Bishop Chadwick Catholic Education Trust

Curriculum Narrative: Computing

KS1 Cycle A
- Your Computing journey starts here!!
- Online Safety
- Digital Imagery
- Programming

KS1 Cycle B
- Stop Motion: iPads
- Online Safety
- Improving Word Processing
- Algorithms and Debugging
- Intro to Data

LKS2 Cycle A
- Website Design
- Programming: Computational Thinking
- Using PowerPoint
- Online Safety

LKS2 Cycle B
- Online Safety
- Comparison Cards Databases
- Programming: Scratch Animation
- Video Trailers: iPads

UKS2 Cycle A
- Stop motion animation: Using cameras
- Programming: Sonic Pi
- Data Handling: Mars Rover
- Online Safety

UKS2 Cycle B
- Online Safety
- Computing Systems and Networks: Search Engines
- Programming: Intro to Python
- Data Handling: Big Data
- Welcome to secondary school!

Why do Computing scientists read?
To be able to confidently use commands put in to programming software.
To be able to read coding and programmes.
To be able to debug a programme finding the errors.
To refer to research found online on search engines.
To be able to work collaboratively with peers.

Create like a Computer Scientists	
	To be able to create professional looking documents using a range of software.
	To evaluate a program by explaining the functions of commands.
	To decompose a program by breaking down a complex problem into smaller parts.
	To be able to debug algorithms to run a set of code effectively.
	To recognise how to stay safe online at all times for own safety.
	To write clear instructions used for coding on computer programs.

Threshold Concepts in Computing	
	Computer Science Computational thinking, coding and programming, computer networks
	Information Technology Word processing, animation and photography, data and information
	Internet safety (Digital Literacy) Managing online information, health, well-being, privacy and security, copyright and ownership

Computing is a practical and creative subject which is vitally important for all children's development throughout their educational journey. Computing helps to open a student's eyes to the developing digital world we live in. It teaches children to develop their problem-solving skills, collaborative working styles and creativity. Computing skills teaches children to solve issues by looking at the bigger picture and provides necessary steps to break problems down into smaller, more manageable steps. Computing provides children with the skills that they require to publish professional documentation on a range of familiar software, enriching and preparing children for their day to day life in the outside world that we are living in. A high-quality computing curriculum equips children to use computational thinking and the ability to innovate so that they can understand and change with the world.

Our Computing Curriculum aims to encourage our children to become confident with the skills of computational thinking, problem solving and recognising ways to be innovative. Our curriculum is designed to engage the children with their learning through careful planning of a progressive, coherent journey from Early Years up to Year Six: allowing skills to be developed in a sequential and structed progression, factoring in mixed aged classes. The curriculum has been designed to enable the children to build upon their prior learning and to use an advancement of programs as they progress through the computing curriculum within school. Through careful planning, the children will build upon the skills of computer science through completion of coding units and with reference to computer networks. They will then complete units based on Information Technology where they will develop their Word Processing skills, create animation and recognise how to organise data. Whilst planning the units of Computing, we recognised the need to integrate the Digital Literacy into all units of learning as the children must be prepared to recognise how to use Computing in a safe, respectable manner to protect themselves and others.

Threshold concepts

Computer Science

The key areas being taught within Computer Science across the Computing Curriculum include:

- Computational Thinking
- Coding and Programming
- Computer Networks

The core of computing is Computer Science as pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. In EYFS the children will be introduced to the concept of algorithms as a set of instructions to get a device to carry out a delegated command. This will be put into effect through the use of digital toys such as BeeBots and Sonic Pi. Within Key Stage One, the children will be introduced to algorithms on programs and will begin to develop the skills of debugging if a sequence of algorithms does not fulfil the desired outcome. The children will explore programming on iPads using A.L.E.X and they will also complete sequential coding using Beebots. Within LKS2 the children will progress onto Scratch where they will become familiar with the processes of sequencing and looping. They will tinker on the programs and they will begin to evaluate their work to explain how and why their commands fulfilled the desired outcome. As the children progress through into KS2, they will become confident with the use of Scratch and they will focus on selection and appropriate commands through Python and Sonic PI. The children will become equipped with the skills to critically evaluate programming making comment on strengths and areas of improvement.

Information Technology

The key areas being taught within Information Technology across the Computing Curriculum include:

- Word Processing/Typing
- Presentations and Web Design
- Animation
- Video Creation
- Photography and Digital Art

Information Technology is critically important to be delivered effectively to all children in preparation for a digital world. The children will be equipped with the skills of using different programs to create professional documents for a purpose. Within this unit, the children will develop an importance of organising their documents so that they can access the necessary files when needed. In EYFS, the children will begin by exploring and experimenting with keyboards and digital mice to recognise that they form a computer used in our everyday lives. Within KS1, the children will complete a word processing unit with a focus on developing fluency with keyboard skills, an animation unit to promote creativity and a data unit with the benefit of a great cross curricular link to Maths. Within LKS2, the children will become confident with developing more in-depth skills such as copying and pasting and formatting pictures. They will recognise how to create PowerPoint Presentations for a targeted audience whilst also being introduced to a new concept of handling data within databases. As the children progress into UKS2, they will develop their independence of completing a computer based project aimed at incorporating skills taught from previous years to document their project ideas. The children will be encouraged to show innovation through a choice of software and they will be provided with the opportunity to work collaboratively with their peers. Information Technology will be integrated through other curriculum areas so that children can understand that publishing of documents has got a purpose.

Digital Literacy

- Managing Online Information
- Health, Well-Being and Lifestyle
- Privacy and Security
- Copyright and Ownership

Due to an increasingly digital culture, pupils need to be equipped with the skills and knowledge to take a full and active part in computing in a safe and appropriate manner. They need to recognise necessary approaches and strategies to use to ensure that they can fulfil their potential in our ever-changing digital world. Digital Literacy is a threshold concept that cannot be taught in isolation and must be integrated into all areas of learning within computing so that out pupils can be fully prepared for any situation that may arise and can be equipped with necessary support mechanisms. From EYFS to KS2, the children will be taught Digital Literacy as a short activity within every lesson. There will be careful delivery of Digital Literacy through the teaching of internet safety and how to keep personal information secure. The importance will be filtered throughout all units of learning and they will be used when topical issues arise within school.