



Subject: Computing at Denton CP School Statement of Intention

Aims and Purposes

The Computing curriculum at Denton CP School will offer opportunities for our children to:

- Develop their understanding of the fundamental principles and concepts of computer science.
- Develop their skills in using hardware and software to manipulate information in their process of problem solving, recording and expressive work;
- Develop a high quality computing education which equips them to understand and change the world through logical thinking and creativity.
- Develop their understanding of how digital systems work and to become digitally literate individuals.
- Explore their attitudes towards ICT, its value for themselves, others and society, and their awareness of its advantages and limitations

Computer science

Our children will:

- Acquire and develop the skills associated with computer science in order to:
 - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
 - Use sequence, selection and repetition in programs; work with variables and various forms of input and output.
 - Use logical reasoning to explain how some algorithms work and detect and correct errors in algorithms and programs.
 - Understand computer networks including the internet; how they can provide multiple services such as the world wide web

I.T.

Our children will:

- Acquire and develop skills associated with Information technology in order to:
 - Use search technologies effectively.
 - Select, use and combine a variety of software on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.
 - acquire and refine the techniques e.g. saving, copying, checking the accuracy of input and output needed to use ICT;
 - practise mathematical skills e.g. ordering numbers including negative numbers, measuring and calculating to an appropriate number of decimal places, drawing and interpreting graphs and bar charts in real contexts;
 - learn why numerical and mathematical skills are useful and helpful to understanding;
 - develop the skills of collecting first hand data, analysing and evaluating it, making inferences or predictions and testing them, drawing and presenting conclusions, and use all these in their work with ICT.

Digital literacy

Our children will:

- Acquire and develop their skills in digital literacy in order to:
 - Understand the opportunities networks offer for communication and collaboration.
 - Be discerning in evaluating and presenting data and information.
 - Be able to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Features of Progression

To ensure children make progress in computing, teaching will promote opportunities for children, as they move through the Key Stage, to progress:

- from using single forms of information to combining different types of information, matching the form of presentation to the audience and what is being communicated;
- from personal use of ICT to using ICT to meet the needs of, and communicate with, others;
- from using ICT to replicate and enrich what could be done without ICT e.g. playing a word game or drawing a picture to using ICT for purposes that could not have been envisaged without it such as exploring 'what if' situations and modelling new ones;
- from using everyday language to describe work with ICT to increasingly precise use of technical vocabulary and ways of recording;
- from personal use of ICT in a few areas to understanding a wider range of uses of ICT and the consequences of its use for themselves, their work and others;
- from using ICT to address a single task e.g. writing a story to addressing more complex issues, and balancing conflicting needs and criteria.
- from organising information as separate items e.g. single graphic image to organising information in sequences and more complicated, interactive, structures e.g. a multimedia presentation or a database;
- from initial exploration of ideas and patterns to more systematic use of ICT for analysis and design. Building on Children's Earlier Experiences

- **Aims:**

Children will leave Denton CP School with an understanding ability to apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation. They can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems. They can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems. Children are responsible, competent, confident and creative users of information and communication technology.



Skills	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multimedia	<p>Graphics Use ICT to generate ideas for their work. Save, retrieve and print work.</p> <p>Text Use spacebar, backspace, delete, arrow keys, return.</p> <p>Sound recording Record sound at and away from a computer. Use software to record sounds.</p> <p>Video Capture video. Discuss which videos to keep and which to delete.</p> <p>Presentation (2Connect) Choose a suitable subject and collect some information. Create a mindmap of this data.</p>	<p>Graphics Use ICT to generate ideas for their work. Use various tools such as brushes, pens, rubber, stamps, shapes. Save, retrieve and print work. (B5/6)</p> <p>Text Start to use two hands when typing.</p> <p>Sound recording Change sounds recorded. Save, retrieve and edit sounds.</p> <p>Video Arrange clips to create a short film. Add a title and credits. (B5/6)</p> <p>Presentation (2Connect) Link appropriate bubbles. Present the information to a group.</p>	<p>Graphics Acquire, store and combine images from cameras or the internet for a purpose. Edit pictures using a range of tools in a graphics program.</p> <p>2Create a story Create a new book aimed at a target audience. Combine text, images and sound on each page.</p> <p>Animation (1 I Can animate / 2animate) Plan what they would like to happen in their animation. Take a series of pictures to form an animation.</p> <p>Video (imovie trailer) Capture video for a purpose. Choose which clips to keep and which to discard.</p> <p>Text Get quicker at typing with both hands. Use a variety of font sizes, styles and colours.</p> <p>Presentation (PowerPoint) Create a title slide and choose a style. Insert a picture/text/graph from the Internet or personal files.</p>	<p>Graphics Use the print screen function to capture an image. Select certain areas of an image and resize, rotate and invert the image.</p> <p>2Create a story Add information about the author and title for publishing.</p> <p>Animation (1 I Can animate / 2animate) Move items within their animation to create movement on playback. Edit and improve their animation.</p> <p>Video (imovie trailer) Trim and arrange clips to convey meaning. Add titles, credits, slide transitions, special effects.</p> <p>Text Align text left, right and centre.</p> <p>Presentation (PowerPoint) Change the layout of a slide. Decide upon and use effective transitions.</p>	<p>Sound Recording (Audacity) Collect audio from a variety of resources including own recordings and internet clips.</p> <p>Animation Plan a multi-scene animation including camera angles and special effects. Use stop –go animation software (Ican Animate / Hue animation) with an external camera to shoot animation frames. Adjust the number of photographs taken and the playback rate to improve the quality of the animation.</p> <p>Graphics Use to create a 3D representation of an existing building. Change the style, colour and texture of the walls.</p> <p>Video (iMovie) Storyboard and capture videos for a purpose. Plan for the use of special effects and transitions.</p> <p>Presentation (PowerPoint) Work independently to create a multi slide presentation that includes speaker’s notes. Use transitions and animations to improve the quality of the presentation.</p>	<p>Sound Recording (Audacity) Create a multi-track recording using effects. Edit and refine their work to improve outcomes.</p> <p>Animation Plan a multi-scene animation including camera angles and special effects. Use stop –go animation software (Ican Animate / Hue animation) with an external camera to shoot animation frames. Adjust the number of photographs taken and the playback rate to improve the quality of the animation.</p> <p>Graphics Use the tools available to design their own fit for purpose building. Change the viewpoint angle whilst designing the building to gain insight to its look from a variety of angles.</p> <p>Video (iMovie) Trim, arrange and edit audio levels to improve quality of their outcome. Export their video.</p> <p>Presentation (PowerPoint) Include sounds and moving graphics in the slides. Present to a large group or class using the notes made.</p>

<p>Programming</p>	<p>Bee-bots Give commands including straight forwards / backwards / turn one at a time. Explore what happens when a sequence of instructions is given. Give a set of simple instructions to follow out a task.</p>	<p>Bee-bots Give a set of instructions to form simple geometric shapes. Improve/change their sequence of commands.</p>	<p>Scratch Navigate the Scratch programming environment. Create a background and a sprite for a game.</p>	<p>Scratch Add inputs to control their sprite. Use conditional statements within the program to control the sprite (if...then..)</p>	<p>Scratch Use external triggers and infinite loops to control sprites. Create and edit variables. Use conditional statements.</p>	<p>Scratch Design their own game including sprites, backgrounds, scoring and/or timers. Use conditional statements, loops, variables and broadcast messages in the game. The game finishes when a player wins or loses and they must know they have won or lost. Evaluate the effectiveness of the game and debug as required.</p>
<p>Online</p>	<p>Internet research Explore a website by clicking on the arrows, menus and hyperlinks.</p> <p>Emails Contribute to a class email. Open and select to reply to an email as a class.</p>	<p>Internet research Explore a website by clicking on the arrows, menus and hyperlinks.</p> <p>Emails Contribute to a class email. Open and select to reply to an email as a class.</p>	<p>Blogging Navigate to view their class blog. Understand that it can be updated from a range of devices.</p> <p>Internet research Type in a URL to find a website. Add websites to a favourites list. Use a search engine to find a range of media, e.g. images, texts Think of search terms to use linked with questions they wish to answer. Cycle B T5/6</p> <p>Emails Log into an email account, open, create and send an email. Attach files to an email. Download and save files from an email. Email more than one person and reply to all.</p>	<p>Blogging Comment on their class blog.</p> <p>Internet research Talk about the reliability of information on the Internet, e.g. the difference between fact and opinion.</p> <p>Emails Log into an email account, open, create and send an email. Attach files to an email. Download and save files from an email. Email more than one person and reply to all.</p>	<p>Internet Research Use advance search functions in Google (quotations). Understand websites such as Wikipedia are made by users (link to E-Safety). Use strategies to check the reliability of information (cross check with another source such as books).</p> <p>Cloud Computing Understand files may be saved off their device in 'clouds'.</p> <p>Blogging Register for a blog, select a URL and navigate to their blog once it is created. Alter the theme and appearance of their blog, adding background images etc. Create a new post, save it as a draft and publish it. Embed photos, hyperlinks and videos into posts.</p>	<p>Internet Research Understand websites such as Wikipedia are made by users (link to E-Safety). Use strategies to check the reliability of information (cross check with another source such as books). Use their knowledge of domain names to aid their judgment of the validity of websites.</p> <p>Cloud Computing Upload/download a file to the cloud on different devices. Understand about syncing files using cloud computing folders.</p> <p>Blogging Reorganise posts and remove posts they no longer want. Like/follow other blogs and build up their blog content over the year.</p>

E-Safety	<p>Make decisions about whether or not statements found on the internet are true or not. Identify devices that can be used to search the Internet. Identify what things count as personal information. Consider other people's feelings on the Internet.</p>	<p>Identify when inappropriate content is accessed and act appropriately. Recognise that a variety of devices can be used to connect a number of people.</p>	<p>Question the 'validity' of what they see on the internet. Use a browser address bar not just search box and shortcuts. Think before sending and comment on consequences of sending/posting. Recognise online behaviours that would be unfair. Make judgments in order to stay safe, whilst communicating with others online.</p>	<p>Recognise social networking sites and social networking features built into other things (such as online games and handheld games consoles) Identify dangers when presented with scenarios, social networking profiles etc. Articulate examples of good and bad behaviour online.</p>	<p>Judge what sort of privacy settings might be relevant to reducing different risks. Judge when and when not to answer a question online. Be a good online citizen and friend. Articulate what constitutes good behaviour online. Click-CEOP button and explain to parents what it is for.</p>	<p>Use different sources to double check information found online. Find 'report' and 'flag' buttons in commonly used sites and name sources of help (ChildLine, cybermentors etc.) Discuss scenarios involving online risk. State the source of information found on the Internet. Act as a role model for younger pupils.</p>
Data	<p>Know that images give information. Say what a pictogram is showing them. Put data into a program. Sort objects and pictures into lists or simple tables.</p>	<p>Sort objects and pictures into lists or simple tables. Make a simple Y/N tree diagram to sort information. Create and search a branching database.</p>	<p>All skills below Cycle B T5/6</p> <p>Choose information to put into a data table. Design a questionnaire to collect information. Sort and organize information to use in other ways.</p>	<p>Recognise which information is suitable for their topic. Create a database from information I have selected.</p>	<p>Create data collection forms and enter data accurately from these. Make graphs from the calculations on my spreadsheet. Sort and filter information.</p>	<p>Know how to check for and spot inaccurate data. Know which formulas to use when I want to change my spreadsheet model. Understand that changing the numerical data effects a calculation.</p>