

# Key Learning in Computing: Years 1 and 2

<b>Information Technology</b>	
<b>Programme of Study</b>	
<ul style="list-style-type: none"> <li>▪ Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</li> </ul>	
<b>Skills</b>	<b>Knowledge and Understanding</b>
<b>Create, Manage and Manipulate Digital Content</b>	<b>Create, Manage and Manipulate Digital Content</b>
<b>Text and images</b>	<b>Text and images</b>
<p>On a range of devices:</p> <ul style="list-style-type: none"> <li>- Develop correct use of the keyboard (e.g. spacebar, backspace, delete, shift (not caps lock) and enter keys).</li> <li>- Add captions to photos and graphics.</li> <li>- Select text appropriately e.g. highlighting or clicking text to select.</li> <li>- Make simple changes to text e.g. colour, style and size.</li> <li>- Select text from word lists (if necessary).</li> <li>- Select appropriate images to add to work.</li> <li>- Word process short texts directly onto the computer (i.e. do not just copy up handwritten work).</li> <li>- Navigate round text in a variety of ways e.g. mouse, arrow keys, touch, when editing work.</li> </ul> <ul style="list-style-type: none"> <li>▪ Save and store work in an appropriate area, and be able to print, retrieve and amend it.</li> <li>▪ Use a range of digital devices to capture and save both still and moving images. These could include digital cameras, video cameras, tablets,</li> <li>▪ Refine the use of shape, line and colour to communicate a specific idea or artistic style/effect through various tools including brushes, pens, lines, flood fill, spray and stamps.</li> <li>▪ Talk about their use of graphics package and their choice of tools.</li> <li>▪ Begin to make changes to images e.g. cropping using basic tools in image manipulation software.</li> <li>▪ Upload images or video from cameras and other digital devices to a computer, or into a document, with support if needed.</li> <li>▪ Create a sequence of images to form a short animation.</li> <li>▪ Change the content of a project for a specific audience.</li> <li>▪ Begin to add different forms of media together e.g. text and images in blogs or word processing documents.</li> <li>▪ Organise and name files appropriately and accurately.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Know that text can be different colours, sizes and styles and that these can easily be changed.</li> <li>▪ Know that technology can be used to communicate ideas in different ways, e.g. text, images, tables and sound.</li> <li>▪ Understand there are a variety of tools in graphics packages, each fulfilling a different purpose.</li> <li>▪ Know that there are various ways of capturing still and moving images.</li> <li>▪ Know the importance of giving an appropriate name to files.</li> <li>▪ Know that files can be stored in folders and how the structure of the directory is ordered.</li> <li>▪ Understand that files can be retrieved from their location and edited.</li> <li>▪ Know what the term multimedia means.</li> <li>▪ Understand the differences between a graphics package and paper based art activities.</li> <li>▪ Know that there are various ways of capturing still and moving images.</li> <li>▪ Understand the need to frame an image or scene and keep the camera still.</li> <li>▪ Understand that animation is a sequence of still images.</li> <li>▪ Know how to take images appropriately and responsibly.</li> <li>▪ Understand how the mood of a piece can easily be changed through use of text, graphics and sound.</li> <li>▪ Begin to understand that images, sounds and text can be subject to copyright.</li> <li>▪ Start to understand that content needs to be changed according to the audience.</li> <li>▪ Understand the importance that files need to be Organised and named files appropriately and accurately.</li> </ul>

<p><b>Sound</b></p> <ul style="list-style-type: none"> <li>▪ Explore a range of electronic music and sound devices and software.</li> <li>▪ Be able to listen to and to select a sound from a bank of pre-recorded sounds.</li> <li>▪ Use sound recorders, both at and away from the computer, to record and playback sounds e.g. voices, instruments, environmental sounds.</li> <li>▪ Use software to explore and create sound and musical phrases for a purpose.</li> <li>▪ Use basic editing tools to change recorded sounds (speed up, slow down, reverse, echo) to alter the mood or atmosphere</li> <li>▪ Use recorded sound files in other software applications.</li> <li>▪ Be able to save sound files.</li> <li>▪ Be able to share recordings with a known audience.</li> </ul>	<p><b>Sound</b></p> <ul style="list-style-type: none"> <li>▪ Understand that most devices have stop, record and playback functions.</li> <li>▪ Be aware that sound can be recorded and stored on the computer as a sound file.</li> </ul>
<p><b>Data handling</b></p> <ul style="list-style-type: none"> <li>▪ Develop classification skills by carrying out sorting activities</li> <li>▪ Use simple graphing software to produce pictograms and other basic tables, charts or graphs.</li> <li>▪ Use graphing software to enter data and change a graph type, e.g. pictogram to bar chart.</li> <li>▪ Interpret the graphs, discuss the information contained and answer simple questions.</li> <li>▪ Sort and classify a group of items by asking simple yes / no questions. This may take place away from the computer, e.g. a 'Guess Who' game.</li> <li>▪ Use a branching database program to sort and identify items.</li> <li>▪ Use basic search tools in a prepared database to answer simple questions e.g. how many children have brown hair?</li> </ul>	<p><b>Data handling</b></p> <ul style="list-style-type: none"> <li>▪ Understand that IT can be used to sort items and information.</li> <li>▪ Understand that IT can be used to create and display charts graphs.</li> <li>▪ Develop an understanding of what datalogging can be used for (Science).</li> <li>▪ Understand that IT can be used to add to and change charts and graphs quite easily.</li> <li>▪ Begin to understand that unless data has been entered accurately it cannot be used to provide correct answers to questions.</li> </ul>
<p><b>Digital research – searching</b></p> <ul style="list-style-type: none"> <li>▪ Locate specific, teacher defined, age appropriate websites through a favourites menu and /or by typing a website address (URL) into the address bar in a web browser.</li> <li>▪ Use technology to source, generate and amend ideas e.g. searching a resource such as Espresso for images by a specific artist.</li> <li>▪ Talk about their use of technology and other ways of finding information, e.g. books, asking other people.</li> <li>▪ Use and explore appropriate buttons, arrows, menus and hyperlinks to navigate teacher selected web sites, and other sources of stored information.</li> <li>▪ Use key words to search a specific resource for information, e.g. Espresso and other websites, under the guidance and supervision of an adult.</li> <li>▪ Be able to retrieve files from a computer using a search of the computer.</li> </ul>	<p><b>Digital research – searching</b></p> <ul style="list-style-type: none"> <li>▪ Begin to understand that some websites are more useful than others when searching for topics.</li> <li>▪ Understand that technology can give rapid access to a wide variety of information and resources, including internet, TV, DVDs</li> <li>▪ Understand that there are different ways of finding information, e.g. books, asking other people</li> <li>▪ Understand that different forms of information, e.g. text, images, sound, multimedia exist and that some are more useful for specific purposes than others.</li> <li>▪ Understand that files can be retrieved and found on a computer using a search of the computer.</li> <li>▪ Understand and discuss how information can be obtained and used to answer specific questions.</li> <li>▪ Understand a website has a unique address and the need for precision when typing it.</li> <li>▪ Begin to understand that not everything on the internet is true.</li> <li>▪ Be aware that they can be accidentally diverted from websites through a link to a new website, advertising or pop-ups.</li> </ul>

# Digital Literacy

## Programme of Study

- 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.

### Skills

#### Online safety

- Use technology safely.
- Keep personal information safe.
- Use technology respectfully.
- Recognise situations involving content and contact that are not safe, (e.g. In emails, text messages, videos) and know where to go for help.
- Minimise screen, turn off the monitor, or use back buttons to return to the home page if anything inappropriate appears on the screen.

#### Electronic communication

- Contribute ideas to class and group emails.
- Send an email, using a subject heading, to a known member of the school community e.g. another class teacher, bursar.
- Open and reply to an email from a known person.
- Contribute to a blog, journal or forum on the school's VLE.
- Develop an awareness of appropriate language to use in email and other forms of digital communication such as blogs.
- Begin to use webcams and /or video conferencing as a class, if appropriate and available, with external providers, another class or school.
- Talk openly about their use of online communication in school and at home.

### Knowledge and Understanding

#### Online safety

- Know what it means to use technology safely.
- Understand what is meant by personal information.
- Understand how to keep personal information safe online.
- Know the rules for keeping safe online.
- Understand that personal information, e.g. email address, usernames, passwords, home address or telephone number should not be shared, either online or offline, without a trusted adult's permission.
- Know that they should not ask to meet anybody from the online world in the offline world.
- Know and abide by the school's rules for keeping safe online (age appropriate).
- Understand that technology should be used respectfully.
- Know where to go for help and support when they have concerns about content they have seen on the internet or other technologies.
- Know where to go for help and support when they have concerns about contact on the internet or other technologies.

#### Uses of technology

- Recognise common uses of information technology beyond school.

#### Electronic communication

- Understand that messages can quickly be sent electronically, via a range of devices, over distances and that people can reply to them.
- Understand that an email has to be sent to a unique email address and the need for accuracy in typing the address.
- Understand that electronic messages can be in the form of pictures, sound and/or text.
- Understand that some emails may be malicious or inappropriate and begin to recognise when an attachment may be unsafe to open.
- Understand the different ways that messages can be sent e.g. email, text messages, letter, phone, forums and begin to consider the advantages, or appropriateness, each one.

# Computer Science

## Programme of Study

- 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.

### Skills

#### Programming

- Give and follow commands (one at a time) to navigate other children and programmable toys around a course or a familiar journey, including straight and turning movements.
- Plan, generate and follow a sequence of instructions (actual and on-screen) to make something happen; or complete a given task or problem to create a simple program.
- Explore and create sequences of commands/instructions in a variety of programs/devices.
- Make predictions and describe the effects when creating programs and controlling devices.
- Identify errors in instructions.
- Use logical reasoning to predict what will happen in simple programs.

#### Simulations and modeling

- Explore simulations of real and virtual environments e.g. BBC science clips, virtual plants and pets.
- Make informed choices when exploring what happens in a simulation.
- Discuss use of simulations and compare with reality, e.g. a simulation of a science experiment.
- Talk about the rules found in simulations.

### Knowledge and Understanding

#### Programming

- Understand that algorithms are a series of steps or instructions to achieve a specific goal.
- Understand that devices respond to commands.
- Understand the meaning of the term program.
- Talk about devices in the home that are controlled by commands.
- Understand that prediction, trial and error are important considerations when creating programs or controlling movement.
- Understand that there are different ways to create or produce a sequence of commands, including verbal, recorded, graphical, pressing buttons and on screen methods.
- Understand what debugging is and begin to understand that you can develop strategies to help find bugs.
- Understand what logical reasoning is and how it can be used to predict what happens in simple programs.

#### Simulations and modeling

- Understand that computer simulations can represent real and virtual environments.
- Understand that computer simulations allow the user to explore options and make choices, recognising that different decisions produce different outcomes.