Cross curricular outcomes and links

Years 5 & 6 Modelling and Simulations

Literacy

-

Mathematics

- Use an [Interactive Teaching Program \(ITP\) or Primary Framework spreadsheet file](#) to investigate and model mathematical concepts.
- Create and use a spreadsheet to create costings which are within budget
- Create a spreadsheet to model costs of a school outing, trip or party
- Children explore matching patterns investigation using a spreadsheet [Y6 Block A](#)
- Explore the relationship between area and perimeter using a spreadsheet [Y6 Block D](#)
- Children plan a family holiday, or school trip, taking into account children's prices and the cost of travel and accommodation [Y6 Block A](#)
- Children create function machines in a spreadsheet to help younger children with Mathematical concepts
- Express one quantity as a percentage of another (e.g. express £400 as a percentage of £1000); find equivalent percentages, decimals and fractions (write a spreadsheet to do this) [Y6 Block E](#)

Science

- Use suitable simulations to model staying healthy (Sc5a)
- Use simulations of electrical circuits to model the effects of changing them (Sc6g)

Other Subjects

- Use a spreadsheet to calculate the cost of ingredients for biscuits, answering questions about price or quantity changes (DT5d)
- Create a spreadsheet to investigate suitable field sizes to keep the most livestock e.g. how many pieces of fence are needed to contain a variable number of cows?
- Create a spreadsheet to discover the cheapest way to buy crisps (multipacks or singly) or which size of drinks containers is cheaper, or whether a 3 for 2 deal is better or worse than a percentage discount; use graphs to illustrate
- Explore the effect of changing variables in Logo procedure
- Plan financially to run a school fruit bar taking into account seasonal fluctuations of cost and market forces.

Years

5 & 6

Developing ideas and making things happen

Data Logging

ICT Skills

- Use the pre-programming features of data logging software and devices to set up a specific data capture, perhaps overnight.
- Use a range of external sensors (heart rate monitors, alternative energy, light gates etc) in a variety of situations in the course of scientific investigations.
- Use a data logger as a timing device with light gates
- Use graphical information to answer questions and solve simple problems.

ICT Knowledge and Understanding

- Understand and predict patterns in graphical data.
- Know when data capture will be useful and design experiments involving data loggers.
- Appreciate the added accuracy that the use of technology can bring to results but that occasionally spurious results can be obtained and these need to be moderated.

ICT Outcome (Levels 3, 4, 5)

- **L3:** Begin to use a data logger to sense physical data (sound, light, temperature).
- **L4:** 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.
- **L5:** 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.

Cross curricular outcomes and links

Years 5 & 6 Data Logging

Literacy

-

Mathematics

- Present evidence by collecting, organising and interpreting information [Y5 Block C](#)
- Explain reasoning using diagrams, graphs and text [Y5 Block C](#)
- Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask [Y5 Block C](#)
- Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time [Y5 Block C](#)
- Suggest, plan and develop lines of enquiry; collect, organise and represent information, interpret results and review methods; identify and answer related questions [Y6 Block C](#)
- Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask [Y6 Block C](#)
- Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs; interpret pie charts [Y6 Block C](#)

Science

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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. 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 simple tools in a paint package / image manipulation software to create / modify a picture. 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.	Chose suitable sounds from a bank to express their ideas. Record short speech. Compose music from icons. Produce a simple presentation incorporating sounds the children have captured, or created.	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.	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 feedback.	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.	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.	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.	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.	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.	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 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

<p>NC Level & Extract from Attainment Target</p>	<p>Research (internet & CD ROM)</p>	<p>Handling Information (Database and graphing)</p>
<p>1 Explore information from various sources. Show they know information exists in different forms.</p>	<p>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</p>	<p>As a class or individually with support, children use a simple pictogram or painting program to develop simple graphical awareness / one to one correspondence.</p>
<p>2 Organise and classify information Present their findings. Enter, save and retrieve work</p>	<p>Children use a search engine to find specific relevant information to use in a presentation for a topic. They save and retrieve their work.</p>	<p>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.</p>
<p>3 Save, find and use appropriate information. Follow straight forward lines of enquiry</p>	<p>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.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>	<p>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.</p>
<p>5 Select the information they need for different purposes, check its accuracy and organise it in a form suitable for processing.</p>	<p>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.</p>	<p>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).</p>

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)
<p>1 Recognise that many everyday devices respond to signals and instructions Make choices when using such devices to produce different outcomes</p>	<p>Control simple everyday devices to make them produce different outcomes.</p>	<p>Make simple choices to control a simple simulation program.</p>	
<p>2 Plan and give instructions to make things happen. Describe the effects. Explore what happens in real and imaginary situations.</p>	<p>Control a device, on and off screen, making predictions about the effect their programming will have. Children can plan ahead.</p>	<p>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.</p>	
<p>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</p>	<p>Children are able to type a short sequence of instructions and to plan ahead when programming devices on and off screen.</p>	<p>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.</p>	<p>Begin to use a data logger to sense physical data (sound, light, temperature).</p>
<p>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.</p>	<p>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.</p>	<p>Set up and use a spreadsheet model to explore patterns and relationships. Make predictions. Know how to enter simple formulae to assist this process.</p>	<p>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.</p>
<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>

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

NC Level & Extract from Attainment Target	
<p>1 Talk about their use of ICT.</p>	
<p>2 Talk about their experiences of ICT both inside and outside school.</p>	<p>The elements from this theme have largely been incorporated into the levelled statements for the other three themes in the Progression.</p>
<p>3 Describe their use of ICT and its use outside school.</p>	<p>For the sake of complete coverage of the attainment target they are set out here as separate statements.</p>
<p>4 Compare their use of ICT with other methods and with its use outside school.</p>	<p>The elements from this theme need to be considered when arriving at an overall level for ICT Capability</p>
<p>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.</p>	

