Holy Trinity Church of England (Aided) Primary School

Curriculum Rationale

Computing

The Best for Every Child - a Unique Child of God

See how much the Father has loved us! His love is so great that we are called God's children — and so, in fact, we are (1 John 3:1)

Intent

Computing is changing the lives of everyone. Through teaching Computing at Cookridge Holy Trinity we equip children to participate in a rapidly-changing world where work and leisure activities are increasingly transformed by technology. At Cookridge Holy Trinity we have various aims to ensure our children are competent with modern technology:

- Competence in coding for a variety of practical and inventive purposes, including the application of ideas within other subjects.
- The ability to connect with others safely and respectfully, understanding the need to act within the law and with moral and ethical integrity.
- An understanding of the connected nature of devices.
- The ability to communicate ideas well by using applications and devices throughout the curriculum.
- The ability to connect, organise and manipulate data effectively.

Implementation

At Cookridge Holy Trinity we use 'TeachComputing.org and plan from their scheme of work. It is designed as a spiral curriculum which means the themes are visited regularly across both Key Stages. The main areas covered across all year groups are: **Computing systems and networks, Creating Media (twice), Programming (A and B), Data and information.**

KS1

Key Stage 1 builds on the Foundation Stage by ensuring that all children continue to develop their confidence when it comes to technology.

Year 1

The basics of Computing are essential and year 1 begin by making sure all children know how to log onto their laptop and where to save their work in the Autumn Term. They then use the main areas to cover the following: **Technology around us-** looking at recognising technology in school and using it responsibly; **digital painting-** choosing appropriate tools in a program to create art, and making comparisons with working non-digitally; **Moving a robot-** writing short algorithms and programs for floor robots, and predicting program outcomes; **Grouping data**- exploring object labels, then using them to sort and group objects by properties; **Digital writing**- using a computer to create and format text, before comparing to writing non-digitally; **Programming animations**- designing and programming the movement of a character on screen to tell stories.

Year 2

Year 2 ensure they build on the work of year 1 by continuing to follow the same themes. **Information technology around us**- identifying IT and how its responsible use improves our world in school and beyond; **Digital photography-** capturing and changing digital photographs for different purposes; **Robot algorithms**- creating and debugging programs, and using logical reasoning to make predictions; **Pictograms**- collecting data in tally charts and using attributes to organise and present data on a computer; **Digital music**- using a computer as a tool to explore rhythms and melodies, before creating a musical composition; **Programming quizzes-** designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.

KS2

Key Stage 2 build on both the foundation and KS1 stage of school and continue to ensure children are keeping E-Safe but also enjoying the use of technology.

Year 3

Year 3 act as the stepping stones during the transition from KS1. They ensure that all children are computer literate and competent at using IT skills. Again, the same themes are built on. **Connecting computers**- identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks; **Stop-frame animation-** capturing and editing digital still images to produce a stop-frame animation that tells a story; **Sequencing sounds**- creating sequences in a block-based programming language to make music; **Branching databases**- building and using branching databases to group objects using yes/no questions; **Desktop publishing-** creating documents by modifying text, images, and page layouts for a specified purpose; **Events and actions in programs-** writing algorithms and programs that use a range of events to trigger sequences of actions.

Year 4

Year 4 build on the new skills learnt in Year 3, again using the same key themes. **The internet-** recognising the internet as a network of networks including the WWW, and why we should evaluate online content; **Audio production-** capturing and editing audio to produce a podcast, ensuring that copyright is considered; **Repetition in shapes-** using a text-based programming language to explore count-controlled loops when drawing shapes; **Data logging-** recognising how and why data is collected over time, before using data loggers to carry out an investigation; **Photo editing-** manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled; **Repetition in games**- using a block-based programming language to explore count-controlled and infinite loops when creating a game.

Year 5

Year 5 continue following the key themes but using different programs. Systems and searching **Recognising IT-** systems in the world and how some can enable searching on the internet; **Video production-** planning, capturing, and editing video to produce a short film; **Sensing movement-** designing and coding a project that captures inputs from a physical device.; **Flat-file databases-** using a database to order data and create charts to answer questions; **Introduction to vector graphics-** creating images in a drawing program by using layers and groups of objects; **Selection in quizzes-** exploring selection in programming to design and code an interactive quiz.

Year 6

Year 6 ensure that what has been taught in each year group is consolidated but also built upon- again ensuring the themes are covered. **Communication and collaboration-** exploring how data is transferred by working collaboratively online; **Webpage creation-** designing and creating webpages, giving consideration to copyright, aesthetics, and navigation; **Variables in games-** exploring variables when designing and coding a game; **Introduction to spreadsheets- answering** questions by using spreadsheets to organise and calculate data; **3D modelling-** planning, developing, and evaluating 3D computer models of physical objects; **Sensing movement-** designing and coding a project that captures inputs from a physical device.

Whole School Computing

Cookridge Holy Trinity provides children with a variety of memorable, experiential opportunities to consolidate knowledge, learn new skills and gain joy and wonder in Computing. The VR headsets have enabled children to visit places that they might not be able to visit and also places that are impossible. iPads are used regularly in each year group and aid with learning. Some of our SEN children have found the use of technology has really helped with their confidence and they feel they can partake in lessons more often without feeling anxious about not finishing their work. Whilst on residential, iPads and our 360 camera is taken to allow children to retain their memories and use them for work. The 360 camera was very successful to help our children with other needs understand what it is like to visit places (such as Peat Rigg) before they have been as we can upload images to the VR headsets.

Throughout the spiral curriculum, various elements of hardware and software are used including: micro:bits, crumble, Bee-Bots, Blue-Bots, data loggers, Microsoft Office, Sketch-Up, Paintz.app, Scratch and Scratch Jr, j2data, Chrome music lab, iMotion, Canva.com, Audacity, FMSlogo, Paint.net, Outlook365, Google Sites, Google Drawings, Google Slides and Tinkercad.

This year we have also implemented the use of NetSupport to give staff more confidence whilst they teach Computing. It gives them control over all of the laptops that the children are using and allows them to demonstrate by modelling on each child's screen.

E-Safety is taught throughout each theme within the spiral curriculum and mentioned continuously. Throughout the Autumn term, D-Side come in to school and teach KS2 all about E-Safety and how to keep safe online through a variety of age appropriate lessons.

Impact

By the time pupils leave Holy Trinity they will have the skills to explore, analyse, exchange and present information. We also focus on developing the skills necessary for children to be able to use information in a discriminating and effective way. Computing skills are a major factor in enabling children to be confident, creative and independent learners and ensure they are able to access technology in the 'real world'.