



## **Curriculum Statement for Computing**

### **Aims**

Our aims for computing at Lytham Church of England Primary School are to equip our children to participate in a rapidly changing world where work and leisure activities are increasingly transformed by technology. It is our intention to enable children to find, explore, analyse, exchange and present information in a safe, responsible, and respectful manner. We also focus on developing the skills necessary for children to be able to use information in a discriminating and effective way.

Our computing curriculum enables children to develop their problem solving and reasoning abilities. It enables children to understand and apply the essential principles and concepts of Computer Science. It enables our children to produce work that is creative. It also provides our children with the knowledge of assessing risks, taking opportunities, and keeping safe in an increasingly connected world.

Computing skills are a major factor in enabling children to be confident, creative, and independent learners and it is our intention that children have every opportunity available to allow them to achieve this. This is all underpinned by Christian Values, our school ethos and mission statement – “Together We Grow with God”.

### **The Computing leader is Mrs. Coster-France**

<b>Intent</b>	<p>At Lytham Church of England Primary School pupils, we aim to instil a sense of enjoyment around using technology and to develop pupil's appreciation of its capabilities and the opportunities technology offers to, create, manage, organise, and collaborate.</p> <p>Tinkering' with software and programs forms a part of the ethos of the KAPOW scheme of work we use as we want to develop pupils' confidence when encountering new technology, which is a vital skill in the ever evolving and changing landscape of technology. Through our curriculum, we intend for pupils not only to be digitally competent and have a range of transferable skills at a suitable level for the future workplace, but also to be responsible online citizens. This enables pupils to meet the end of Key Stage Attainment targets outlined in the National curriculum and the aims align with those in the National curriculum.</p> <p>When used in conjunction with our RSE &amp; PSHE scheme, our Computing scheme of work also satisfies all the objectives of the DfE's Education for a Connected World framework. This guidance was created to help equip children for life in the digital world, including developing their understanding of appropriate online behaviour, copyright issues, being discerning consumers of online information and healthy use of technology.</p>
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	<p>Pupils are given regular opportunities to apply the computing skills and knowledge that they have been taught to support their learning in other curriculum subjects, linking back to Computational Thinking.</p> <p>We are continuously exploring ways in which a range of apps can be used to deliver more creative lessons across the curriculum through the use of IPADs.</p> <p>Furthermore, Lytham Church of England will understand and use appropriate themed vocabulary, including that associated with programming, e.g. algorithm, debug, input, output, and variable.</p>
Implementation	<p>The National curriculum purpose of study states:</p> <p>‘The core of computing is 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. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems, and a range of content. Computing also ensures that 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’.</p> <p>Therefore, at Lytham Church of England Primary School our scheme of work is designed with three strands which run throughout:</p> <ul style="list-style-type: none"> <li>• Computer science</li> <li>• Information technology</li> <li>• Digital literacy</li> </ul> <p>Our curriculum overview shows which of our units cover each of the National curriculum attainment targets as well as each of these three strands.</p> <p>Our Progression of skills shows the skills that are taught within each year group and how these skills develop year on year to ensure attainment targets are securely met by the end of each key stage.</p> <p>The scheme is organised into five key areas, creating a cyclical route through which pupils can develop their computing knowledge and skills by revisiting and building on previous learning:</p> <ul style="list-style-type: none"> <li>• Computer systems and networks</li> <li>• Programming</li> <li>• Creating media</li> <li>• Data handling</li> <li>• Online safety</li> </ul>

The implementation of Kapow Primary Computing ensures a broad and balanced coverage of the National curriculum requirements, and our 'Skills showcase' units provide pupils with the opportunity to learn

and apply transferable skills. Where meaningful, units have been created to link to other subjects such as science, art, and music to enable the development of further transferable skills and genuine cross-curricular learning.

Lessons incorporate a range of teaching strategies from independent tasks, paired and group work as well as unplugged and digital activities. This variety means that lessons are engaging and appeal to those with a variety of learning styles.

Differentiated guidance is available for every lesson to ensure that lessons can be accessed by all pupils and opportunities to stretch pupils' learning are available when required. Knowledge organisers for each unit support pupils in building a foundation of factual knowledge by encouraging recall of key facts and vocabulary.

We deliver our curriculum through:

**External Stimuli** Children from nursery through to Year 6 are taught about how technology is used in the outside world, and in the workplace.

**Thoughtful Questioning** that encourages deeper thinking and reasoning.

**School Network Shared Folders** allowing children to share their work with their teachers and others.

**Assessment** takes place through

- informal judgements by staff during lessons
- formal checklists
- next steps, including verbal feedback
- pupil and peer assessments

### **A Curriculum for All**

We provide suitable learning opportunities for all children by matching the challenge of the task to the ability and experience of the child. We differentiate through: open-ended tasks, mixed ability groupings, raising the level of challenge for more able children, TA support for individuals or groups.

Children with special education needs are supported using a range of computing software and hardware, for example, children who may find it difficult to hear or remember instructions given by the teacher use talking pegs or sound recorder apps on the iPad or tablets.

At the end of a unit of work teachers make a summary judgement about the work of each pupil in relation to the success criteria outlined at the beginning of the unit of work and records these judgements termly.

All computing work is stored either in the cloud in accordance with GDPR regulations, in children's personal work files on the server in Key Stage 2. Additionally, paper based work is recorded in topic books. The computing subject leader keeps samples of the children's work in a subject leader file. This demonstrates the expected level of achievement in computing for each age group in the school.

### **Curriculum Progression**

In the **Early Years Foundation Stage**, we relate the computing aspects of the children's work to the objectives set out in the Early Learning Goals (ELGs). Children will have computing experiences indoors, outdoors and through role play in both child initiated, and teacher directed time. Children have the opportunity to use computers, iPad, tablets, Bee Bots, other programmable toys and digital cameras. As children progress through the Foundation Stage of their learning, they gain confidence and start using the computer to find information and use it to communicate in a variety of ways. They use iPad and other image capturing devices to take photos of their own learning in continuous provision

In **Key Stage 1** children learn what an algorithm is by doing non-computer based algorithm activities before exploring simple algorithms by creating code using picture based coding platforms (such as Scratch Jr). As well as creating simple programs the children learn the skill of debugging to identify faults before using logical reasoning to fix it. Children learn that computers are deterministic machines, and we can predict exactly how they will behave. This can be shown by using logical reasoning to predict what a Bee Bot programmable robot will do. Children will also create digital content in a range of subjects using a variety of apps and websites, as stated through our KAPOW scheme of work. Children in Key Stage 1 will learn how to store their information and retrieve it, learning the difference between storing information locally and storing it on a network or in the cloud. In Key Stage 1 children learn common uses of information technology beyond school linked to their own experiences and during discussions there will be an opportunity to link this to their developing knowledge of algorithms, programs and systems. Pupils in Key Stage 1 will learn about online safety each half term through using materials developed by Project Evolve, which follow the guidance set out in 'Education for a Connected World.'

In **Key Stage 2** programming skills from Key Stage 1 are developed by designing and writing programs that achieve specific goals. The understanding of algorithms and debugging in Key Stage 1 is the start of the process of creating working code.

Splitting problems into smaller parts (decomposition) is a key Computational Thinking concept which is taught. Coding skills are developed further in this key stage by using sequence, selection and repetition when creating and exploring programs that achieve specific goals. In Key Stage 2 the software that is used to develop these skills is Scratch and KAPOW. Children also learn to code with a wider range of output devices, such as webcams. Children in Key Stage 2 will develop an increasingly complex understanding of how networks work, learning how information is stored and passed between component parts. Children will also learn that data is stored in the form of numbers, but we often see those numbers converted to richer media text such as text, images, audio and video. Our Key Stage 2 curriculum develops a critical media literacy as it gives access to tools that until relatively recently were the domain of professionals (for example video editing/manipulation and green screen). Safe and responsible use of technology at Key Stage 2 builds on the skills learned in Key Stage 1, emphasising the responsible use of technology. Using materials from Project Evolve each half term builds an understanding of how online actions impact people, and also creates an awareness of legal and ethical responsibilities at an age-appropriate level.

### **Resources**

The materials and resources that we use across EYFS, Key Stage 1 and Key Stage 2 give children a broad range of experiences and they also allow them to progress in the next Key Stage as materials such as those used in Project Evolve are designed to flow through from nursery to further education. In addition to this children are given opportunities to use and select from a wide range of devices such as programmable toys, iPads, digital cameras, tablets, PCs and laptops.

**Online Safety Workshops and Assemblies** are held to teach children and their parents about online safety. Safer Internet Day each February raises awareness within school and the local community about the possible dangers of using the internet and mobile technologies, and to advise on ways in which to reduce risk.

### **Online Safety Monitoring**

All users of the school's computing equipment are asked read our Acceptable User Policy on induction to the school. All of the computers in school are connected to the school's network. Regular incident reports are sent to the Computing administrator. In line with the school's Behaviour /Anti Bullying Policy, any unacceptable use of the school's computer systems is reported to the Headteacher and other agencies involved where deemed necessary, and monitoring information is used to improve our online safety policy. Internet filter information is recorded and analysed weekly by the Computing Leader who is DSL trained.

	<p>Finally, strong subject knowledge is vital for staff to be able to deliver a highly effective and robust computing curriculum. Each of our KAPOW units of lessons include teacher videos to develop subject knowledge and support ongoing CPD. Further CPD opportunities can also be found via KAPOW's webinars with their Computing subject specialists.</p>
<p><b>Impact</b></p>	<p>At the end of each year, pupils have developed their computing skills, and have gained a new understanding of online safety issues and how to keep themselves safe online.</p> <p>Through discussion and feedback, children talk enthusiastically about their computing lessons and speak about how they love learning on the computer.</p> <p>Children across the school articulate well about the potential risks of being online, and can talk about ways to keep safe. Pupils know how and why technology is used in the outside world, and in the workplace. They know about different ways that computers can be used</p> <p>Pupils use acquired vocabulary in computing, including coding, lessons. They have the skills to use technology independently, for example accessing age-appropriate software and games in EYFS and using a range of computer software independently in KS1 and KS2.</p>
<p><b>Coverage and Progression</b></p>	<p>Clear progression has been mapped out for Computing in the National Curriculum. Further progression has been mapped in the KAPOW scheme of work.</p>

## Assessment

Pupils' attainment in Computing is assessed at the end of a theme in a variety of ways. Pupils may be assessed on a specific piece of work which is an end of unit outcome, or by their answers in low-stakes quizzes throughout the theme, or by their responses to discussions, or by their creation of a mind map which links the key concepts and learning together.