'Let your light shine' Matthew 5:16

Computing Curriculum Purpose and Rationale

'At Hawkesley, we say to our children to *'let your light shine.' (Matthew 5:16).* In order to do this, we provide a knowledge rich curriculum. The bible says, 'For wisdom is better than rubies…' Proverb 8:11. We believe that through the accumulation and application of knowledge, children are equipped to experience, '*life in all its fullness' (John 10:10). '*

Taken from the Hawkesley Curriculum Vision Statement

Curriculum Purpose: Why study Computing?

Why do learners at Hawkesley Church Primary Academy need to study Computing?
Many aspects of the modern world are run by technology. We see it in every aspect of our lives: from supermarket self-scanners to QR codes and social media. The internet is constantly at our fingertips. Many of the pupils from our school family are digital connoisseurs as they have constant access to technology and the Internet. It is likely that many of our children's future careers are going to be heavily influenced and involved in technology. With the many risks posed with the ever-changing developments within online communication, we need to ensure that our pupils keep themselves safe as they use social media and collaborative gaming. By studying computational thinking through programming, pupils learn how to recognise problems and approach them in a controlled and systematic way

What are the aims for the Computing curriculum?
(i.e. what do we want learners to be able to know and do by the time they leave Hawkesley Church Primary Academy?

As our children leave Hawkesley Church Primary Academy, we want to be confident that children are computer and technologically literate. We want our children to be able to:

- problem solve and write their own programs through writing and debugging algorithms
- use the internet safely and securely both as a tool for communication and research.
- use a variety of computer programs to publish their ideas to illustrate their understanding
- to create, edit and publish music and film using a variety of computing multimedia.
- know that data can be presented in different ways and manipulated within an evaluation.
- know the many risks involved in use of the internet,
- be digital ambassadors – not only knowing how to keep themselves safe online, but also others within their community.

National Curriculum
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

Which values underpin the curriculum content?
Resilience – children develop resilience through the ever changing growth and advances within technology and computing
Community – computing allows communities to connect in isolation of each other through social media, email and gaming
Service – Many aspects of the economy, which serve the country, rely on technology and programming to provide their service.
Perseverance – within programming, children develop perseverance through problem solving

How are British Values taught from Computing?
Within Computing, we promote tolerance through different people's ideas that may be built on cultural diversity which promotes mutual respect. We link this to pupils' behaviour online and how mutual respect and tolerance is applicable to the online world as well as in society. Pupils have the opportunity to work independently and as a team to build resilience and self-esteem through tasks. In particular the idea of working in teams is vital in coding and debugging tasks. When working in groups pupils are expected to share ideas and resources and encourage and support each other. By promoting high expectations through the setting of ground rules, pupils are rewarded for positive behaviour.

Which links to careers can be made within the Computing curriculum?
E-learning developer, Forensic computer analyst, Hardware designer, ICT consultant Systems analyst, Software developer, Computer service and repair
technician, Helpdesk professional, IT project manager, Network engineer, Systems architect, Animator, Computer games designer, Web designer, Web
developer

Curriculum Rationale: Why study Computing in this way?

Why has the specific knowledge been selected?
Our computing curriculum is divide into the following threads, each of which play a vital part within gaining a good knowledge and understanding of Computing : algorithms, data, communicating, using the internet, databases, presentation and ESafety. Each of these components contribute the children's computational thinking and gives them an understanding of not just the influence computing has on us, but also the influence we can have on computing.

Why is it taught in the order that it is?
The knowledge and understanding of the complexity and capabilities of computing spirals incrementally as the child progresses through our school. The expectation in the production of data and information becomes more complex through KS1 and KS2. E-Safety is age appropriate and represents the levels of exposure to online communication at each key stage. The threads which run vertically through our curriculum include algorithms, data, communicating, using the internet, databases, presentation and ESafety.

How are Computing lessons delivered at Hawkesley?
Computing is taught in weekly sessions and links to our thematic curriculum where appropriate. Sessions are taught within three strands: computer science, information technology and digital literacy. Pupils are given the opportunity to use their computational skills in other areas of the curriculum such as Maths and Science,

What is the impact?
After the implementation of this computing curriculum, children at our school will be digitally literate and able to join the rest of the world on its digital platform. They will be equipped, not only with the skills and knowledge to use technology effectively and for their own benefit, but more importantly – safely. The biggest impact we want on our children is that they understand the consequences of using the Internet and that they are also aware of how to
keep themselves safe online.
As children become more confident in their abilities in Computing, they will become more independent and key life skills such as problem-solving, logical thinking and self-evaluation become second nature.

Computing Curriculum Aims (end-points)

What are the aims, end-points, of specific stages of the curriculum?

EYFS

Early Learning Goal:

- Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

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

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