



Bishop Ellis Catholic Voluntary Academy



Computing Intent

Ambition for Computing at Bishop Ellis

For all children to have a breadth of knowledge and experience to become competent end-users of technology.

At Bishop Ellis Catholic Primary School, we aim to provide a high-quality computing curriculum that enables all children to acquire a broad and deep knowledge of technology whilst providing them with opportunities to apply skills in various digital contexts. We want to ensure that our curriculum is accessible to every child. Our intention is to promote an enthusiasm and appreciation of computing through well-planned lessons, allowing all children to be digitally literate and develop their creativity, resilience, and problem-solving and critical thinking. As children progress, we aim for all children to become independent users of computing systems, with confidence and an enjoyment for their activities. Beyond teaching computing explicitly, we want to give children the opportunity to apply and develop use of technology to support learning across the curriculum.

Love of the subject

We want to inspire our pupils to become active participants in the digital world through their thinking and their creativity. It is important to us that the children understand how to use the ever-changing technology to express themselves, as tools for learning and as a means to drive their generation forward into the future. We want to enable all children to embrace and utilize technology in a responsible and safe way as we know that technology is everywhere and will play a pivotal part in their lives.

Curriculum Aims

- Understand and apply fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation. (Computer Science)
- Analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems. (Computer Science)
- Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems. (Information Technology)
- Be responsible, competent, confident and creative users of information and communication technology. (Digital Literacy)

Impact

In order to demonstrate that we have accomplished our aims, all children should:

- Be confident and enthusiastic in their approach towards computing.
- Present as competent and adaptable 'Computational Thinkers' who are able to use identify concepts and approaches in all of their learning.
- Be able to identify the source of problems and work with perseverance to 'debug' them.
- Have a secure understanding of the positive applications and specific risks associated with a broad range of digital technology.
- Transition to secondary school with a keen interest in the continuous learning of this subject.
- Enjoy and value Computing and know why they are doing things, not just how.

BISHOP ELLIS COMPUTING CURRICULUM PLAN

CYCLE A

TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
Reception	Computer Systems and Networks – Using a Computer		Programming 1 – All About Instructions	Computing Systems and Networks – Exploring a Hardware	Programming 2 – Programming Bee-Bots	Data Handling – Introduction to Data
KS1	Computing Systems and Networks- Mouse Skills	Computing Systems and Networks- What is a computer?	Creating Media – Digital Imagery		Data Handling – International Space Station	
LKS2	Computing Systems and Networks- Networks and the Internet	Computer Systems and Networks – Journey Inside a Computer	Computer Systems and Networks – Collaborative Learning		Creating Media- Video Trailers	
UKS2	Computer Systems and Networks – Search Engines	Computer Systems and Networks – Bletchley Park	Data Handling – Mars Rover		Data Handling- Big Data 1	

CYCLE B

TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
Reception	Computer Systems and Networks – Using a Computer		Programming 1 – All About Instructions	Computing Systems and Networks – Exploring a Hardware	Programming 2 – Programming Bee-Bots	Data Handling – Introduction to Data
KS1	Programming – Algorithms Unplugged	Programming - Beebot	Programming – Algorithms and Debugging		Programming – Scratch Jr	
LKS2	Programming – Scratch Jr	Programming – Further Coding with Scratch	Programming – Computational Thinking		Data Handling – Investigating Weather	
UKS2	Programming – Music	Programming – Intro the Python	Creating Media – Stop Motion		Creating Media- History of Computers	

BISHOP ELLIS COMPUTING CURRICULUM PLAN

YEAR GROUP. EYFS						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
UNIT OF WORK and KEY CONCEPTS	<p>Computer Systems and Networks – Using a Computer</p> <p>To be able to understand what a computer keyboard is and recognising some letters and numbers.</p> <p>To know that a mouse can be used to click, drag and create simple drawings.</p> <p>To know that to use a computer you need to log in to it and then log out at the end of your session.</p>		<p>Programming 1 – All About Instructions</p> <p>To know that being able to follow and give simple instructions is important in computing.</p> <p>To understand that it is important for instructions to be in the right order.</p> <p>To understand why a set of instructions may have gone wrong.</p>	<p>Computing Systems and Networks – Exploring a Hardware</p> <p>To know that different types of technology can be found at home and in school.</p> <p>To know that you can take simple photographs with a camera or iPad.</p> <p>To know that you must hold the camera still and ensure the subject is in the shot to take a photo.</p>	<p>Programming 2 – Programming Bee-Bots</p> <p>To know that being able to follow and give simple instructions is important in computing.</p> <p>To understand that it is important for instructions to be in the right order.</p> <p>To understand why a set of instructions may have gone wrong.</p>	<p>Data Handling – Introduction to Data</p> <p>To know that sorting objects into various categories can help you locate information.</p> <p>To know that using yes/no questions to find an answer is a branching database.</p>

BISHOP ELLIS COMPUTING CURRICULUM PLAN

YEAR GROUP. KS1 CYCLE A

TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	Toby and the Great Fire of London	Dogger Changes within living memory	Lost and Found Hot& cold places (Focus)	The Last Tree	Lila and the Secret of the Rain.	Wild.
Unit of work and key concepts.	<p>Computing Systems and Networks- Mouse Skills</p> <p>To know that "log in and log out" means to begin and end a connection with a computer.</p> <p>To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art.</p> <p>To know that passwords are important for security.</p> <p>To know that when we create something on a computer it can be more easily saved and shared than a paper version.</p> <p>To know some of the simple graphic design features of a piece of online software.</p>	<p>Computing Systems and Networks- What is a computer?</p> <p>To know the difference between a desktop and laptop computer.</p> <p>To know that people control technology.</p> <p>To know that buttons are a form of input that give a computer an instruction about what to do (output).</p> <p>To know that computers often work together</p>	<p>Creating Media – Digital Imagery</p> <p>To understand that holding the camera still and considering angles and light are important to take good pictures.</p> <p>To know that you can edit, crop and filter photographs.</p> <p>To know how to search safely for images online.</p>		<p>Data Handling – International Space Station</p> <p>To understand that you can enter simple data into a spreadsheet.</p> <p>To understand what steps you need to take to create an algorithm.</p> <p>To know what data to use to answer certain questions.</p> <p>To know that computers can be used to monitor supplies.</p>	

BISHOP ELLIS COMPUTING CURRICULUM PLAN

YEAR GROUP. KS1 CYCLE B

TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	Beegu	I am Rosa Parks				
Unit of work and key concepts.	<p>Programming – Algorithms Unplugged</p> <p>To understand that an algorithm is when instructions are put in an exact order.</p> <p>To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing.</p> <p>To know that we call errors in an algorithm 'bugs' and fixing these 'debugging'.</p>	<p>Programming – Beebot</p> <p>To understand the basic functions of a Bee-Bot.</p> <p>To know that you can use a camera/tablet to make simple videos.</p> <p>To know that algorithms move a bee-bot accurately to a chosen destination.</p>	<p>Programming – Algorithms and Debugging</p> <p>To understand what machine learning is and how that enables computers to make predictions.</p> <p>To know that abstraction is the removing of unnecessary detail to help solve a problem.</p> <p>To know that coding is writing in a special language so that the computer understands what to do.</p>		<p>Programming – Scratch Jr</p> <p>To understand that the character in ScratchJr is controlled by the programming blocks.</p> <p>To know that you can write a program to create a musical instrument or tell a joke.</p>	

BISHOP ELLIS COMPUTING CURRICULUM PLAN

YEAR GROUP. LKS2 CYCLE A						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST2
MAIN TEXT	<p>History - "Stone age boy" Satoshi Kitamura 5 weeks</p> <p>Science - "The Street beneath my feet." 3 weeks</p>	<p>Geography- Escape from Pompeii. 4 Weeks</p> <p>History - Julius Caesar by Andrew Matthews (adapted Shakespeare play). 4 weeks</p>	<p>Who Let The Gods Out- Max Evans</p> <p>Greek Myths- Marcia Williams. (Shared Reading Text)</p>	<p>Who Let The Gods Out- Max Evans</p> <p>Falling out of the sky (Poetry Anthology).</p>	<p>Life on the Farm (Charlotte's Web by E.B. White)</p> <p>The Incredible book eating boy- Oliver Jeffers. (Shared reading text)</p>	<p>Band of Angels – Deborah Hopkinson</p> <p>The sound collector by Roger McGough (Poem)</p>
Unit of work and key concepts.	<p>Computing Systems and Networks- Networks and the Internet</p> <p>To know what a tablet is and how it is different from a laptop/desktop computer. To understand what a network is and how a school network might be organised. To know how the internet uses networks to share files.</p>	<p>Computer Systems and Networks – Journey Inside a Computer</p> <p>To know what a packet is and why it is important for website data transfer. To know the roles that inputs and outputs play on computers. To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and h</p>	<p>Computer Systems and Networks – Collaborative Learning</p> <p>To understand that software can be used collaboratively online to work as a team. To know that you can use images, text, transitions and animation in presentation slides.</p>		<p>Creating Media- Video Trailers</p> <p>To know that different types of camera shots can make my photos or videos look more effective. To know that I can edit photos and videos using film editing software. To understand that I can add transitions and text to my video</p>	

BISHOP ELLIS COMPUTING CURRICULUM PLAN

YEAR GROUP. LKS2 CYCLE B

TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	Giant – Kate Scott	The Buildings that made London- David Long, Josie Shenay	Ancient Egypt- Secrets of the Sun King	The Wind in the Willows by Kenneth Grahame (Penguin Classic and original)	The Promise – Nicola Davies I am the seed that grew the tree – Poetry anthology	Orion and the dark- Emma Yarlett. My Shadow – Robert Louis Stevenson (Poetry)
Unit of work and key concepts.	<p>Programming – Scratch Jr</p> <p>To know that Scratch is a programming language and some of its basic functions. To understand how to use loops to improve programming. To understand how decomposition is used in programming. To understand that you can remix and adapt existing code.</p>	<p>Programming – Further Coding with Scratch</p> <p>To understand that a variable is a value that can change (depending on conditions) and know that you can create them in Scratch. To know what a conditional statement is in programming.</p>	<p>Programming – Computational Thinking</p> <p>To understand that pattern recognition means identifying patterns to help them work out how the code works. To understand that algorithms can be used for a number of purposes e.g. animation, games design etc.</p>		<p>Data Handling – Investigating Weather</p> <p>To know that computers can use different forms of input to sense the world around them so that they can record and respond to data. This is called ‘sensor data’. To know that a weather machine is an automated machine that responds to sensor data. To understand that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films.</p>	

BISHOP ELLIS COMPUTING CURRICULUM PLAN

YEAR GROUP. UKS2 CYCLE A						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	Kensuke's Kingdom (5 weeks)	Pig Heart Boy (5 weeks) Polar Express (5 weeks)	Tale from Arabian Nights	Holes	The Man Who walked between 2 Towers- Mordecai Gerstein (+ poetry The Lost Words)	Macbeth
Unit of work and key concepts.	<p>Computer Systems and Networks – Search Engines</p> <p>To know how search engines work. To understand that anyone can create a website and therefore we should take steps to check the validity of websites. To understand what copyright is. To know the difference between ROM and RAM.</p>	<p>Computer Systems and Networks – Bletchley Park</p> <p>To understand the importance of having a secure password and what "brute force hacking" is. To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2.</p>	<p>Data Handling – Mars Rover</p> <p>To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock. To know what numbers using binary code look like and be able to identify how messages can be sent in this format. To know what simple operations can be used to calculate bit patterns.</p>		<p>Data Handling- Big Data 1</p> <p>To know that data contained within barcodes and QR codes can be used by computers. To know that Radio Frequency Identification (RFID) is a more private way of transmitting data. To know that data is often encrypted so that even if it is stolen it is not useful to the thief.</p>	

BISHOP ELLIS COMPUTING CURRICULUM PLAN

YEAR GROUP. UKS2 CYCLE B

TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	Jamie Drake Equation	War Horse Beowulf	The Silver Sword + WW2 poetry	The Nowhere Emporium – Ross McKenzie	The Tempest (including The Lighthouse)	Treason- Berlie Doherty
Unit of work and key concepts.	<p>Programming – Music To know that a soundtrack is music for a film/video and that one way of composing these is on programming software. To understand that using loops can make the process of writing music simpler and more effective.</p>	<p>Programming – Intro the Python To know that there are text-based programming languages such as Logo and Python. To know that nested loops are loops inside of loops.</p>	<p>Creating Media – Stop Motion To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph. To know that decomposition of an idea is important when creating stop- motion animations. To know that editing is an important feature of making and improving a stop motion animation.</p>		<p>Creating Media- History of Computers To know that radio plays are plays where the audience can only hear the action so sound effects are important. To know that sound clips can be recorded using sound recording software. To know that sound clips can be edited and trimmed.</p>	