Ireby Church of England Primary School

'Created to do Good': Ephesians 2;10

Computing

Signed by:

_____ _____Head Teacher Date: 11th February 2025

Next review date: February 2027 or sooner if required

School Governance:

Responsibility of the school leadership

Our Aim

Our computing curriculum is driven by our Christian vision, 'created to do good'. Through learning together, our children are taught how to be part of a loving community of learners – collaborating, sharing their questions and ideas, learning how technology shapes our world and how it can be used responsibly to improve our lives.

Through our curriculum we aim to build children's computing skills and knowledge towards specific '**end points'** at each key stage of their learning, enabling them to know more and do more and fulfil our Christian vision of being citizens who understand and utilise technology in a way that contributes positively to making our world a better place both during their time at Ireby and beyond.

Our Intent:

We aim to instil a sense of enjoyment around the use of technology and to develop pupil's appreciation of its capabilities and the opportunities technology offers to create, manage, organise and collaborate. 'Tinkering' with software and programs forms part of the ethos of how we learn as we want to develop pupil's 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 transferrable skills at a suitable level for the future workplace, but also to be responsible on-line citizens.

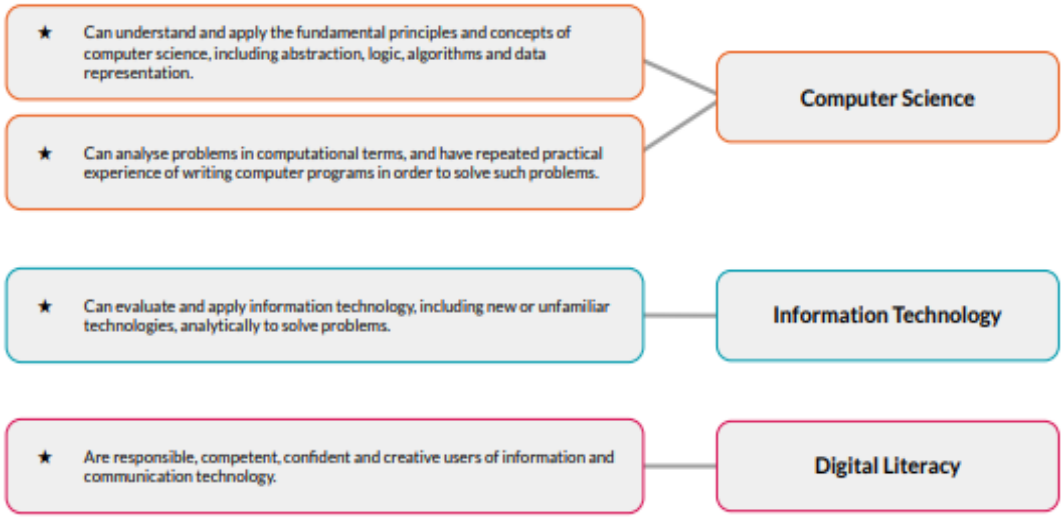
Our curriculum fully meets the attainment targets set out in the National Curriculum and, as it is used with the RSE and PSHE curriculum, meets the objectives set out in the DFE's Education for a connected World framework.

Implementation

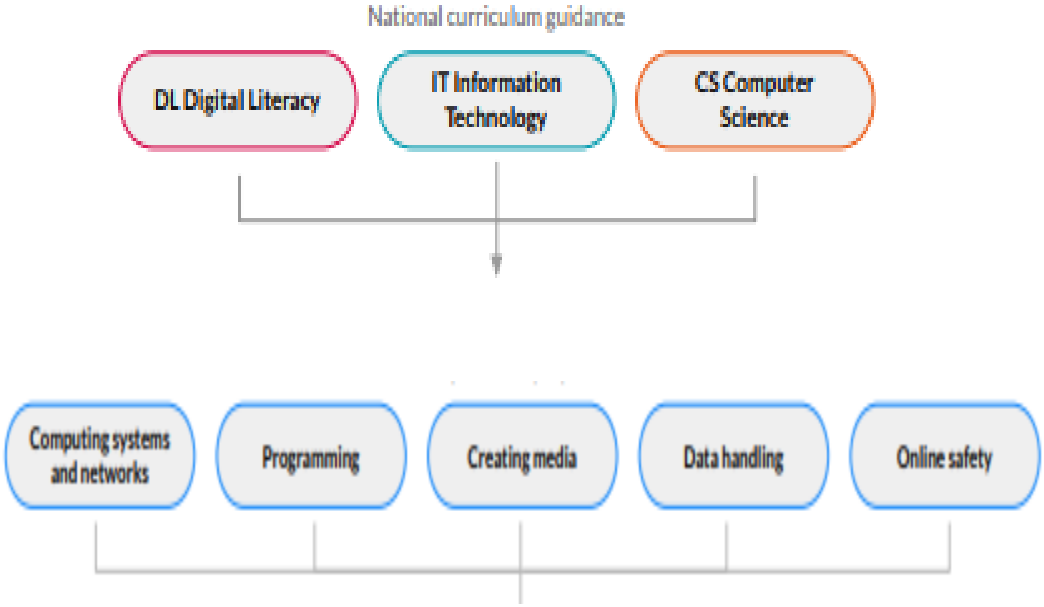
How our curriculum meets the National curriculum

Our curriculum fulfils the statutory requirements outlined in the National Curriculum (2014).

Three strands have been identified which run through our curriculum.



How our computing curriculum is organised



Key Areas

Lessons have been categorized into five key areas below. These are returned to in each Key Stage making it clear to see prior learning and future learning for our pupils and how our teaching fits into their wider learning journey.

Computing systems and networks	Programming	Creating media	Data handling	Online safety
Identifying hardware and using software, while exploring how computers communicate and connect to one another.	Understanding that a computer operates on algorithms, and learning how to write, adapt and debug code to instruct a computer to perform set tasks.	Learning how to use various devices – record, capture and edit content such as videos, music, pictures and photographs.	Ensuring that information is collected, recorded, stored, presented and analysed in a manner that is useful and can help to solve problems.	Understanding the benefits and risks of being online – how to remain safe, keep personal information secure and recognising when to seek help in difficult situations.

A Spiral curriculum

Our curriculum is designed as a spiral curriculum with the following principles in mind:

Cyclical: Pupils revisit the five key areas throughout KS1 and KS2.

Increasing depth: Each time a key area is revisited, it is covered with greater complexity.

Prior knowledge: Upon returning to each key area, prior knowledge is utilised so pupils can build on previous foundations, rather than starting again.

On-line safety

Recognising the increasing importance of this key area that will support our children to be safe digital citizens, we have joined with Project Evolve. Through a twenty-minute lesson per week, we ensure that children understand every aspect of keeping themselves safe on-line. This is supported by continuous reference to on-line safety every tie we use a device.

Computing in the EYFS

Our EYFS lessons are a natural precursor to our Year 1 Computing plans. They are designed especially for the Reception classroom and are play-based, hands-on and fun!

They support a child-led project approach to using technology and focus on computing through continuous provision.

Whilst the technology strand is no longer a specific area in the new EYFS framework (2021), having the opportunity to develop computing skills at an early age fosters an interest and confidence in technology and gives our pupils an advantage going into KS1.

Our EYFS curriculum focuses on the same key areas and link to Primary and Specific Areas of the EYFS framework 2024 and Development Matters Guidance as detailed on individual lesson plans and on our National curriculum mapping document.

Our Long-term plan

CYCLE A		**Autumn Term**		**Spring Term**		**Summer Term**	
	EYFS	Awesome Autumn: Creating, Pattern, Logic, Algorithms, Decomposition, Collaborating	Winter warmers Algorithms, Creating, Collaboration, Decomposition, Tinkering, Persevering	Super space Algorithms, Collaboration, Persevering, Creating, Pattern, Logical reasoning, Tinkering, Abstraction	Spring time Abstraction, Tinkering, Creating, Collaborating, Algorithms, Persevering, Decomposition	Summer fun Tinkering, Persevering, Patterns, Logic, Decomposition, Debugging, Collaborating, Algorithms	Boats Ahoy Algorithms, Decomposition, Creating, Tinkering, Logic, Patterns, Abstraction, Collaborating
	KS1	**Computer systems:** Improving mouse skills	**Computer systems:** Word Processing	**Computer systems:** What is a computer?	**Data Handling:** International Space Station	**Programming:** Algorithms unplugged	**Programming:** Pg 1 Algorithms and debugging
	LOWER KS2	**Computer systems and networks:** Emailing	**Programming** Computational thinking	**Creating Media** Website design Sway	**Data Handling:** Investigating weather	**Computer systems and networks:** Networks	**Programming** Coding with Scratch
	UPPER KS2	**Computer systems** Search Engines	**Data Handling:** Mars Rover	**Creating Media** Stop Animation	**Programming:** Music – Sonic Pi		**Programming** Introduction to python/ Logo
CYCLE B		**Autumn Term**		**Spring Term**		**Summer Term**	
	EYFS	Awesome Autumn: Creating, Pattern, Logic, Algorithms, Decomposition, Collaborating	Winter warmers Algorithms, Creating, Collaboration, Decomposition, Tinkering, Persevering	Super space Algorithms, Collaboration, Persevering, Creating, Pattern, Logical reasoning, Tinkering, Abstraction	Spring time Abstraction, Tinkering, Creating, Collaborating, Algorithms, Persevering, Decomposition	Summer fun Tinkering, Persevering, Patterns, Logic, Decomposition, Debugging, Collaborating, Algorithms	Boats Ahoy Algorithms, Decomposition, Creating, Tinkering, Logic, Patterns, Abstraction, Collaborating
	KS1	**Computer systems and networks** Word Processing	**Creating Media** Digital Imagery	**Data Handling:** Introduction to data	**Creating Media:** Stop-motion	**Programming:** Beebots	**Programming:** Pg 2: Introduction to block coding
	LOWER KS2	**Creating media:** Building 3-D worlds in co-spaces	**Computer systems** Collaborative Learning	**Data handling** Comparison cards	**Creative media:** Video trailers	**Programming:** Further coding with Scratch	**Programming** Further coding with Scratch
	UPPER KS2	**Creating media/ programming** Building 3-D worlds and coding		**Data Handling** Big data 1	**Programming** Microbit	**Computer systems** Explaining AI	**Computer systems:** Bletchley Park

Computing curriculum covered by children continuously:

How our curriculum is sequenced

Key Stage 1

Cycle A

Key Stage 1 starts with understanding computer systems and skills they will need throughout the year, improving mouse skills and Word processing. In the spring term they learn about computer systems and networks in the unit 'what is a computer?' exploring what a computer is by identifying how inputs and outputs work and how computers are used in the wider world to design their own computerised invention.

In the summer term, we start to build the children's programming skills in the unit 'Algorithms unplugged' where Algorithms, decomposition and debugging are made

relatable to familiar contexts, following directions, learning why instructions need to be specific. This will then lead into the unit 'Algorithms and debugging' where they continue to develop an understanding of; what algorithms are, how to program them and how they can be developed to be more efficient through the introduction of loops.

Cycle B

Cycle B follows a similar pattern in Key Stage 1 building basic Word processing skills before moving on to the creating media unit, digital imagery, where they learn to taking and edit photos, searching for and adding images to a project and lead into the creating imagery unit, 'Stop motion' top Motion (5 lessons), using cameras to create and publish simple animations from storyboarding creative ideas.

We then introduce the children to data handling in the unit 'Introduction to data' learning what data is and the different ways it can be represented. Learning why data is useful and the ways it can be gathered and recorded.

Finally, during the summer term, children continue build coding skills through Beebots, introducing or building programming skills using a Bee-Bot and exploring its functions before being introduced to Scratch Junior, exploring what 'blocks' do' by carrying out an informative cycle of predict > test > review. Programming a familiar story and make a musical instrument and preparing them for increasingly demanding coding in Key Stage 2.

Lower Key Stage 2

Cycle A

Cycle A starts with building basic computing system skills through the unit 'Emailing' which continues into the autumn term. We then build on children's computer system skills through the unit 'Computational thinking,' where children solve problems effectively using the four areas of abstraction, algorithm design, decomposition and pattern recognition. We then build children's creative media skills with the unit 'Website design,' learning how web pages and sites are created and how to embed media and links. Children then build on their Key Stage 1 data handling skills by building a database investigating weather.

The summer term ends cycle A with a comprehensive study on programming exploring the programme Scratch, building on the predict > test > review cycle learnt in Key Stage 1, and learning about 'loops' and programming an animation, story and game before moving on to 'Further coding in Scratch' where they begin to use 'variables' in script codes.

Cycle B

Cycle B starts with a creating media unit which challenges children to collaborate and build a virtual reality world using the coding programme Co-Space. The project incorporates the creation of an Internet safety tour. This moves naturally into a Computer systems unit based around 'Collaborative learning' exploring a range of collaborative tools including Microsoft Teams – where they learn how to work together on shared documents – skills they will need and build throughout the curriculum. Next, we build continue to build our data handing skills in the unit Comparison cards, learning about records, fields and data and sorting and filtering data. In the summer term we return to coding through an in-depth study of Coding in Scratch.

Upper Key Stage 2

Cycle A

Cycle A starts with computing systems, supporting the children with search engines learning about how page rank works and how to identify inaccurate information. We then continue to build creative media in the unit 'Stop animation' which builds key stage 1 units and website design in lower KS 2 by Creating animations, storyboard ideas and decomposing a story into small parts before putting together to create the illusion of a moving image. Through the spring and summer term, we continue then to build children's coding skills with an in-depth study programming music using Sonic Pi to create different sounds, beats and melodies which are put to the test with a Battle of the Bands performance and through coding in python using Logo.

Cycle B

Starts with programming a VR world using Co-Spaces. Children in Year 6 will extend themselves through their use of python whilst Year 5 children in the cycle will do the same using extended block code. Big data 1 unit further develops children's understanding of handling data in the real world. Children then continue to deepen their coding knowledge through the unit on microbits**,** creating algorithms and programs that are used in the real world. Using the 'predict, test and evaluate' cycle to create and debug programs with specific aims. This is then finished off in the summer term with an in-depth look at the growth and application of AI – a topic that has gained increasing relevance in our world, and finishes with an exciting topic on Bletchley Park which looks at secret codes as well as the historical significance of the code breakers.

The implementation of computing will be in-line with our Curriculum intent, implementation and impact policy.

Impact

The impact of our computing curriculum is constantly monitored through both formative and summative assessment. Every lesson we teach has a clear Learning Objective and success criteria against which assess. We use a variety of teaching strategies such as quizzing, questioning and feedback (see our teaching and learning policy) to inform our assessments.

After completing our computing curriculum, our children leave school equipped with a range of skills which enable them to succeed in their secondary education and be active participants in the ever-increasing digital world.

As well as reaching the National Curriculum endpoints (see below), the impact will also be that children will be:

- Critical thinkers and able to understand how to make informed appropriate digital choices in the future.
- Understand the importance that computing will have going forward in both their educational and working life and in their social and personal futures.
- Understand how to balance time spent on technology and time spent away from it in a healthy and appropriate manner.
- Understand that technology helps to showcase their ideas and creativity. They will know and understand that different types of software and hardware can help them achieve a broad variety of artistic and practical

aims.

- Demonstrate a clear progression of technical skills across all areas of the National curriculum.
- Be able to use technology both individually and as part of a collaborative team.
- Be aware of the developments in technology and understand how technologies relate to each other.
- Be aware of on-line safety issues and protocols and be able to deal with any problems in a responsible and appropriate manner.
- Meet all the endpoints identified and meet the requirements of the National Curriculum.

Timetabling and organisation

In Key Stage 1, Lower KS 2 and Upper KS 2, the computing curriculum is delivered through a dedicated weekly 1-hour computing lesson by the same teacher. This allows for consistency and progression throughout the school. It is also supported by continuous, daily use of technology across the curriculum in KS 1 and KS 2.

Computing End points

Our curriculum supports every child to reach a required 'end point' by the end of each Key Stage. These 'end points' reflect both the requirements of the National Curriculum 2014, and reflect the needs of the children in our school context. To find out more, click here to view to progression of skills and knowledge from EYFS to Upper KS 2.

Key Stage 1

Pupils will be assessed against their ability to demonstrate the following end points by the end of Key Stage 2:

- 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 will be assessed against their ability to demonstrate the following end points by the end of Key Stage 2:

- 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

Monitoring and evaluation of impact of this policy

Activity	**Frequency**
Book reviews	We will sample the quality of books once per term
Lesson observations	Our computing leader will sample lessons during the year
Pupil voice	Samples on computing during year
Collecting and evaluating summative assessment	Termly Teachers will review learning towards 'end points' and record data on Scholarpack for evaluation by the subject leader

The headteacher and subject leader are responsible for monitoring and evaluating the effectiveness of this policy towards meeting our stated vision and aims. This will be achieved through:

The role of governors

Our governors determine, support, monitor and review the school's approach to teaching and learning. In particular they:

- support the use of appropriate teaching strategies by allocating resources effectively;
- ensure that the school buildings and premises are used optimally to support teaching and learning;
- check teaching methods in the light of health and safety regulations;

- seek to ensure that our staff development and our performance management both promote good-quality teaching;
- monitor the effectiveness of the school's teaching and learning approaches through the school's self-review processes, which include reports from the headteacher, senior leaders and subject leaders, and a review of the continuing professional development of staff.

Monitoring and review of this policy

Senior leaders monitor the school's Computing Policy and carry out reviews so that we can take account of new initiatives and research, changes in the Computing curriculum, developments in technology or changes to the physical environment of the school. We will therefore review this policy every three years or sooner if required.