St Luke's School Curriculum Progression Document

Computing

Contents

Curriculum Intent

School Curriculum Intent:

As a values-led school, our curriculum is underpinned by Care, Challenge & Achieve. It is through these values that we develop the whole child. It is our intent that children leave St Luke's ready to move forward in their learning, kind, resilient, filled with a confidence to live well in society and prepared to deal effectively with the challenges that the modern world presents as well equipped digital and global citizens.

Subject Intent:

The intent of the computing curriculum is that all pupils at St Luke's will benefit from high-quality computing education delivered by confident and well-supported staff. The computing curriculum will ensure pupils build knowledge and skills progressively and achieve age-appropriate standards. By embedding computing skills across other subjects, pupils will develop a deeper understanding of how computing applies in real-world contexts, and digital literacy. This approach will contribute to improved engagement, motivation, and achievement for all children, including those with SEND, multi-lingual learners, and those eligible for Jersey Premium funding, aligning with the school's vision of inspiring and challenging every child to reach their full potential.

Rationale for Decisions About What is Taught and When:

The Computing Curriculum has been written to support all pupils. Each lesson is sequenced so that it builds on the learning from the previous lesson, and where appropriate, activities are scaffolded so that all pupils can succeed and thrive. Scaffolded activities provide pupils with extra resources, such as visual prompts, to reach the same learning goals as the rest of the class. Exploratory tasks foster a deeper understanding of a concept, encouraging pupils to apply their learning in different contexts and make connections with other learning experiences. As well as scaffolded activities, embedded within the lessons are a range of pedagogical strategies, which support making computing topics more accessible.

Essential Characteristics in Computing:

- Pupils can understand and 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.
- Pupils can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.
- They are responsible, competent, confident and creative users of information and communication technology.

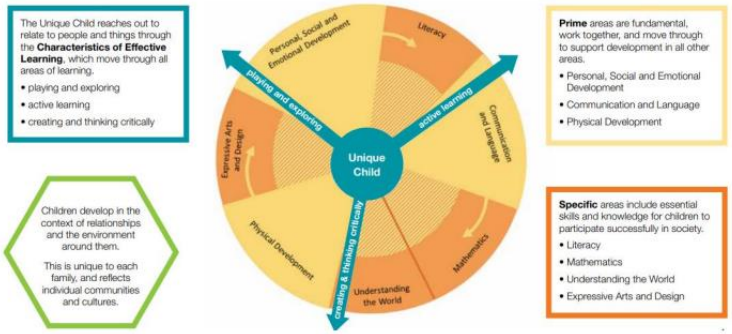
Curriculum Concepts:

- Algorithms — Be able to comprehend, design, create, and evaluate algorithms
- Computer networks — Understand how networks can be used to retrieve and share information, and how they come with associated risks
- Computer systems — Understand what a computer is, and how its constituent parts function together as a whole
- Creating media — Select and create a range of media including text, images, sounds, and video
- Data and information — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
- Design and development — Understand the activities involved in planning, creating, and evaluating computing artefacts
- Effective use of tools — Use software tools to support computing work
- Impact of technology — Understand how individuals, systems, and society as a whole interact with computer systems
- Programming — Create software to allow computers to solve problems
- Safety and security — Understand risks when using technology, and how to protect individuals and systems

Computing in the Early Years Foundation Stage

Developing early Computing skills

Developing Early Subject Skills – EYFS info



Each area of the EYFS curriculum has an Early Learning Goal, which is the standard that a child is expected to achieve by the end of their reception year. The ELG (Early Learning Goals) covers all of the 7 areas of learning as specified in the Early Years Foundation Stage Curriculum.

The following link to the teaching and learning of Computing in our EYFS: Technology is integrated into the EYFS by teaching children to understand and use it as a tool, encompassing everything from digital devices like cameras and interactive whiteboards to everyday objects like kettles and push-button toys. Technology supports children's development across all seven areas of learning, promoting engagement, critical thinking, and observation skills while also helping educators with planning, parent communication, and administration.

Technology in the Early Years can mean:

- taking a photograph with a camera or tablet
- searching for information on the internet
- playing games on the interactive whiteboard
- exploring an old typewriter or other mechanical toys
- using a Beebot
- watching a video clip
- listening to music

ELG

Children at the expected level of development will:

- Completes a simple program on an electronic device.
- Uses ICT hardware to interact with age-appropriate computing software.
- Can create content such as video recording, stories and/or draw a picture on screen.
- Develops digital literacy skills by being able to access, understand and interact with a range of technologies.
- Can use the internet with adult supervision to find and retrieve information of interest to them.

Computing and the Jersey Curriculum

Computing Specific Implementation/development of a programme of study

Computing and the National Curriculum: Key Stage One

Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
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; identify where to go for help and support when they have concerns about content or contact on the Internet or other online technologies.

	Autumn	Spring	Summer
Year 1	**Computing systems and networks – Technology around us** -To identify technology -To identify a computer and its main parts -To use a mouse in different ways -To use a keyboard to type on a computer -To use the keyboard to edit text -To create rules for using technology responsibly	**Programming A – Moving a robot – BeeBots** -To explain what a given command will do -To act out a given word -To combine forwards and backwards commands to make a sequence -To combine four direction commands to make sequences -To plan a simple program -To find more than one solution to a problem	**Creating media – Digital writing** -To use a computer to write -To add and remove text on a computer -To identify that the look of text can be changed on a computer -To make careful choices when changing text -To explain why I used the tools that I chose -To compare typing on a computer to writing on paper
Year 2	**Computing systems and networks – IT around us – condensed** -To recognise the uses and features of information technology -To identify the uses of information technology in the school -To identify information technology beyond school -To explain how information technology helps us	**Creating media – Digital photography** -To use a digital device to take a photograph -To make choices when taking a photograph -To describe what makes a good photograph -To decide how photographs can be improved -To use tools to change an image -To recognise that photos can be changed	**Creating media - Digital music – cross-curricular** -To say how music can make us feel -To identify that there are patterns in music -To experiment with sound using a computer -To use a computer to create a musical pattern -To create music for a purpose -To review and refine our computer wor

	-To explain how to use information technology safely -To recognise that choices are made when using information technology	**Programming A – Robot algorithms** -To describe a series of instructions as a sequence -To explain what happens when we change the order of instructions -To use logical reasoning to predict the outcome of a program -To explain that programming projects can have code and artwork -To design an algorithm -To create and debug a program that I have wrote	**Data and information – Pictograms – cross-curricular Maths statistics unit** -To recognise that we can count and compare objects using tally charts -To recognise that objects can be represented as pictures -To create a pictogram -To select objects by attribute and make comparisons -To recognise that people can be described by attributes -To explain that we can present information using a computer

Computing and the National Curriculum: Key Stage Two

Pupils should be taught 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 simple algorithms work and to detect and correct errors in algorithms and programs

Understand how computer networks, including the Internet, work; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration

Use search technologies effectively; appreciate how results are selected and ranked, and be discerning in evaluating digital content

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

Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

	Autumn	Spring	Summer
Year 3	**Computing systems and networks – Connecting computers**	**Creating media - Stop-frame animation**	**Creating media – Desktop publishing – Cross-curricular**

	-To explain how digital devices function -To identify input and output devices -To recognise how digital devices can change the way we work -To explain how a computer network can be used to share information -To explore how digital devices can be connected -To recognise the physical components of a network	-To explain that animation is a sequence of drawings or photographs -To relate animated movement with a sequence of images -To plan an animation -To identify the need to work consistently and carefully -To review and improve an animation -To evaluate the impact of adding other media to an animation **Data and information – Branching databases** -To create questions with yes/no answers -To identify the attributes needed to collect data about an object -To create a branching database -To explain why it is helpful for a database to be well structured -To plan the structure of a branching database -To independently create an identification tool	-To recognise how text and images convey information -To recognise that text and layout can be edited -To choose appropriate page settings -To add content to a desktop publishing publication -To consider how different layouts can suit different purposes -To consider the benefits of desktop publishing **Programming B - Events and actions in programs – Scratch** -To explain how a sprite moves in an existing project -To create a program to move a sprite in four directions -To adapt a program to a new context -To develop my program by adding features -To identify and fix bugs in a program -To design and create a maze-based challenge
Year 4	**Computing systems and networks – The Internet** -To describe how networks physically connect to other networks -To recognise how networked devices make up the internet -To outline how websites can be shared via the World Wide Web (WWW) -To describe how content can be added and accessed on the World Wide Web (WWW) -To recognise how the content of the WWW is created by people	**Creating media – Photo editing** -To explain that the composition of digital images can be changed -To explain that colours can be changed in digital images -To explain how cloning can be used in photo editing -To explain that images can be combined -To combine images for a purpose -To evaluate how changes can improve an image	**Programming B – Repetition in games** To develop the use of count-controlled loops in a different programming environment -To explain that in programming there are infinite loops and count controlled loops -To develop a design that includes two or more loops which run at the same time -To modify an infinite loop in a given program -To design a project that includes repetition -To create a project that includes repetition

	-To evaluate the consequences of unreliable content **Creating media - Audio production** -To identify that sound can be recorded -To explain that audio recordings can be edited -To recognise the different parts of creating a podcast project -To apply audio editing skills independently -To combine audio to enhance my podcast project -To evaluate the effective use of audio		

	Autumn	Spring	Summer
Year 5	**Creating media** **Video production** -To explain what makes a video effective -To identify digital devices that can record video -To capture video using a range of techniques -To create a storyboard -To identify that video can be improved through reshooting and editing -To consider the impact of the choices made when making and sharing a video	**Programming A – Selection in physical computing – Microbits** -To control a simple circuit connected to a computer -To write a program that includes count-controlled loops -To explain that a loop can stop when a condition is met -To explain that a loop can be used to repeatedly check whether a condition has been met -To design a physical project that includes selection -To create a program that controls a physical computing project **Programming A – Selection in physical computing – link to data recording (Maths link)** -To use a form to record information -To compare paper and computer-based databases	**Creating media – Introduction to vector graphics** -To identify that drawing tools can be used to produce different outcomes -To create a vector drawing by combining shapes -To use tools to achieve a desired effect -To recognise that vector drawings consist of layers -To group objects to make them easier to work with -To apply what I have learned about vector drawings **Programming B – Selection in quizzes** -To explain how selection is used in computer programs -To relate that a conditional statement connects a condition to an outcome

		-To outline how you can answer questions by grouping and then sorting data -To explain that tools can be used to select specific data -To explain that computer programs can be used to compare data visually -To use a real-world database to answer questions	-To explain how selection directs the flow of a program -To design a program which uses selection -To create a program which uses selection -To evaluate my program
Year 6	**Creating media** **Webpage creation** -To review an existing website and consider its structure -To plan the features of a web page -To consider the ownership and use of images (copyright) -To recognise the need to preview pages -To outline the need for a navigation path -To recognise the implications of linking to content owned by other people	**Programming A – Variables in games** -To define a 'variable' as something that is changeable -To explain why a variable is used in a program -To choose how to improve a game by using variables -To design a project that builds on a given example -To use my design to create a project -To evaluate my project **Data and information – Spreadsheets** -To create a data set in a spreadsheet -To build a data set in a spreadsheet -To explain that formulas can be used to produce calculated data -To apply formulas to data -To create a spreadsheet to plan an event -To choose suitable ways to present data	**Creating media – 3D Modelling** -To recognise that you can work in three dimensions on a computer -To identify that digital 3D objects can be modified -To recognise that objects can be combined in a 3D model -To create a 3D model for a given purpose -To plan my own 3D model -To create my own digital 3D model **Programming B - Sensing movement – science link** -To create a program to run on a controllable device -To explain that selection can control the flow of a program -To update a variable with a user input -To use a conditional statement to compare a variable to a value -To design a project that uses inputs and outputs on a controllable device -To develop a program to use inputs and outputs on a controllable device

Whole School Computing Programme of Study

Curriculum Map – themes / topics						
	Autumn		Spring		Summer	
Year 1		Computing systems and networks Technology around us	Programming A Moving a robot - BeeBots		Creating media Digital writing	
Year 2		Computing systems and networks IT around us - condensed	Creating media Digital photography	Programming A Robot algorithms	Creating media Digital music cross-curricular	Data and information Pictograms (maths - statistics)
Year 3		Computing systems and networks Connecting computers	Creating media Stop-frame animation	Data and information Branching databases	Creating media Desktop publishing Cross-curricular link	Programming B Events and actions in programs - Scratch
Year 4	Computing systems and networks The Internet	Creating media Audio production		Creating media Photo editing		Programming B Repetition in games
Year 5		Creating media Video production	Programming A Selection in physical computing - Microbits	Programming A Selection in physical computing (maths)	Creating media Introduction to vector graphics	Programming B Selection in quizzes
Year 6	Creating media Webpage creation	Creating media Webpage creation	Programming A Variables in games	Data and information Introduction to spreadsheets.	Creating media 3D modelling	Programming B Sensing movement (science)


Implementation

Approaches to Teaching and Learning in Computing.
Teaching and learning will focus on a range of agreed entitled experiences and there will be a focus on: • Developing a clear progression of knowledge and skills linked to the essential learning objectives of the subject. • Ensuring that appropriate opportunities are taken to develop cross-curricular skills • The study of important people, both male and female, who have influenced our understanding of science throughout history and in the modern world. • The study of important scientific discoveries • To use scientific knowledge to support, evaluate and challenge their own and others' views using detailed, appropriate and accurate scientific evidence derived from a range of sources. These are particularly relevant when understanding how the actions of others and their own actions impact on the world around them. • The use of enrichment opportunities such as trips, visits and visitors.

Teaching, Recording, Feedback, Assessment and Reporting
This will happen by: • Learning Intentions are shared with children each lesson • Children are given a context through which they can explore each learning intention.. • Teaching is focused on input, experiences and activities which promote the development of scientific understanding in the given area of learning at that time. • The various methods of recording should demonstrate the children's understanding of the lesson's learning intention and how deeply they have understood the intention. • Teachers' feedback should directly relate to the learning intention for the lesson, give specific ways in which the child has been successful. • Verbal feedback where necessary. • Children are given the opportunity to assess their own and others' progress. This may be recorded in books or done verbally. • Teachers should use observations and work recorded by children to make judgements of the children's current progress against their year group's expectations. • Regular retrieval practice focuses on children knowing and remembering more of what they have been taught previously. • Assessment information will be used to plan future work for the class. • This continual assessment will be used to report to parents. Termly reports will contain comments about an individual pupil's progress against the year group expectations. • All formative and summative assessments made will be used to inform discussions around pupils' progress and attainment in the subject at appropriate times, for example discussions with other professionals and reporting to parents on during parent consultation evening etc.

- Children are exposed to, and will build, a range of age and topic related vocabulary from EYFS to year 6.
- Children are assessed at the end of each topic area. This is done through quizzes and assessment of understanding in lessons which is then collated by the class teacher and recorded on an assessment document. This can then be monitored by the computing leaders. Teachers can use this information for future planning opportunities.

SMSC & Rights Respecting in Computing

Spiritual

Encouraging reflection on how technology impacts society and individuals.

Exploring ethical questions about AI, data privacy, and digital footprints.

Reflecting on creativity in coding and digital design

Moral

Teaching students about digital ethics: respecting privacy, avoiding cyberbullying.

Discussing responsible use of technology.

Understanding the consequences of hacking, piracy, and misinformation.

Social

Promoting collaboration through coding projects or online teamwork.

Understanding the impact of technology on communication and social interaction.

Learning about online safety and digital citizenship.

Cultural

Exploring how technology reflects and shapes different cultures.

Understanding global access to computing and digital divides.

Appreciating diversity in coding communities and technology use worldwide.

Rights Respecting in Computing

This links to the **UN Convention on the Rights of the Child (UNCRC)** and how computing education can promote and respect children's rights.

- **Right to Education** (Article 28)
  - Ensuring all children can learn digital skills to thrive in the modern world.

- **Right to Privacy** (Article 16)
  - Teaching students about data protection and respecting others' privacy online.

- **Right to Freedom of Expression** (Article 13)
  - Encouraging safe ways to express ideas and creativity through technology.
- **Right to Protection from Harm** (Article 19)
  - Raising awareness about cyberbullying, online exploitation, and safeguarding online.
- **Right to Access Information** (Article 17)
  - Teaching students how to find reliable information online

Oracy - Progression of skills:

Tiered Vocabulary Wall.

A way to organise our words.

Tiered Vocabulary Walls are a way of organising words. The aim of using Tiered Vocabulary Walls is to increase the amount of Tier 2 and Tier 3 words which children hear and use themselves. Tier 2 and Tier 3 words make the most impact on our vocabulary and on our learning. These words need direct teaching in order for them to be understood and used.

Tier 1 - Everyday words: These will be basic, everyday words which will be used from an early age. These will be used freely in speech, such as:

warm, dog, tired, run, table, flower...

Tier 2 - Focus words: These will be common words that are found across subjects. These will need direct teaching, such as:

contradict, circumstance, precede, retrospect...

Tier 3 - Subject specific words: These will be rare and will be heard within particular contexts or subject areas. These will need direct teaching, such as:

estuary, alliteration, igneous...

Speaking like a Computer Scientist

Speak concisely (keep it short!) so that you explain complex ideas in a way that is easy for others to understand.

Structure your ideas clearly, making sure that you have fully explained your scientific enquiry.

Use subject-specific vocabulary but make sure that your audience understands it too.

Ask probing and clarifying **questions** to challenge others and developing your reasoning.

Speaking like a Computer scientist stems:

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