Computing

Quote: *"Technology is best when it brings people together."* **– Matt Mullenweg**

Intent: At Cannington Primary School, we recognise that technology is an important part of everyday life and will play a significant role in our children's futures. Rooted in our Christian values, we aim to equip all learners with the knowledge, skills and confidence to use technology positively, responsibly and safely.

Through engaging and purposeful experiences, children develop their digital literacy and learn how to be respectful and responsible members of both their local and global communities. They explore a wide range of technologies, building the skills needed to create, communicate, solve problems and express their ideas.

Our computing curriculum develops children's understanding of computer science, information technology and digital citizenship. Through programming and computational thinking, learners are encouraged to think logically, analyse problems and develop creative solutions. We want every child to leave Cannington as a confident, responsible and curious digital learner, ready to embrace the opportunities and challenges of an ever-evolving digital world.

Curriculum Overview

	Computer systems and Networks	*Creating Media*	*Programming*	*Data and Information*	*Creating Media*	*Programming*
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Ash	**Understanding the World** Shows an interest in technological equipment.	**Understanding the World** Shows interest in making toys work to achieve movement.	**Understanding the World** Operates simple equipment.	**Understanding the World** Recognises information can be retrieved from digital devices	**Understanding the World** Coding	**Understanding the World** Develops digital literacy skills by being able to access software
Oak	**Logging on**	**Tech around us** *Paintz app*	**Digital painting** *Microsoft paint*	**Moving a robot** *BeeBot*	**Grouping data** *Microsoft PowerPoint*	**Digital writing** *Microsoft word*	**Programming animations** *Scratch Jr*
Pine	**Logging on**	**IT around us** *Microsoft PowerPoint*	**Digital photography** *Ipads*	**Robot algorithms** *BeeBot*	**Pictograms** *J2 data*	**Digital music** *Chrome Music Lab*	**Programming quizzes** *Scratch Jr*
Hazel Cycle A	**The internet** *Online*	**Audio production** *Audacity*	**Repetition in shape** *Turtle Academy*	**Data logging** *Data loggers*	**Photo editing** *Paint Net*	**Repetition in games** *Scratch*
Hazel Cycle B	**Connecting computers** *Microsoft Paint*	**Audio production** *Audacity*	**Sequencing sounds** *Scratch*	**Data logging** *Data loggers*	**Desktop publishing** *Publisher*	**Repetition in games** *Scratch*

Hazel Cycle C	**The internet** *Online*	**Stop-frame animation** ABCYa	**Repetition in shape** *Turtle Academy*	**Branching databases** *J2 data*	**Photo editing** *Paint Net*	**Events and actions in programs** *Scratch*
Hazel Cycle D	**Connecting computers** *Microsoft Paint*	**Audio production** *Audacity*	**Sequencing sounds** *Scratch*	**Data logging** *Data loggers*	**Desktop publishing** *Publisher*	**Repetition in games** *Scratch*
Beech Cycle A	**Systems and searching** *Microsoft PowerPoint*	**Video production** *iPad – iMovie? Clip-champ*	**Selection in physical computing** *Crumble controller + starter + kit*	**Flat-file databases** *J2 data database*	**Introduction to vector graphics** *Microsoft PowerPoint*	**Selection in quizzes** *Scratch*
Beech Cycle B	**Systems and searching** *Microsoft PowerPoint*	**Video production** *iPad – iMovie? Clip-champ*	**Selection in physical computing** *Crumble controller + starter + kit*	**Flat-file databases** *J2 data database*	**Introduction to vector graphics** *Microsoft PowerPoint*	**Selection in quizzes** *Scratch*
Beech Cycle C	**The internet** *Online*	**Video production** *iPad – iMovie? Clip-champ*	**Repetition in shape** *Turtle Academy*	**Flat-file databases** *J2 data database*	**Photo editing** *Paint Net*	**Selection in quizzes** *Scratch*
Beech Cycle D	**Systems and searching** *Microsoft PowerPoint*	**Video production** *iPad – iMovie? Clip-champ*	**Selection in physical computing** *Crumble controller + starter + kit*	**Flat-file databases** *J2 data database*	**Introduction to vector graphics** *Microsoft PowerPoint*	**Selection in quizzes** *Scratch*
Willow Cycle A	**Communication and collaboration** *Microsoft PowerPoint*	**Web page creation** *Microsoft Sway*	**Variables in games** *Scratch*	**Spreadsheets** *Microsoft Excel*	**3D modelling** *Tinkercad*	**Sensing movement** *micro:bit Microsoft Make Code*

Willow Cycle B	**Communication and collaboration** *Microsoft PowerPoint*	**Web page creation** *Microsoft Sway*	**Variables in games** *Scratch*	**Spreadsheets** *Microsoft Excel*	**3D modelling** *Tinkercad*	**Sensing movement** *micro:bit Microsoft Make Code*
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Cycles Explained

Children in Years 3, 4, 5 and 6 follow a four-year rolling programme. This approach ensures that all required knowledge and content from the National Curriculum is taught and revisited, enabling every pupil to experience the full curriculum by the end of Key Stage 2.

While the curriculum content is organised within the rolling programme, skills and learning objectives are carefully planned and delivered according to each year group's expectations. This ensures that lessons provide appropriate challenge and progression, meeting the needs of all learners and supporting children in developing age-related knowledge, understanding and skills.

Computing Skills Progression Grid

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing Systems & Networks	Identify technology, use keyboards and mice, recognise parts of a computer, understand responsible use of technology.	Identify IT in and beyond school, explain how technology helps us, use technology safely and responsibly.	Explain inputs, processes and outputs; understand how digital devices connect through networks.	Understand the internet as a network of networks, the WWW, ownership of online content and reliability of information.	Understand computer systems, processes, search engines, web crawlers and search rankings.	Understand IP addresses, DNS, data packets and online collaboration systems.
Creating Media	Create digital paintings and digital writing using basic tools.	Capture and edit photographs; create and edit digital music.	Create stop-frame animations and desktop-published documents.	Record, edit and evaluate audio; edit digital photographs.	Plan, record, edit and evaluate videos; create vector graphics.	Create and publish web pages; design and evaluate digital content for an audience; create 3D models.
Programming	Create simple algorithms, give commands, sequence instructions and program animations using ScratchJr and BeeBots.	Create, test and debug simple programs; program robots and quizzes using ScratchJr.	Create programs using sequences, events, actions and sounds in Scratch; debug programs.	Program using repetition and loops in Logo and Scratch; decompose problems into smaller steps.	Program using selection and conditions; use physical computing devices such as Crumble controllers.	Use variables, selection, repetition and inputs/outputs to create games and Micro:bit programs.

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Data & Information	Group, label, count and compare objects and simple data.	Collect, organise and present data using pictograms, tally charts and block diagrams.	Create and use branching databases and classification systems.	Collect and analyse data using sensors and data loggers.	Create, search, sort and filter flat-file databases.	Create spreadsheets, use formulae, perform calculations and present data using charts.
Digital Literacy & Online Safety	Understand rules for using technology safely; recognise that work belongs to someone.	Understand online relationships, reputation, ownership and privacy.	Understand safe communication and responsible information sharing.	Understand copyright, online information, privacy and online bullying.	Understand online identity, wellbeing, relationships and reputation.	Use online collaboration tools responsibly, evaluate communication methods and manage privacy effectively.
Debugging & Evaluation	Identify and correct simple errors; explain what a program does.	Predict outcomes, test programs and make improvements.	Debug Scratch projects and evaluate digital outcomes.	Evaluate audio, images and programs; improve work through testing.	Test, refine and evaluate digital products and programs.	Independently debug, evaluate and improve digital products, programs and systems.

National Curriculum Computing Expectations Progression

Strand	KS1 (Years 1-2)	KS2 (Years 3-6)
Algorithms & Programming	Understand what algorithms are and how they are implemented as programs on digital devices. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems. Solve problems by breaking them into smaller parts. Use sequence, selection and repetition in programs. Work with variables and different forms of input and output.
Computer Science	Understand that programs follow precise and unambiguous instructions. Develop early understanding of algorithms and debugging.	Understand computer networks, including the internet and how services such as the World Wide Web work. Use logical reasoning to explain algorithms and identify and correct errors in programs.
Information Technology	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Select, use and combine a variety of software on a range of digital devices to design and create programs, systems and content that accomplish given goals. Collect, analyse, evaluate and present data and information.
Data & Information	Organise and retrieve digital content. Begin to understand how information can be stored and used.	Collect, analyse, evaluate and present data and information using a variety of digital tools.
Digital Literacy	Recognise common uses of information technology beyond school. Use technology purposefully and appropriately.	Understand computer networks, online services and the World Wide Web. Become increasingly confident and independent users of digital technologies.
Online Safety	Use technology safely and respectfully. Keep personal information private. Know where to go for help if concerned about online content or contact.	Use technology safely, respectfully and responsibly. Recognise acceptable and unacceptable behaviour. Identify a range of ways to report concerns about online content and contact.

Strand	KS1 (Years 1-2)	KS2 (Years 3-6)
Problem Solving & Evaluation	Debug simple programs and predict outcomes using logical reasoning.	Analyse problems in computational terms, evaluate digital solutions, and detect and correct errors in algorithms and programs.

End of Key Stage Expectations

Key Stage 1

Pupils should be able to:

- Understand what algorithms are and how they are implemented as programs.
- Create and debug simple programs.
- Use logical reasoning to predict the behaviour of simple programs.
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
- Recognise common uses of information technology beyond school.
- Use technology safely and respectfully, keeping personal information private.

Key Stage 2

Pupils should be able to:

- Design, write and debug programs that achieve specific goals.
- Use sequence, selection and repetition in programs and work with variables, inputs and outputs.
- Understand computer networks, including the internet and the services it provides.
- Use search technologies effectively and evaluate digital content.

- Select and combine software to create digital content, programs and systems.
- Collect, analyse, evaluate and present data and information.
- Use technology safely, respectfully and responsibly, reporting concerns appropriately.

National Curriculum Aims

By the end of primary education, all pupils should:

- Understand and apply the fundamental principles of computer science, including abstraction, logic, algorithms and data representation.
- Analyse problems in computational terms and gain practical experience of writing computer programs.
- Evaluate and apply information technology, including new or unfamiliar technologies, to solve problems.
- Become responsible, competent, confident and creative users of information and communication technology.