Progression in Computing
Version 2.00
EYFS
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Introduction

The Purpose of this document for Primary Schools is to provide primary teachers with a progressive Computing curriculum to deliver through cross curricular learning experiences. The materials, written in 2012 and updated in line with the Computing Curriculum Programmes of Study (PoS) 2014, provide support for EYFS, KS1 and KS2 and can be edited for educational purposes.

The suggested skills in each segment of this document were developed by ICTInspires in line with the NAACE Framework for ICT (May 2012) and again for the DfE Computing PoS for 2014.

This progressive scheme of work covers the breadth of Computing; Computer Science, Digital Literacy and Information Technology and includes progressive e-safety skills.

The content covers the Technology Early Learning Goal within ‘Understanding the World’; children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

This EYFS booklet also follows the same structure as KS1 and KS2 to allow true progression from EYFS into their primary Computing curriculum.

These materials will:

- Provide clear progressive ideas to teach all aspects of Computing from EYFS to Upper KS2 within three booklets to support the NAACE Framework for ICT and DFe’s Computing PoS.
- Provide guidance on the standards of Computing capability that are appropriate for children in each phase and suggestions of assessment criteria.
- Provide practical examples of how the ICT skills, knowledge and understanding can be integrated into planning across the curriculum as well as providing suggested resources.

The full NAACE ICT Framework can be found at: http://www.naace.co.uk/naacecurriculum

These documents provide a starting point. Schools can use the suggested objectives and progression of skills to further develop their own good practice.

Each school should also develop its own ICT software provision map to ensure the breadth of curriculum can be covered. A software map is provided populated with suggested freeware.
The Five Areas of the Naace ICT Framework

These are broad areas of ICT knowledge, skills and understanding that Naace considers essential for learners in the Third Millennium. It is important that learners develop their understanding within meaningful contexts in order to support their understanding and transferrable application of skills. Content cannot be fixed in time as the speed of technological advance means that the schemes of work must be flexible enough to enable teaching on new tools, ethical and safety issues and ways of working and learning to be adopted quickly, both within the subject of ICT and the wider use of ICT tools throughout learning and teaching. However, these are intended to be generic and not tied to particular tools or technologies.

We have defined the suggested areas of the Naace ICT Framework as follows:
Summary of each area of the Naace framework:

**Digital Skills**
Content develops skills for effective, efficient communication; creation of digital content (text, audio, visual media, programs); collecting, analysing and evaluating data.

**Digital Literacy**
Content develops digital literacy, including critical evaluation of digital artefacts; research skills including validating information found; using ICT to develop learning, communication and collaboration; awareness of their own (and others’) online identities.

**Technology in the World**
Content develops an understanding of the range of devices used in the world; an awareness of how technology is used in the workplace; an awareness of the range of jobs that might use ICT and how a range of different roles might contribute to a creative project; an awareness of effective web design to support their own use of the internet; considerations of e-commerce, including security and advertising impact on web use; web design skills; where appropriate, development of specific workplace skills.

Learning provides historical context and opportunity to “future-gaze” - generating a sense of awe and wonder for the range and rate of developments; respect for and awareness of key people in the history of computing and ICT; awareness of the impact on society as a whole and on individuals; encourages learners to creatively and imaginatively consider possible future developments

**Technical Understanding**
Content develops technical understanding of hardware, software, networks, approaches to design in computing and ICT; computer science content is covered creatively in a way that links it with digital literacy and information technology.

**Safe and Responsible Use**
E-safety learning and safe, responsible use is embedded throughout the curriculum; safe and responsible use goes beyond e-safety and includes opportunities to develop awareness of and apply knowledge and understanding of current legislation including copyright; ethics; environmental impact; protection from cyber-attacks including hacking.
Organisation of these materials

These materials have been organised around the headings of the NAACE ICT Framework for ICT at EYFS, KS1 and KS2. This booklet covers EYFS. To aid integrating these ideas into an established curriculum structure, they have been organised into four main headings:

**EYFS**

**Digital Literacy**

*Communicating in the Digital World*

- Digital Communication and Sharing Information
- Text Processing and Multimedia
- Electronic Communication

- Producing Media
  - Art Packages
  - Digital photographs and video
  - Sound and Music

**Digital Literacy/Information Technology**

*Exploring the Digital World*

- Collecting Real World Data/Problem Solving
  - Research
  - Data Handling/Problem solving

**Computer Science**

*Shaping the Digital World*

- Control and Simulations
  - Control
  - Simulations

There may be more in this document than pupils are able to do but the structure shows the clear progression from this phase through to end of primary age enabling teachers to ‘cherry pick’.

**Digital Literacy**

*e-Safety*

- Linked to Research and Electronic Communication Elements
  - Content
  - Contact
  - Conduct

The structure is as follows:

Each sub-strand is broken down into:

- Learning Objectives - aims of the strand
- Digital Skills
- Digital Literacy (where applicable)
- Technology in the World (where applicable)
- Technical Understanding (where applicable)
- Suggested Resources (freeware or websites)
- Cross Curricular ideas

The last pages of this document give criteria and ideas for assessment and break the objectives into year groups to help ensure children are on target for end of key stage achievement. There is also a map of suggested freeware and a planning sheet.
## Digital Communication and Sharing Information

### Objectives

<table>
<thead>
<tr>
<th>Understand that in addition to touch screens, a keyboard and mouse are tools for navigating a computer and entering text.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Begin to understand that ICT can be used to communicate ideas in different ways (e.g. text, images, tables and sound) and know that text comes in different colours, sizes and styles.</td>
</tr>
<tr>
<td>Begin to understand that all kinds of ICT tools are used for different modes of communication.</td>
</tr>
<tr>
<td>Understand that messages can be in pictures, sound and text, and can be sent electronically over distances and that people can reply to them.</td>
</tr>
<tr>
<td>Begin to understand there are rules to help them stay safe when online (see e-safety section).</td>
</tr>
</tbody>
</table>

### ICT Skills

#### Text Processing and Multimedia

- Develop mouse control - moving, clicking, dragging etc. Use simple drag and drop matching software - first with pictures or sounds moving to letters and text.
- Begin to use a keyboard (with support) and notice the effect on screen. With support (and a lower case keyboard) type simple words, their name, etc.
- With help add captions to photographs, graphics and sound (perhaps choosing words from a prepared word list).
- With help, begin to create simple talking pages (e.g. in whiteboard software, PowerPoint or Clicker).

#### Electronic Communication (e.g. email, Learning Platform, messaging, blogging)

- Use mobile phones/walkie-talkies etc. in role play.
- With support, type and send a short email from a class account (e.g. a letter to Santa).
- With adult help (at home and in school) use a Learning Platform.

### Transferrability of skills

- Start to develop confidence in different applications and contexts.

### Digital Literacy

#### Online identities

- Start to be aware of personal identity through logging on to a network or Learning Platform.
### Years EYFS  
**Digital Communication and Sharing Information**

### Suggested Resources

**Freeware**

- Talking Faces: [http://www.inclusive.co.uk/downloads#talkingfaces](http://www.inclusive.co.uk/downloads#talkingfaces)

### Cross Curricular Ideas

#### Communication and Language

- Support children in exchanging emails, perhaps with an imaginary story character (adult receives the emails and replies appropriately).
- Self registration - drag name on a screen or interactive whiteboard to indicate they are here today. Begin with picture of child; extend by adding their name, then remove picture.

#### Physical Development

- Children play a variety of games that help them to learn mouse control and technique.

#### Personal, Social and Emotional Development

- Use software that allows children to select different facial expressions to show how they are feeling. Talking Faces could be used to record their thoughts.

#### Literacy

- Children write about what they bought at the supermarket. With adult support; they create talking books about their visit using Clicker/Whiteboard software.

#### Mathematics

- Ordering and sequencing number lines/sequencing events/photos.

#### Understanding the world/Expressive Arts and Design

- During role play in the post office. Discuss the design and create an image of the main elements of a post box text using Word. The text could include numbers, collection times etc..
Years | EYFS | Communicating in the Digital World

## Producing Media

### Objectives

- Understand there are a variety of tools in a graphics (art) package and they each have a different purpose.
- Understand that cameras can take still and moving images (video).
- Understand that technological devices can be used to record and play back sounds.
- Be aware that sound can be recorded on the computer as a sound file.
- Recognise that an electronic musical keyboard can be used to select and control sounds.

### ICT Skills

#### Art packages

- Use the tools in a simple painting program (e.g. brush, fill tool, colour selection, stamp) perhaps on a whiteboard or interactive screen.
- Use an object based graphics program (e.g. whiteboard software) to create a scene by dragging objects into place on a background.

#### Digital photographs and video

- Use a digital camera (both real and in role play) and with help download images from a camera to computer.
- Experiment with light and images using OHPs, torches, fairy lights etc. Use a digital camera to record the result.
- Capture simple short video clips.

#### Sound and Music

- Use sound recorders (broken ones too, in role play).
- Use voice amplifying or changing equipment and notice the effect and record using a microphone.
- Use simple buttons to play back recorded sounds (remotely and on computer).
- Compose music using icons to represent musical phrases (e.g. Compose World 2, 2Simple Music Toolkit).

### Technology in the World

#### Recognising technologies/How technology helps us at home, school and work

- Start to be aware how media is used in the world around us (video clips, images, sounds etc.).
<table>
<thead>
<tr>
<th>Years EYFS</th>
<th>Producing Media</th>
</tr>
</thead>
</table>

### Suggested Resources

**Websites/Freeware**

- Fun with Art, just click and move: [http://jacksonpollock.org/](http://jacksonpollock.org/)
- [http://www.kenttrustweb.org.uk/kentict/content/earlyict/](http://www.kenttrustweb.org.uk/kentict/content/earlyict/)
- [http://www.bbc.co.uk/cbeebies/](http://www.bbc.co.uk/cbeebies/)
- [http://www.bbc.co.uk/cbeebies/radio/](http://www.bbc.co.uk/cbeebies/radio/)

### Cross Curricular Ideas

#### Communication and Language

- Children are interviewed on camera about their pets. Watch the interviews together to learn more about each other and our pets.

#### Physical Development

- Children’s physical activity can be recorded on simple camcorders and viewed later.

#### Personal, Social and Emotional Development

- Play a game with the children taking it in turns to take photographs of each other as they make faces (happy, sad etc.) Display them on IWB. The children then guess which emotion was being expressed.
- Children select tracks on a CD to match feelings/moods.

#### Literacy

- Children use digital cameras to take pictures of a teddy in various locations, then use their pictures to make a talking book in whiteboard software or Clicker.
  
  Use the PC to connect to various radio stations. Radio 7 has CBeebies radio in the afternoons.
- Many children have watched the programmes but not listened to them without the images. Removing the images and leaving only the sound strengthens listening skills.

#### Mathematics

- Children use object based drawing software or whiteboard software to continue patterns based on repeated shapes from a given starter.

  Use a piece of video from a recent trip to spot different shapes in the environment. An adult could “snapshot” the images for further work by children on screen or printed out.

#### Understanding the world

- Short digital video clips can be taken of the outdoor environment to be used back in the classroom.
  
  Sound recorders/microphones can be used to record sounds in the outdoor environment. A simple matching activity could be undertaken with pictures that were taken at the same time.

#### Expressive Arts and Design

- Use light boxes or overhead projectors for children to create pictures in light. Digital cameras could be used to record their attempts.

  Children decorate a template of Elmer the Elephant using a simple paint program.

  An electronic keyboard can be used for children to experiment with sound. With help they can record their attempts and listen to them with friends to raise critical awareness.
EYFS | Assessment

By the end of key stage 1, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key stage 1 Programme of Study (the colour bullets correspond to the curriculum strands in this document). Bullet points may be covered within more than one curriculum strand.

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school.
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

The ICTinspires Early Years Computing assessment is based on pupils having the initial skills in place to progress them to the expected attainment at the end of KS1.

Can/Does the child:

<table>
<thead>
<tr>
<th>Can/Does the child:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Play with equipment that simulates control devices (push button toys).</td>
</tr>
<tr>
<td>Play with a simple adventure programme or simulation.</td>
</tr>
<tr>
<td>Use simulation/role play software as an impetus for investigations.</td>
</tr>
<tr>
<td>Explore outcomes when individual buttons are pressed on a robot.</td>
</tr>
<tr>
<td>Begin to understand that ICT can be used to communicate ideas in different ways.</td>
</tr>
<tr>
<td>Begin to use a keyboard (with support) and notice the effect on screen.</td>
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<tr>
<td>Understand there are a variety of tools in a graphics (art) package.</td>
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<tr>
<td>Understand that cameras can take still and moving images (video).</td>
</tr>
<tr>
<td>Understand that technological devices can be used to record and play back sounds.</td>
</tr>
<tr>
<td>With help search for and choose images from the internet.</td>
</tr>
<tr>
<td>With support, use appropriate websites to locate small amounts of information.</td>
</tr>
<tr>
<td>With support enter text into a search engine to find specific given web sites (e.g. CBeebies).</td>
</tr>
<tr>
<td>With support use a digital microscope to look more closely at objects.</td>
</tr>
<tr>
<td>Begin to develop simple classification skills by carrying out simple sorting activities (probably away from the computer).</td>
</tr>
<tr>
<td>Start to recognise simple technologies in the world around us (phones, computers, printers etc.).</td>
</tr>
<tr>
<td>With help save their own content in their own electronic folder.</td>
</tr>
<tr>
<td>Understand their logon to the Network or Learning Platform is personal to them.</td>
</tr>
<tr>
<td>Start to learn to respect the work of others.</td>
</tr>
<tr>
<td>Know to tell someone if they view content they think is inappropriate or upsetting.</td>
</tr>
<tr>
<td>Class: ____________________</td>
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<tr>
<td>-----------------------------</td>
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<tr>
<td><strong>Communicating in the Digital World</strong></td>
</tr>
<tr>
<td>Digital Communication &amp; Sharing info.</td>
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<td>Sound Music</td>
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<tr>
<td><strong>Exploring the Digital World</strong></td>
</tr>
<tr>
<td>Collecting, Analysing, &amp; Problem Solving</td>
</tr>
<tr>
<td>Data Logging</td>
</tr>
<tr>
<td>Research</td>
</tr>
<tr>
<td><strong>Shaping the Digital World</strong></td>
</tr>
<tr>
<td>Control &amp; Program</td>
</tr>
<tr>
<td>Modelling &amp; Simulations</td>
</tr>
<tr>
<td>Control &amp; Programming</td>
</tr>
<tr>
<td><strong>Producing and Editing Media</strong></td>
</tr>
<tr>
<td>Text Editing and Multimedia</td>
</tr>
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<td>Electronic Communication</td>
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<tr>
<td><strong>Modelling &amp; Simulations</strong></td>
</tr>
<tr>
<td>Modelling &amp; Simulations</td>
</tr>
<tr>
<td>Control &amp; Programming</td>
</tr>
</tbody>
</table>
# EYFS and KS1 - Computing Software Map - suggested freeware

<table>
<thead>
<tr>
<th>Class: ____________________</th>
<th>EYFS</th>
<th>KS1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communicating in the Digital World</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Communication &amp; Sharing info.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Text Editing and Multimedia</strong></td>
<td></td>
<td>Word Publisher PowerPoint</td>
</tr>
<tr>
<td><strong>Electronic Communication</strong></td>
<td>As whole class</td>
<td>Learning Platform Skype (freeware) Face Time (iPad) Primary Blogger Makewav.es</td>
</tr>
<tr>
<td><strong>Graphics/Art</strong></td>
<td></td>
<td>Paint.net (freeware)</td>
</tr>
<tr>
<td><strong>Digital Photos &amp; Video Editing</strong></td>
<td>Tux Paint (freeware)</td>
<td>Paint.net (freeware) MS PhotoStory (freeware) Windows Movie Maker 2.6 (better for editing than Live version) Pivotstick Animator (freeware) Jelly Colla (freeware)</td>
</tr>
<tr>
<td><strong>Animation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sound Music</strong></td>
<td></td>
<td>Audacity (for teachers)</td>
</tr>
<tr>
<td><strong>Producing and Editing Media</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Exploring the Digital World</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collecting, Analysing, Evaluating &amp; Problem Solving</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Data Handling</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Data Logging</strong></td>
<td></td>
<td>Web Browser CD ROMs as appropriate</td>
</tr>
<tr>
<td><strong>Research</strong></td>
<td></td>
<td>Web Browser Learning Platform Google Earth</td>
</tr>
<tr>
<td><strong>Modelling &amp; Simulations</strong></td>
<td>CBeebies - and others</td>
<td>Simulations e.g. BBC site.</td>
</tr>
<tr>
<td><strong>Modelling &amp; Sims</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Control &amp; Programming</strong></td>
<td></td>
<td>Scratch (freeware)</td>
</tr>
</tbody>
</table>
Updating your ICT curriculum is a complex and often daunting task for a school. Schools often have legacy software which is no longer fit for purpose but are not aware of more up to date alternatives.

ICTinspires can help you develop your own ICT curriculum and review your current provision.
Tailored support includes:

- Software audit, mapped to the ICT curriculum
- Curriculum planning to fully integrate ICT
- Staff skills audit and training
- Monitoring Sheets to ensure breadth of ICT is taught
- Assessment ideas

For further information please contact:

debbie.schofield@ictinspires.co.uk
www.ictinspires.co.uk

Naace are happy to support ICTinspires using the Naace ICT Curriculum Framework to support the development of school curriculums and to share this work more widely with other professionals. The Framework provides the basis for many different approaches to the curriculum and it is anticipated that it will be tailored to individual learning contexts. These materials provide one such example, showing how the Framework can be used as the basis for a broad and balanced ICT curriculum in school. Further information about the Naace ICT Curriculum Framework can be found here:

www.naace.co.uk/naacecurriculum

jan.webb@naace.co.uk

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