Christ Church CE VC Primary School

“Together we learn - Together we grow - Together we flourish”

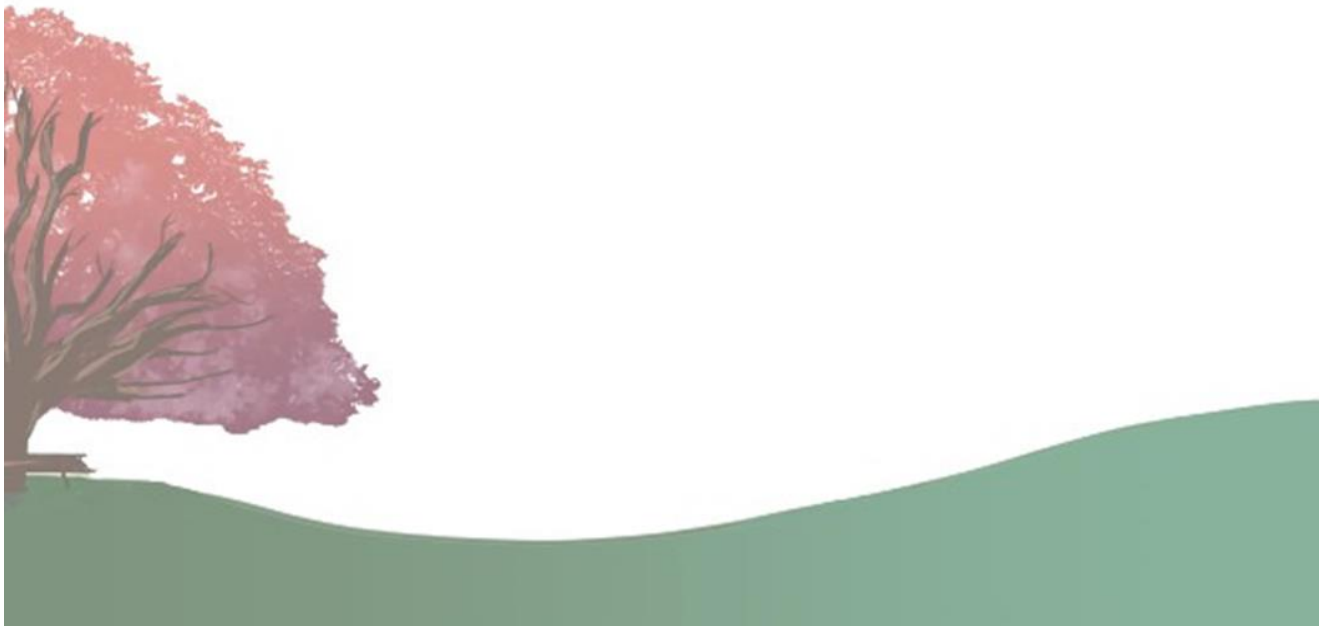
Some seeds fell on good earth and produced a harvest beyond wildest dreams.

Matthew 13:8

Computing Curriculum Policy

Date agreed: February 2023

Review date: February 2026



Introduction and subject definition:

There are three distinct strands within the subject of computing, each of which is complementary to the others: computer science, information technology, and digital literacy. Each component is essential in preparing pupils to thrive in an increasingly digital world**.** At Christ Church we endeavour to provide a holistic approach to support all three strands.

Intent:

Together at Christ Church, the computing curriculum aims for children to not just gain knowledge of computational information and an understanding of how things work, but also to develop children's skills and critical thinking so that they can be better citizens of the world.

- **Learn**

Our curriculum aims to:

- Develop children's knowledge and understanding of information and computation within computer science, understanding how digital systems work to enable them to put this into practice through programming.
- Teach children how to produce a range of __ using technology, developing their digital literacy and equipping them for the future.
- Give opportunities for children to create programs and systems for a purpose.
- Provide opportunities for children to explore a range of technology, learning about the many uses that can be found in this ever-growing digital age.

- **Grow**

Our curriculum aims to:

- Foster children's curiosity and creativity, with a range of open-ended and hands-on activities in which the children have freedom to explore and develop.
- Advance children's computational thinking, enabling them to look critically at problems and seek solutions.
- Allow children to make mistakes, and celebrate it! The children know that when something isn't working correctly, this is an opportunity to debug, search for solutions and gain skills which can be applied in many other areas of their learning. This also provides time for reflection and personal growth. Children's resilience is constantly emboldened.

- **Flourish**

Our curriculum aims to:

- Provide applications for children's whole lives and the wider world and give children the tools to better understand the world
- Provide children with skills that can be applied across the curriculum in a wide range of subject areas. Children are able to further develop their skills in many areas, as

computing lends itself to cross-curricular learning and exploration: whether to practise times tables, use their mathematical and geographical skills to program a robot, to sketch a flower, to research a project, or even develop their word processing skills by typing a story.

- Ensure that throughout the whole school, our children recognise that whilst the internet is a precious and invaluable resource, they have a responsibility to behave and act considerably whilst using it, keeping themselves and others safe online as they become responsible digital citizens of the world.
- Woven throughout the computing curriculum at our school, online safety is the at the centre of all our computing education. We understand that staying safe whilst using technology is of utmost importance in this increasingly digital age.

Implementation:

As the aims of Computing are to equip children with the skills necessary to use technology to become independent learners, the teaching style that we adopt is as active and practical as possible. Children are given direct instruction on how to use hardware or software (for example, how to control floor robots or use Scratch for coding); thereafter the main emphasis of our teaching in ICT or computing is for individuals or groups of children to use computers to help them solve problems or support whatever they are trying to study. So, for example, children might research a history topic by using special software programs, or they might investigate a particular issue on the Internet.

We encourage the children to explore ways in which the use of ICT and computing can improve their results, for example, how a piece of writing can be edited or how the presentation of a piece of work can be improved. We recognise that all classes have children with widely differing ICT abilities. This is especially true when some children have access to an increasing range of ICT equipment (whether a pc, laptop, tablet or smartphone) at home, while others do not. We provide suitable learning opportunities for all children by matching the challenge of the task to the ability and experience of the child. We achieve this in a variety of ways, by:

- Setting common tasks which are open-ended and can have a variety of responses;
- Setting tasks of increasing difficulty (not all children complete all tasks);
- Providing resources of different complexity that are matched to the ability of the child;
- Pairing children of differing ability to build confidence and meet needs;

Impact:

We assess the children's work in computing by making informal judgements as we observe the children during lessons. Samples of the children's work may also be kept in the 'Pupil Drive' on the school server, organised into year groups and classes. These can be monitored to compare with the expected levels of achievement in ICT and computing for each age group in the school.

However, the impact of our children's computing education is proved by how our children leave Christ Church as digitally literate, able to use and express themselves and develop their ideas through, information and communication technology; as considerate and responsible citizens of the digital and non-digital world; as high-level thinkers who are able

to use computational thinking and creativity not only to understand, but to change, the world.

Aims

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

National Curriculum Objectives:

Key stage 1

Pupils should be taught to:

- 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.

Key stage 2

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 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

Computing curriculum planning

The school uses the 2014 National Curriculum programme of study and guidance from Wiltshire as the basis for its curriculum scheme of work. Each module has been designed to enable pupils to achieve stated objectives. There is a clear progression within and across year groups, building on the previous skills taught. Staff use these documents to inform their planning, using objectives set out in the national curriculum. The scheme of work has been specially designed for this school, ensuring that there is a clear progression, not only in objectives but also in resources and technology used.

Each year group follows has a sequence of computing units, which have been carefully created to ensure continuity and progression between year groups. Learning is done in a spiral fashion with topics being revisited and built upon each year. Prior learning on topics is recapped through the 'previous learning' sections.

Progression in skills is clearly laid out and used by all. Deeper understanding of the various topics encompassed by the curriculum also shows understanding- Year 6 pupils are able to demonstrate a much more in depth understanding of the benefits and pitfalls of the internet, for example, than Year 3 pupils. Pupils are also taught to progress in their problem solving skills, gaining independence and being able to give more detailed explanations when predicting and debugging during programming units.

The contribution of Computing to teaching in other curriculum areas

Computing is used to support learning across a range of subjects. All classes make use of the desktop computers or laptops as well as our iPads, to support lessons across the curriculum. We have invested heavily in iPads to ensure that we are well equipped for the children's needs. The use of technology enriches learning in a range of meaningful ways, including but not limited to:

- Using Numbots and TTRocksStars for numeracy learning.
- Using a range of programs to create digital artwork
- Making use of the internet to support research across all subjects.