

Curriculum Growth Journey

Computing

How is Computing taught at Trinity?

Curriculum Intent:

What do we want to achieve in our Computing curriculum?

At Trinity All Saints Primary School we are committed to ensuring that every learner is able to meet their full potential in a world which is becoming increasingly transformed by technology. Through engaging and creative Computing lessons, learners are equipped with the skills, knowledge and understanding necessary to allow them to use technology effectively and confidently. Technology is ever-evolving and we aim to develop learners who can use technology to express themselves, develop their ideas, share information, stay safe online and thereby use communication technology at a suitable level for the future workplace and become active participants in a digital world.

At Trinity All Saints Primary School we believe that each individual child is very important. We are committed to offering an inclusive curriculum to ensure the best possible progress for all of our pupils, whatever their needs or abilities, so that they can reach their full potential and grow into the very best versions of themselves. We feel that their contribution to school life should be valued and we seek to build their self-esteem.

Spiritual development in our school seeks to support every individual on their spiritual quest.

Implementation:

How will this be achieved?

At Trinity All Saints Primary School, we are starting to develop deep cross-curricular links between Computing and Mathematics, Science and Design Technology and we strive to provide a broad and balanced curriculum, whilst ensuring that learners become digitally literate and digitally resilient. We incorporate our Power of Three curriculum drivers (ACT) within our planning, ensuring children are **A**ctive in their learning, **C**ontented in themselves and **T**houghtful as a citizen.

Opportunities for Spiritual Development:

We aim to:

- Develop a spirit of enquiry and open-mindedness enhanced by the use of skilful questioning by the teacher
- Develop self-knowledge and values by which to live

- Develop creativity by expressing innermost thoughts, imagination and feelings through art, appropriate music, literature and crafts
- Develop feelings and emotions by being moved by beauty and kindness, hurt by injustice or aggression, a growing awareness of when it is important to control emotions and feelings and how to use such feelings as a source for growth.

Impact:

What will outcomes for learners be?

Technology is ever-evolving and we aim to develop learners who can:

- Use technology to express themselves
- Develop their ideas, share information and thereby use communication technology at a suitable level for the future workplace
- Have a secure understanding of fundamental skills relating to computing ready for secondary school
- Be active participants in a digital world.
- Be safe, enquiring learners when using digital tools and communications

The Early Years Foundation Stage

Technology is no longer statutory in the Early Years Foundation Stage. However, in Nursery and Reception we believe that in an ever-changing digital world, technology is a vital tool in educating young children. Not only does the inclusion of teaching computing skills allow children to understand how the modern world works in a digital age, it is also an effective and useful medium for learning. Children can use technology creatively moving between physical and digital play in order to enhance their learning when needed.

Here are just some of the ways that technology can be used in the early years classroom.

- taking a photograph or video with a camera or tablet
- specific phonics/maths apps or games on an iPad
- handwriting practise on an iPad

- looking for information on the internet
- playing games on the interactive whiteboard or iPad
- exploring an old typewriter, keyboard or other mechanical toy
- using a Beebot or another programmable toy
- watching a video clip or using an online stopwatch or timer
- listening to music, learning dance moves

Although skills are evidenced under a particular NC objective, they will be apparent in other objectives.

Computing: Key Stage 1

Pupils should be taught to:

<p>National Curriculum objective - understand what algorithms are; how they are implemented as programs on digital devices; and that</p>	<p>National Curriculum objective - create and debug simple programs</p> <p>Computer programming</p>	<p>National Curriculum objective - use logical reasoning to predict the behaviour of simple programs</p>	<p>National Curriculum objective - use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p>Sound and music (Bradford scene of work planning)</p> <p>Visual media (Bradford scene of work planning)</p> <p>Multimedia (Bradford scene of work planning)</p> <p>Data Handling (Bradford scene of work planning)</p>	<p>National Curriculum objective - recognise common uses of information technology (inc. beyond school)</p>	<p>National Curriculum objective - use technology safely and respectfully, keeping personal information private; identify</p>
--	---	--	--	---	---

	<p>programs execute by following precise and unambiguous instructions</p> <p>Computer programming (Bradford scene of work planning)</p>	<p>(Bradford scene of work planning)</p> <p>Modelling (Bradford scene of work planning)</p>	<p>Modelling (Bradford scene of work planning)</p>		<p>Information Literacy (Bradford scene of work planning)</p>	<p>where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</p> <p>Information Literacy (Bradford scene of work planning)</p>
Yr. 1	<p><i>Understand</i> what an algorithm is (a series of instructions).</p> <p><i>Understand</i> that digital devices work using algorithms.</p> <ul style="list-style-type: none"> Bee bots - exploring maps 	<p><i>Understand</i> that programs and devices (virtual or real) execute by following clear and accurate commands (algorithm).</p> <p><i>Control</i> devices through a series</p>	<p><i>Understand</i> computer representation allows the user to make choices and that different decisions produce different outcomes.</p>	<p><i>Discuss and explore</i> the use ICT to simply sort, organise and classify objects based on their properties.</p> <p><i>Discuss and explore</i> the use of pictograms and to interpret the data it represents.</p> <p><i>Recognise</i> that the information presented on screen represents the data collected in class (either verbally, tally chart)</p> <p><i>Understand</i> computers can represent real or fantasy situations/scenarios.</p> <p><i>Understand</i> that multimedia includes sound, text and graphics.</p> <p>Use text, images and sound to communicate ideas.</p>	<p><i>Recognise</i> common uses of technology beyond school. For example, programming Sky box or using a washing</p> <p><i>Understand</i> that ICT can give access quickly to</p>	<p><i>Explore</i> a variety of electronic information as part of a given topic.</p> <p><i>Follow</i> links to find information required.</p> <p><i>Know</i> the school e-safety rules and how to report an e-safety matter</p>

		<p>of commands (algorithm).</p> <ul style="list-style-type: none"> • VR's - Antarctica • Beebots - exploring maps 	<ul style="list-style-type: none"> • Word - make selections to create a castle poster 	<p>Understand that text comes in different colours, sizes and styles.</p> <p>Talk about how ICT can be used to convey information.</p> <p>Know they can explore sound and music in ICT using keyboards and onscreen music software.</p> <p>Know they can record sound using ICT that can be stored and played back.</p> <p>Understand that they can use software to change the musical phrases they create.</p> <p>Locate, listen to, play and begin to record sounds.</p> <p>Explore a variety of tools in a graphics package to communicate an idea.</p> <p>Understand there are a variety of tools in a graphics package and they each have a different purpose.</p> <p>Understand the need to frame an image or scene and keep the recording device still.</p> <ul style="list-style-type: none"> • Imovie - Captain Scott's story • Stop start animation - David and Goliath, The lost Son • Create and record music- battle sounds 	<p>a wide variety of resources.</p> <p>Understand that information comes from different sources e.g. books, web sites, TV etc.</p> <p>Understand that ICT can be used to communicate ideas.</p> <p>Understand that digital still or video cameras can capture an image to share, store and retrieve.</p> <ul style="list-style-type: none"> • Create a castle poster 	<ul style="list-style-type: none"> • Being safe online
Yr. 2	<p>Understand that real and virtual devices can be controlled by sequences of</p>	<p>Plan a set of commands to control devices for a specific outcome.</p>	<p>Use logical reasoning to predict outcomes of series of commands</p>	<p>Understand that information can be represented as a simple graph or pictograms.</p> <p>Discuss and explore how to use ICT to organise, present and understand data as a simple graph.</p>	<p>Talk about the different forms of information (text, images, sound and video) and understand that</p>	<p>Understand that the internet contains a large amount of information and recognise the need</p>

<p>commands (algorithm).</p> <p><i>Control</i> devices through a series of commands (algorithm).</p> <p>BeeBots, Crumble</p>	<p><i>Recognise</i> that ICT allows quick changes to the display of data. Branching Database</p> <p><i>Understand</i> that 'yes/no' questions can be used to divide a set of objects into sub-sets and that a sequence of 'yes/no' questions can identify an object.</p> <p><i>Use</i> a branching database and to know that it can be used to find out the answers to questions.</p> <p><i>Understand</i> computer</p>	<p><i>Write</i>, test and debug simple programs.</p> <p>BeeBots, Crumble</p>	<p><i>Understand</i> that if data has not been entered accurately it cannot be used to provide the answers to questions.</p> <p><i>Select</i> relevant information to answer specific questions by navigating to different pages in a website.</p> <p><i>Recognise</i> the layout of a web page, recognise web addresses, menu buttons and links.</p> <p><i>Know</i> how to express their ideas using a range of ICT tools.</p> <p><i>Save</i> and retrieve work independently.</p> <p><i>Share</i> ideas in different forms including text, images and sound, and to recognise that changes can be made at a later stage to improve the look and to improve their ideas.</p> <p><i>Use</i> the skills and techniques learnt to organise, reorganise and communicate ideas for a specific purpose in different contexts.</p> <p><i>Compose</i> music using icons to represent musical phrases.</p> <p><i>Locate</i>, listen, play sounds and add them to their presentations.</p>	<p>some are more useful than others.</p> <p><i>Understand</i> the benefits of using technology beyond school.</p> <p><i>Understand</i> that animation is a sequence of still images.</p>	<p>and use child friendly search sites to begin to find information.</p> <p><i>Understand</i> that digital still or video cameras, webcams, mobile phones or visualisers can capture an image to store and these images can be shared.</p> <p><i>Know</i> the school e-safety rules and how to report an e-safety matter</p>
--	---	--	---	--	--

	<p>simulations can represent real or imaginary situations and talk about the differences.</p> <p><i>Explain</i> how a computer simulation allows them to test predictions and make changes responding to feedback.</p>	<p><i>Record</i> sound using ICT that can be stored and played back.</p> <p><i>Understand</i> that adding music and or a sound can affect mood and atmosphere of their work.</p> <p><i>Use</i> their graphics in different software packages to communicate an idea.</p> <p><i>Understand</i> there are a variety of tools and techniques which can be used to create different styles and effects for different purposes.</p> <p><i>Open</i> images they have created in other software.</p>	
--	--	---	--

Computing: Key Stage 2

Pupils should be taught:

National Curriculum objective - design, write and debug programs that accomplish specific goals,	National Curriculum objective - use sequence, selection, and repetition in programs; work with variables	National Curriculum objective - use logical reasoning to explain how some simple algorithms	National Curriculum objective - understand computer networks including the internet; how	National Curriculum objective - use search technologies effectively, appreciate how results are	National Curriculum objective - select, use and combine a variety of software (including internet services) 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	National Curriculum objective - use technology safely, respectfully and
--	--	---	--	---	--	---

	<p>including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</p> <p>Computer programming (Bradford scene of work planning)</p>	<p>and various forms of input and output</p> <p>Computer programming (Bradford scene of work planning)</p>	<p>work and to detect and correct errors in algorithms and programs</p> <p>Computer programming (Bradford scene of work planning)</p>	<p>they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration</p> <p>Information Literacy (Bradford scene of work planning)</p>	<p>selected and ranked, and be discerning in evaluating digital content</p> <p>Information Literacy (Bradford scene of work planning)</p>	<p>Modelling (Bradford scene of work planning)</p> <p>Data Handling (Bradford scene of work planning)</p> <p>Information Literacy (Bradford scene of work planning)</p> <p>Visual media (Bradford scene of work planning)</p> <p>Multimedia (Bradford scene of work planning)</p> <p>Sound and music (Bradford scene of work planning)</p>	<p>responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p> <p>Information Literacy (Bradford scene of work planning)</p>
Yr.3	<p>Know how computer simulations can represent real or imaginary situations and how this can help in the wider world</p>	<p>Use more varied and complex commands specifying angles of turn and distances e.g. FD 100 RT 90.</p>	<p>Apply and test sequencing skills in a variety of contexts.</p>	<p>Recognise that Google can provide multiple services, including email</p>	<p>Use search technologies effectively to find specific information by turning questions in to keywords.</p>	<p>Understand that collecting and organising information using ICT makes it easier to find answers to questions.</p> <p>Understand that ICT can be used to create different graphs that show data for different purposes across the curriculum.</p>	<p>To be aware of the copyright issues when using third party sound / music files.</p>

<p><i>Identify</i> opportunities to use a simulation whether it be computer based or not.</p> <p><i>Discuss</i> computer simulations and understand how ICT can allow you to make quick changes easily and compare with real situations.</p> <p><i>Know</i> that simulations are controlled by a set of rules.</p> <p><i>Create</i>, refine and debug a series of commands</p>	<p><i>Use</i> repetition in programs to write code using the least number of lines and improving efficiency.</p> <p><i>Use</i> pre-defined conditional statements in programs (when x happens do y)</p>				<p><i>Find</i> and choose appropriate information and record it in digital or analogue format.</p> <p>Identify how different web pages are organised e.g. graphics, links and text.</p> <p><i>Navigate</i> a web page to locate specific information.</p> <p><i>Know</i> that ICT enables access to a wider range of information and tools to help find specific information quickly</p>	<p><i>Understand</i> that questions are key to organising data efficiently in a branching database to solve problems.</p> <p><i>Understand</i> the difference and similarities between branching to 'standard' databases</p> <p><i>Combine</i> text, sound and graphics to communicate information for a given audience.</p> <p><i>Recognise</i> the key features of different layouts and how these can be used to meet the needs of the audience.</p> <p><i>Use</i> editing facilities to create and edit work quickly.</p> <p><i>Understand</i> that information comes in a variety of forms and they can use these to communicate an idea (including text, movie, sound and graphic).</p> <p><i>Understand</i> they can use ICT to compose music or record sounds.</p> <p><i>Understand</i> ICT allows easy creation manipulation and change.</p>	<p>To <i>understand</i> a digital image can be captured from a number of different devices and it can be stored, developed and enhanced.</p> <p>To be <i>aware</i> of the copyright issues when using images from other sources.</p> <p><i>Know</i> the school e-safety rules and how to report unsafe behaviour</p>
--	---	--	--	--	--	---	--

	(algorithm) for virtual programmable devices					<p><i>Choose</i> listen and play appropriate sound files to fit a given context.</p> <p><i>Select</i> appropriate sounds to embed in a page to support an idea or concept.</p> <p><i>Use</i> the graphics they have created or modified for use in different software.</p>	
Yr. 4	<p>To <i>create</i> a series of commands that can be combined or condensed to create more complex or efficient routines called procedures.</p> <p>Scratch</p>	<p><i>Refine</i> game to make it more appealing to a specific audience.</p> <p><i>Transfer</i> existing coding skills to a new program.</p> <p>Scratch</p>	<p>To <i>understand</i> that games are made of specific code.</p> <p>Scratch</p>	<p><i>Understand</i> how a computer network works.</p> <p><i>Carry</i> out relevant searches developing keywords from a question.</p> <p><i>Skim read</i> and sift information to check its relevance and modify their search</p>	<p><i>Understand</i> that questions can be turned into search criteria and that database tools can be used to find answers.</p> <p><i>Understand</i> that if data has not been entered it cannot be used to provide the answers to questions</p> <p><i>Make and test</i> predictions using</p>	<p><i>Use</i> ICT to create different graph types appropriately for different purposes.</p> <p><i>Use</i> ICT to collate data in a table and convert it to a graph.</p> <p><i>Understand</i> what a database is, how data is structured and that information can be held as numbers, choices or text.</p> <p><i>Understand</i> what a spreadsheet is and how to enter data in a spreadsheet.</p> <p>To <i>know</i> how to add numbers in a spreadsheet.</p> <p><i>Understand</i> one element of the spreadsheet can be changed and this can have effects on the other calculations.</p>	<p>To <i>understand</i> sounds can be copyrighted and abide by copyright rules when using them.</p> <p>Book creator</p>

			<p>strategies if necessary.</p> <p><i>Use</i> appropriate information to produce a report for a particular audience.</p> <p>To <i>evaluate</i> different search engines and explain their choices for using these for different purposes</p> <p>To <i>understand</i> that many search engines have specific searches for specific media.</p>	<p>data they have obtained</p>	<p>To <i>discuss</i> features of good page design and multimedia presentations.</p> <p>To <i>collect, create and insert</i> appropriate (fit for purpose) graphics and sound files to enhance the presentation.</p> <p>To <i>understand</i> the different contributions sounds, words and images can make in a presentation.</p> <p>To be able to <i>choose</i> appropriate media for a presentation, review and develop the structure to convey intention to an audience.</p> <p>To <i>use</i> ICT to compose music or sounds including creating melodies.</p> <p>To <i>locate, listen to, import and use</i> appropriate sound files in multimedia software.</p> <p>To know that sound files can be <i>uploaded</i> on the internet and shared with a wider audience.</p> <p>To <i>use</i> suitable software packages to create, develop, amend and present their ideas for a specific audience.</p>	
--	--	--	--	--------------------------------	--	--

					<p>To begin to <i>understand</i> how images from different sources (stills, video, graphics, animation) are used to enhance a presentation or communicate an idea.</p> <p>iMovie, book creator, excel</p>	
Yr. 5	<p><i>Solve</i> problems by decomposing them into smaller parts.</p> <p>To become <i>familiar</i> with inputs as well as outputs from a program and understand the use of sensors.</p> <p><i>Understand</i> the sequence of input>process>output in computer systems.</p> <p><i>Create</i> and refine series of commands (algorithm) and procedures to control or simulate physical systems combining inputs outputs and sensing devices.</p> <p><i>Understand</i> how to use selection in programming e.g. If</p> <p><i>Understand</i> and use variables. For example, a variable in a game that shows the score or number of lives left in a game</p> <p>Scratch, code-it</p>	<p><i>Understand</i> what the internet is.</p>	<p><i>Interrogate</i> a database using suitable questions</p> <p><i>Discuss</i> 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.</p> <p><i>Use</i> a range of sources to check validity and recognise different</p>	<p><i>Understand</i> that different programs present and examine data in different ways and that they each have suitable uses.</p> <p><i>Create</i> different types of graphs and charts that are appropriate to the data they are using and use them to interpret and answer a specific question.</p> <p><i>Understand</i> there are different ways of finding errors in data; graphs, sorting, searching and the need to be consistent with data entry.</p> <p><i>Create</i> a simple database to store and search relevant information.</p> <p><i>Locate</i>, save and import pictures, text, video and sound into another document appropriate to the task.</p> <p><i>Use</i> a range of calculations and functions in a spreadsheet.</p>	<p><i>Recognise</i> that the Internet may contain material that is irrelevant, bias, implausible and inappropriate.</p> <p><i>Know</i> the school e-safety rules and how to report unsafe behaviour</p> <p><i>Know</i> a variety of social media</p>	

			<p>viewpoints and the impact of incorrect data</p>	<p><i>Investigate</i> a spreadsheet that models a real-life problem and edit / change the data to answer queries / compare solutions.</p> <p>Book creator, iMovie, stop motion</p> <p><i>Create</i> a simple spreadsheet model of a real-life problem and use it to explore possible solutions.</p> <p><i>Use</i> a variety of creative media software and web 2.0 resources to present multimedia content.</p> <p><i>Design</i>, create and evaluate their own and others presentations and multimedia content.</p> <p><i>Develop</i> criteria for evaluating theirs and others work.</p> <p><i>Understand</i> the potential of multimedia to inform or persuade.</p> <p><i>Use</i> ICT to compose music or sounds considering specific audience and purpose.</p> <p><i>Select</i> and use suitable software and hardware to produce a multimedia soundtrack.</p>	<p>apps, what they do and how to stay safe when using them</p>
--	--	--	--	--	--

				<p><i>Recognise</i> the different layers of sound in a professional broadcast.</p> <p><i>Edit</i> music and sound and refine for a given audience or project.</p> <p><i>Generate</i>, amend and combine visual media from different sources for a specific audience or task.</p>	
Yr. 6	<p><i>Look</i> at more complex conditions and variables. For example, if your score is greater than 100 say "You win!"</p> <p><i>Consider</i> effective use of selection statements (if, then, else) to create a more complex program.</p> <p><i>Design</i>, write and debug a game for a given audience.</p>	<p>To understand that the internet can provide multiple services.</p>	<p><i>Check</i> plausibility of information from a variety of chosen sources on the same topic.</p> <p><i>Understand</i> plagiarism and the importance of acknowledging sources.</p> <p><i>Make</i> independent and appropriate choices about methods used to</p>	<p><i>Know</i> when and how to organise and analyse data accurately in an appropriate piece of software.</p> <p><i>Use</i> tools such as searches, filters, sorting and graphing to refine the information.</p> <p><i>Create</i> a more complex database to store and search for relevant information.</p> <p><i>Use</i> a spreadsheet model independently and use the information learned to offer a solution to a real-life problem.</p> <p><i>Choose</i> to design and create an appropriate spreadsheet model for a real-life problem, explore possible solutions and then choose and justify their answer.</p>	<p><i>Know</i> a variety of social media apps, what they do and how to stay safe when using them</p>

			<p>locate information.</p> <p><i>Make</i> independent and appropriate choices about the use of the information found.</p> <p><i>Make</i> informed judgments as to the validity of a website.</p>	<p><i>Integrate</i> words, images and sounds imaginatively into a presentation for different audiences and purposes.</p> <p><i>Make</i> appropriate selections from a variety of ICT applications to present text images and sounds effectively and communicate specific information and ideas for a specific audience.</p> <p><i>Understand</i> the potential of multimedia through comparing and contrasting a variety of applications/online tools</p> <p><i>Use</i> appropriate ICT resources to compose music or sounds to accompany a story, multimedia presentation or digital movie considering specific audience and purpose.</p> <p><i>Select</i> and use suitable software and hardware to produce a multi-layered podcast for a given purpose.</p> <p><i>Create</i> a 3D representation.</p> <p><i>Apply</i> knowledge and understanding of graphics packages and visual media to present work across the curriculum suitable to task and audience.</p>	
--	--	--	--	---	--

				<p><i>Save</i> and convert sounds in appropriate formats.</p> <p><i>Edit</i> and manipulate music and sound and refine for a given audience or project.</p>	
--	--	--	--	---	--