Holy Trinity CE Primary Academy

Computing Curriculum

Curriculum Intent: To provide children with a computing education which equips them to use computational thinking and creativity to understand and change the world, providing insights into both natural and artificial systems.

The intent is to teach **computer science**, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming.

Use **information technology** to create programs, systems and a range of content.

Ensure pupils become **digitally literate** – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world and **to stay safe online**. Digital literacy is woven into each project.

	Stonehenge	Whitehorse	Sarum y1	Avebury y1 Sarum Y2	Avebury Y2	Silbury
E safety and Digital literacy	Understand what being online looks like. Identify feelings we may experience and adults who can help Understand photos can be shared online and how permission is needed	Understand that personal information is unique to themselves and that personal information should only be given to trusted adults. To begin to identify the characteristics of people who are worthy of trust and who can help them make choices that keep them safe. Understand that emotions can be a tool to help judge unsafe situations. Understand the importance of checking with an adult before participating in an online environment	Identify some of the risks of sharing publicly online and understand potential consequences of sharing without consent. Understand some measures that can be taken to stay safe and understand some of the ways we can protect ourselves online against manipulation. Understand the need for strong passwords	To distinguish between personal information, which is safe to share online, and private information which is unsafe to share. Analyse why private information should not be shared without permission. Identify strategies for dealing responsibly with cyberbullying. Use keywords in search engines to refine online searches. Understand when it is acceptable to use the work of others. Use strong passwords and explore strategies for safely managing spam.	Distinguish between personal information, which is safe to share online, and private information which is unsafe to share. Understand the risks and benefits of various modes of communication. Begin to make sensible and considered judgments about whether or not to trust online content and people. When online identify different forms of cyber bullying understand what to do if confronted with cyber bullying	Recognise the importance of never sharing passwords, except with parents or guardians. Create passwords that are hard to guess, yet easy to remember. Customize privacy settings for the online services they use. Learn specific ways to respond to bullying when you see it. Know how to behave if you experience harassment. Make good decisions when choosing how and what to communicate – and whether to communicate at all Be aware of online tools for reporting abuse

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Info Tech	Model Understand computers show real events Use a mouse accurately Understand computers can be used as a model to make choices but are not an exact replica of real life. Create a fantasy game story.	BLOG Know what a blog is. Log into a blog. Know how to respond to others Know how to post a blog Explain what you think and why Use a blog to share learning E MAIL Understand messages, images, sound and text can be sent electronically and people can reply WWW Understand the world wide web has developed over time as technology changes Share knowledge by creating an interactive e-book	INTERNET & WWW To understand that the internet is many computers that are connected To understand some of the services available on the internet and use basic navigation skills to browse the world wide web Use search terms when looking for information using a search engine and know the basic steps that can help distinguish safe and credible websites Understand that copyright is an author's right of ownership and it is illegal to steal other people's material	E MAIL Understand that messages can be used to communicate over distance a number of ways Understand how email travels and how to retrieve it. Send and reply to emails using e mail to communicate ideas. Attach a file to an email Understand the advantages of attaching files to emails	WWW Understand that the world wide web is one of the services offered on the internet and consists of many websites and web pages that can be accessed using the internet Know that websites are written in HTML code and be able to read basic HTML code and understand how HTML provides structure for web content	APPS Use development tools Understand apps are a computer program developed to a plan Create an App using variables and procedures Develop an app Test and debug an app
	Data Collect and organise information to solve a problem Create a pictogram Sort information	Animate To understand what an animation is. Understand the premise of a stop-frame animation. Understand that an animation consists	DATA REPRESENTATION To understand how information in a database is organised understand the advantages of a computer based	Binary data sort record cards using field names understand that information can be stored as numbers, text and choices (e.g. yes/no)	Cryptography understand that messages can be sent and received secretly learn encrypt/decrypt simple messages understand that messages can be sent	DATA understand that spreadsheets can be used to store numerical data and to make calculations enter a formula to calculate totals

	Present data on a graph. Write Word process to create text Select and insert text Open and save a word document Understand the value of word processing	of characters, a stage, props, sound, text and story. To understand the importance of a storyboard in the story process and create one. To understand that animations need to be scripted To understand that stop-frame animations involve physical characters settings and props. To create a stop-frame animation	database over a paper one Find and enter information to create additional records in a database SIMULATIONS To understand that computer simulations can represent real or imaginary situations and are guided by rules To explore the effect of changing variables in a simulation. Make and test predictions and understand that simulations can help people try things quickly and inexpensively To understand that simulations help us understand difficult concepts Design and produce a computer simulation or adventure	understand that storing information in an organised way helps answer questions search a database to answer questions use the information in a database to create a simple chart ANIMATIONS To understand what an animation is Create a scene for an animation using digital tools Create an animated scene Storyboard and create a short animation	electronically over distances understand that data can be transmitted as binary (on or off) Understand the algorithm of a simple shift cipher To use frequency analysis to decipher encrypted text understand the importance of cryptography historically and today	To understand that graphs and charts can be created and easily be changed from spreadsheet data To understand the SUM function can be used to create formulas that will perform addition calculations use a spreadsheet to model a costing exercise

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Computer science	PROGRAMMING Understand an algorithm is used on devices Program a toy using a simple algorithm Program a virtual object and record a sequence of instructions	PROGRAMMING To understand that an algorithm is a process that consists of a series of steps that achieves a specific goal and can be followed by humans and computers. Know that steps can be repeated Understand computers need more precise steps than humans Write a simple program to move a character Combine images and text.	PROGRAMMING To program an animation that executes a sequence of statements To understand that computer programs containing graphics use x y coordinates and turns are measured in degrees To program a sequence of instructions that create visual effects To import, create and record sounds To understand that algorithms and programs can involve repetition To predict the outcome of a simple algorithm To combine images, sounds and movement to create a personal animation	PROGRAMMING understand that a program is a sequence of statements written in a programming language program a sequence of statements program an object to move and draw understand that commands and actions can be programmed to be executed depending upon whether a condition is true or not combine repetition and conditional statements in a program	Programming understand that computer programs containing graphics use x y coordinates and turns are measured in degrees use conditional (if) statements understand that some variables can only be true of false (Boolean) understand that programs can do different things if the value of a boolean variable is true or false (conditional statements) use variables in programs	Programming To program a computer game by sequencing conditional statements To use variables in programs To use procedures in programs To understand that the behaviour of a computer program should be planned To understand that programs are developed according to a plan To develop strategies for testing and debugging computer programs
Comp science	Algorithm Understand an algorithm is a precise set of instructions. Devise and follow a simple algorithm Plan, test and debug a simple algorithm. Make predictions and understand	SEARCHING Use links to navigate a website Know the web can answer questions Use hyperlinks Locate specific information on a website Collect information from different online sources and check they are the same.	NETWORK To understand what a computer network is and the key parts To understand how information is exchanged between devices and understand that the internet is the physical connections between computers and networks To understand how data travels through a network		Algorithm To understand that a linear sear involves checking information one- by-one To understand that networks connect a group of things To find the most efficient way of connecting a group of houses To work cooperatively as a group on a network to avoid deadlock	NETWORK To understand that a computer network is a group of computers that are connected To know that computer networks allow users to communicate and share To understand that the internet is many networks that are connected to each other

	outcomes and conditions.		To understand that devices on networks have a unique address		To find the quickest route on a map to a given location	To know that a router sends/receives information as packets of data To know that internet search engines maintain, and rank, a list (or index) of other websites available on the World Wide Web To know that web pages are written in HTML To recognise and use basic HTML syntax