"For I know the plans I have for you" Jeremiah 29:11

Computing Curriculum Purpose and Rationale

As a Church school, the teachings of the bible guide and influence our practice. Being part of the Birmingham Diocesan Multi-Academy trust, we, like the other schools within our Multi-Academy Trust, work towards ensuring that pupils we serve experience, 'life in all its fullness.' (John 10:10).

At Nethersole, our Local Academy Board, Leaders and Staff are committed to achieving this through our vision "For I know the plans I have for you" (Jeramiah 29:11) Our curriculum's purpose is to develop the children's understanding, personality and gifts bestowed upon them by God in order for them to know they are loved by God, have love for others and let their light shine.

Every aspect of school life, including the curriculum, has been constructed around our school vision and our school values. Our vision is underpinned by the three key tenants: Loved by God; Love for others; Let your light shine. We have constructed a curriculum which prepares the children of Nethersole academically, emotionally, socially and spiritually to be active and successful participants of British and Global society.

Our sequential knowledge curriculum begins in EYFS, so that students can successfully access a broad and balanced curriculum throughout their education at Nethersole Church Primary Academy. This is underpinned by structured phonics, writing and mathematics lessons in EYFS to ensure core procedural knowledge is secured and that transition into KS1 is successful.

During KS1, focus is placed on reading, writing and mathematics. We ensure all students are reading by the age of six so that they can successfully access a broad and balanced curriculum. Through the Mathematics Mastery programme, we ensure core mathematical knowledge is mastered and practised. Music, PE, humanities and science are carefully planned with specialist support to ensure students are making links across and throughout the curriculum.

Throughout KS2, we seek to carefully develop subject knowledge and build clear sequences in our students' minds, allowing them to begin to think more coherently, critically, and creatively. Working with subject experts, curriculum leaders are equipped to design carefully crafted sequences of learning.

As teachers and leaders of our Learning Community, we ensure that our curriculum and teaching is informed by the latest evidential research from cognitive science about memory, knowledge retention and practice in order to help students remember, and apply, the best of what has been thought and said. We make knowledge stick for all learners so that all children are equipped to let their light shine.

Curriculum Purpose: Why study Computing?

Why do learners at Nethersole 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 Nethersole Church Primary Academy?

As our children leave Nethersole 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 Nethersole?
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