



Computing Sequence and Progression at St Luke's C.E. Primary School

Intent:

Technology is an integral part of everyday life. At St Luke's, we aim to prepare our children for a future in an environment which is shaped by technology. The content taught at St Luke's allows for a broad, deep understanding of computing and how it links to children's lives. It offers a range of opportunities for consolidation, challenge and variety. This allows children to apply the fundamental principles and concepts of computer science. They develop analytical problem-solving skills and learn to evaluate and apply information technology. It also enables them to become responsible, competent, confident and creative users of information technology. Our intent is to develop children who are able to safely use digital technology and understand what to do if they ever feel unsafe online.

Implementation:

At St Luke's, computing is taught using a blocked curriculum approach. This ensures children are able to develop depth in their knowledge and skills over the duration of each of their computing topics. Teachers use the 'Teach Computing' scheme as a starting point for the planning of their computing lessons, which are often richly linked to engaging contexts in other subjects and topics. Each lesson contains revision, analysis and problem-solving. Through the sequence of lessons, we intend to inspire pupils to develop a love of the digital world, see its place in their future and to give staff at St Luke's the confidence to deliver high-quality learning opportunities for pupils. The lesson plans and resources help children to build on prior knowledge at the same time as introducing new skills and challenges. In KS1, the focus is on developing the use of algorithms, programming and how technology can be used safely and purposefully. In KS2, lessons still focus on algorithms, programming and coding but in a more complex way and for different purposes. Children also develop their knowledge of computer networks, internet services and the safe and purposeful use of the internet and technology. Data Handling is featured more heavily in UKS2. Skills learnt through KS1 and LKS2 are used to support data presentation. Adult guides are offered, which enable staff to feel confident in the progression of skills and knowledge and that outcomes have been met. Teachers are provided with a specific sequence of lessons for their year group, offering structure and narrative.

Impact:

Learning in computing will be enjoyed across the school. Teachers will have high expectations and quality evidence will be presented in a variety of forms. Children will use digital and technological vocabulary accurately, alongside a progression in their technical skills. They will be confident using a range of hardware and software and will produce high-quality purposeful



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products. Much of the subject-specific and knowledge developed in our computing lessons will equip pupils with experiences that will benefit them in secondary school, further education and future places of work. Children will see the digital world as part of their world, extending beyond life at St Luke's, and understand that they have choices to make. They will be confident and respectful digital citizens going on to lead happy and healthy digital lives. Our children will be able to safely use digital technology and are aware of what to do if they ever feel unsafe online.

They will aim to achieve age related expectations in Computing at the end of the year.

They will meet the requirements as set out in the National Curriculum.

CULTURAL CAPITAL

At St Luke's, we consider Computing as a subject that not only stands alone, but one that provides the opportunity to develop transferrable skills and concepts our pupils need within other areas of the curriculum. We aim to ensure that computing supports the development of cultural capital for every child. Computational Thinking is at the core of our computing curriculum developing concepts such as logic, problem solving and collaboration. Digital safety is embedded in our curriculum providing our pupils the essential knowledge and tools that will enable them to participate effectively and safely in the digital world beyond their time in school. We provide opportunities that excite and enthuse our pupils within computing, giving them a curiosity of new technology in the world around them. We want every child in our school to be digitally literate in order to enable them to keep pace with the dynamic world of technology. Our children will be confident, competent and responsible members of the digital world. In the wider curriculum and all other subject areas, we aim for computing and digital literacy to enrich and enhance learning for every child.



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Computing Long Term Plan

	<u>Autumn 1</u>	<u>Autumn 2</u>	<u>Spring 1</u>	<u>Spring 2</u>	<u>Summer 1</u>	<u>Summer 2</u>
<u>EYFS</u>	<p><u>Understanding the world</u> - Classrooms could contain a role play area with a range of technology, both functioning and model / broken devices, or a variety of electronic toys, such as remote controlled cars, walkie-talkies and interactive pets, as part of continuous provision.</p> <p><u>Physical development</u> - Children are more familiar with using tablets, it is therefore important that children are given opportunities to become familiar with a range of input devices, including the keyboard and mouse, in order to develop the required fine motor skills.</p> <p><u>Communication and language</u> - Unplugged activities give children an opportunity to develop their understanding of technology without the need for devices. Children could be asked to give precise instructions verbally, with links made to the importance of using the correct vocabulary, along with speaking clearly and precisely.</p> <p><u>Expressive arts and design</u> - The use of painting and graphics applications can further develop pupils' keyboard and mouse skills.</p>					
<u>Year 1</u>	Computing systems and networks - Technology around us		Creating media - Digital painting	Data and Information - Grouping data	Programming A - Moving a robot	
<u>Year 2</u>	Computing systems and networks - IT around us		Creating media - Digital photography	Data and Information - Pictograms	Programming A - Robot algorithms	



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<u>Year 3</u>	Computing systems and networks - Connecting computers		Creating media - Desktop publishing	Data and Information - Branching databases	Programming A - Sequence in music	
<u>Year 4</u>	Computing systems and networks - The internet		Creating media - Audio editing	Data and Information - Data logging	Programming A - Repetition in shapes	
<u>Year 5</u>	Computing systems and networks - Sharing information		Creating media - Video editing	Data and Information - Flat file databases	Programming A - Selection in physical computing	
<u>Year 6</u>	Computing systems and networks - Communication		Data and Information - Spread sheets	Creating media - Web page creation	Programming A - Variables in games	
	Stop/Start Animation (Titanic)					



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<u>National Curriculum Content</u>			
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	<u>Autumn</u>	<u>Spring</u>	<u>Summer</u>
<u>Year 1</u>	<ul style="list-style-type: none"> • 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. 		
<u>Year 2</u>			



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<u>Year 3</u>	<ul style="list-style-type: none"> • 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 computer networks including the internet; 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.
<u>Year 4</u>	
<u>Year 5</u>	
<u>Year 6</u>	

<i>Progression of Skills</i>					
<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
Computing systems and networks					
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 a keyboard to	To recognise the uses and features of information technology. To identify the uses of information technology in the school. To identify information technology beyond	To explain how digital devices function. To identify input and output devices. To recognise how digital devices can change the way we work.	To describe how networks physically connect to other networks. To recognise how networked devices make up the internet. To outline how	To explain that computers can be connected together to form systems. To recognise the role of computer systems in our lives. To recognise how	To identify how to use a search engine. To describe how search engines select results. To explain how search results are ranked. To recognise why the order of results is



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<p>edit text. To create rules for using technology responsibly.</p>	<p>school. To explain how information technology helps us. To explain how to use information technology safely. To recognise that choices are made when using information technology.</p>	<p>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.</p>	<p>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. To evaluate the consequences of unreliable content.</p>	<p>information is transferred over the internet. To explain how sharing information online lets people in different places work together. To contribute to a shared project online. To evaluate different ways of working together online.</p>	<p>important, and to whom. To recognise how we communicate using technology. To evaluate different methods of online communication.</p>
Creating media					
<p>To describe what different free hand tools do. To use the shape and line tools. To make careful choices when painting a digital picture. To explain why I chose the tools I used. To use a computer on my own to paint a picture. To compare painting a picture on a computer and on paper.</p>	<p>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.</p>	<p>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.</p>	<p>To identify that sound can be digitally recorded. To use a digital device to record sound. To explain that a digital recording is stored as a file. To explain that audio can be changed through editing. To show that different types of audio can be combined and played together. To evaluate editing choices made.</p>	<p>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.</p>	<p>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.</p>



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Data and Information					
<p>To label objects. To identify that objects can be counted. To describe objects in different ways. To count objects with the same properties. To compare groups of objects. To answer questions about groups of objects.</p>	<p>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.</p>	<p>To create questions with yes/no answers. To identify the object attributes needed to collect relevant data. To create a branching database. To explain why it is helpful for a database to be well structured. To identify objects using a branching database. To compare the information shown in a pictogram with a branching database.</p>	<p>To explain that data gathered over time can be used to answer questions. To use a digital device to collect data automatically. To explain that a data logger collects 'data points' from sensors over time. To use data collected over a long duration to find information. To identify the data needed to answer questions. To use collected data to answer questions.</p>	<p>To use a form to record information. To compare paper and computer-based databases. To outline how grouping and then sorting data allows us to answer questions. To explain that tools can be used to select specific data. To explain that computer programs can be used to compare data visually. To apply my knowledge of a database to ask and answer real-world questions.</p>	<p>To identify questions which can be answered using data. To explain that objects can be described using data. To explain that formulas can be used to produce calculated data. To apply formulas to data, including duplicating. To create a spreadsheet to plan an event. To choose suitable ways to present data.</p>
Programming					
<p>To explain what a given command will do. To act out a given word. To combine forwards and backwards commands to make a sequence.</p>	<p>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</p>	<p>To explore a new programming environment. To identify that commands have an outcome. To explain that a program has a start. To recognise that a</p>	<p>To identify that accuracy in programming is important. To create a program in a text-based language. To explain what 'repeat' means. To modify a count-</p>	<p>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.</p>	<p>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.</p>



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<p>To combine four direction commands to make sequences.</p> <p>To plan a simple program.</p> <p>To find more than one solution to a problem.</p>	<p>outcome of a program (series of commands).</p> <p>To explain that programming projects can have code and artwork.</p> <p>To design an algorithm.</p> <p>To create and debug a program that I have written.</p>	<p>sequence of commands can have an order.</p> <p>To change the appearance of my project.</p> <p>To create a project from a task description.</p>	<p>controlled loop to produce a given outcome.</p> <p>To decompose a task into small steps.</p> <p>To create a program that uses count-controlled loops to produce a given outcome.</p>	<p>To explain that a loop can be used to repeatedly check whether a condition has been met.</p> <p>To design a physical project that includes selection.</p> <p>To create a program that controls a physical computing project.</p>	<p>To design a project that builds on a given example.</p> <p>To use my design to create a project.</p> <p>To evaluate my project.</p>
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