Bishop Ellis Catholic Voluntary Academy

Computing Intent

At Bishop Ellis Catholic Primary School we aim to provide a high-quality computing education which equips pupils to use computational thinking and creativity to understand God's world. Our children will be given the opportunity to link computing with mathematics, science, and design and technology, and they will know that computing provides insights into both natural and artificial systems. The core of computing is computer science, in which children are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, children are equipped to use information technology to create programs, systems and a range of content. Our computing curriculum will also ensure that children become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Our 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.

At key stage one and two, the core knowledge of what algorithms are and how they are implemented and that programs execute by following precise and unambiguous instructions, designing writing and debugging programs that accomplish specific goals, solving problems by decomposing them into smaller parts, understanding computer networks including the internet; selecting, using and combining a variety of software (including internet services) to design and create a range of programs, collecting, analysing, evaluating and presenting data and information and using technology safely, respectfully and responsibly; recognising acceptable and unacceptable behaviour whilst identifying a range of ways to report concerns about content and contact.

BISHOP ELLIS COMPUTING CURRICULUM PLAN

CYCLE A						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
Reception	Know what a keyboard is and how to locate relevant keys. Know what a mouse is and developing control when using a mouse.		Know how to take a photograph using an iPad. Name four ICT pieces of equipment within the classroom.	Algorithm as a set of instructions to carry out a task, in a specific order		introduction to branching databases
KS1	Computing systems and networks- mouse skills		Programming- algorithms		Computing Showcase: rocket to the moon	
LKS2	Computing systems and networks- emailing		Programming- scratch		Creating Media- trailers	
UKS2		Data handling- using data to solve a problem		Computing systems and networks- search engines.		Creating media- animation

CYCLE B						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
Reception	Know what a keyboard is and how to locate relevant keys. Know what a mouse is and developing control when using a mouse.		Know how to take a photograph using an iPad. Name four ICT pieces of equipment within the classroom.	Algorithm as a set of instructions to carry out a task, in a specific order		introduction to branching databases
KS1		Kapow- data handling	Creating Media- digital images.	Programming- Beebots		Data Handling
LKS2		Networks and the internet		Data Handling- comparison cards		Computing systems and networks- collaborative working
UKS2	Data Handling- Mars Rover		Computing systems and networks- Bletchley Park		Creating media- history of computers.	

			YEAR GROUP. KS1 CYCLE A			
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	Beegu Everyday Materials Y1 (Focus)	I am Rosa Parks Famous People (focus)	Lost and Found Hot& cold places (Focus)	Traction Man Uses of Everyday Materials (Focus)	Bog Baby Animals, including humans (y1) (Focus)	Naughty Bus Immediate locality- (Focus)
Unit of work and key concepts.	Computing systems and networks- mouse skills Use computers more purposefully Log in and navigate around a computer Drag, drop, click and control a cursor using a mouse Use software tools to create art on the computer		Programming- algorithms. Explain what an algorithm is. Write clear algorithms. Follow an algorithm. Explain what inputs and outputs are. Create an achievable program. Decompose a design into steps. Identify bugs in an algorithm and how to fix them.		Computing systems and networks- Word processing. Explain which are the home row keys and how to find them for typing. Use the spacebar and backspace correctly. Type and make simple alterations to text using buttons on a word processor. Search for, import and alter appropriate images for a text document. Modify text in a document. Use copy and paste to copy text from one document to another. Explain what information is safe to be shared online.	
Main enquiry question	**What does Beegu think of life on Planet Earth?**	**How have people like Rosa Parks helped to make the world a better place?**	**Why can't a penguin live near the equator?**	**What would Traction Man use to build our school?**	**Why are humans not like tigers?**	**Where do and did the wheels on the bus go?**

E-safety taught throughout the year including in PSHE.

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	Toby and the Great Fire of London	Dogger Changes within living memory (Focus)	Little Evie and the Wild Wood Plants focus (y1)	The Last Tree Plants focus (y2)	Lila and the Secret of the Rain. Contrasting Locations (Focus)	Wild. Living things and their habitats (y2) Focus
Unit of work and key concepts.	Programming- Beebots Recognise cause and effect when pressing buttons on a Bee-Bot. Discuss and demonstrate how the Bee-Bot works. Record video ensuring everyone is in the shot. Give a number of clear instructions in sequence. Program a Bee-Bot to reach a destination. Identify and correct mistakes in their programming.		Creating Media- digital images. Plan a pictorial story using photographic images in sequence. Explain how to take clear photos. Take photos using a device. Edit photos by cropping, filtering and resizing. Search for and import images from the internet. Explain what to do if something makes them uncomfortable online. Organise images on the page, orientating where necessary.		Data Handling Represent animal-themed data in different ways, using objects and technology. Log in and use mouse and keyboard skills to navigate the computer. Represent the same data as a pictogram and a table or chart. Collect data about minibeasts using a tally chart and represent their data digitally. Click and drag objects to sort data using a branching database. Consider the types of input that would be used to gather different forms of data when designing an invention.	
Main enquiry question	**Why did the Great Fire of London start?**	**Are iPads more fun that the toys my grandparents played with?**	**How old are the trees around us?**	**How can a plant be healthy?**	**Where would you prefer to live: England or Kenya?**	**Why would a dinosaur not make a good pet?**

E-safety taught throughout the year including in PSHE.

YEAR GROUP. EYFS						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
MAIN TEXT	**Once there were giants.**		**People who help us.**	**What the Ladybird Heard**		**Katie in London**
UNIT OF WORK and KEY CONCEPTS	Know what a keyboard is and how to locate relevant keys. Know what a mouse is and developing control when using a mouse.		Know how to take a photograph using an iPad. Name four ICT pieces of equipment within the classroom. Know the different parts of a computer and what they do. To be familiar with an iPad. E-Safety core knowledge.	Routes and maps around a farm. To follow instructions as part of practical activities and games To learn to give simple instructions. To learn that an algorithm is a set of instructions to carry out a task, in a specific order To know how the type using a laptop to say something positive about themselves		Know how to respond to yes/no questions as an introduction to branching databases Know about branching databases through physical sorting and categorising. Know how to interpret a basic pictogram

BISHOP ELLIS COMPUTING CURRICULUM PLAN

		YEAR GROUP. LKS2 CYCLE A				
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST2
NOVEL	History - "Stone age boy" Satoshi Kitamura 5 weeks Science - "The Street beneath my feet." 3 weeks	Geography- Escape from Pompeii. 4 Weeks History - Julius Caesar by Andrew Matthews (adapted Shakespeare play). 4 weeks	Who Let The Gods Out- Max Evans Greek Myths- Marcia Williams. (Shared Reading Text)	Who Let The Gods Out- Max Evans Falling out of the sky (Poetry Anthology).	Life on the Farm (Charlotte's Web by E.B. White) The Incredible book eating boy- Oliver Jeffers. (Shared reading text)	Band of Angels – Deborah Hopkinson The sound collector by Roger McGough (Poem)
Unit of work and key concepts.	Computing systems and networks. Log in and out of email. Send a simple email with a subject. Edit an email. Type in the email address correctly and send the email. Add an attachment to an email. Write an email using positive language, with an awareness of how it will make the recipient feel. Recognise unkind behaviour online and know how to report it. Offer advice to victims of cyberbullying. Recognise when an email may be fake and explain how they know.		Programming. Explain what some of the blocks do in Scratch. Explain what a loop is and include one in their program. Suggest possible additions to an existing program. Recognise where something on screen is controlled by code. Use a systematic approach to find bugs. Explain what an algorithm is and its purpose. **Espresso Coding could be used here.**		**Creating media-website design** Use most of the tabs (e.g. insert, pages, themes) on Google Sites on their website. Create a clear plan for their web page and begin to create it. Create a professional looking web page with useful information and a clear style, which is easy for the user to read and find information from. Create a clear plan by referring back to their checklist. Create four web pages with a range of features on their website.	
Main enquiry question	**Who first lived in Britain?** **What do rocks tell us about the way the Earth was formed?**	**What makes the Earth angry?** **Who were the Romans and what did we learn from them?**	**How would we survive without water?**	**Why were the Ancient Greeks ruled by their Gods? Why do so many people choose to go to the Mediterranean for their holiday?**	**What happens to the food we eat?**	**Why is the sound made by ****** enjoyed by so many?**

			YEAR GROUP. LKS2 CYCLE B			
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
NOVEL	Giant – Kate Scott	The Buildings that made London- David Long, Josie Shenay	Ancient Egypt- Secrets of the Sun King	The Promise – Nicola Davies I am the seed that grew the tree – Poetry anthology	The Wind in the Willows by Kenneth Grahame (Penguin Classic and original)	Orion and the dark- Emma Yarlett. My Shadow – Robert Louis Stevenson (Poetry)
Unit of work and key concepts.		Networks and the internet Recognise that a network is two or more devices connected. Explain how information moves around a network and the role of the server. Understand that networks connect to the internet via a router. Explain some of the journey a website goes through to reach your computer. Explain that websites are split into small pieces (packets) to be sent via the internet.		Data handling- Comparison Cards Explain what is meant by 'field,' 'record,' and 'data.' Compare paper and computerised databases. Put values into a spreadsheet. Sort, filter and interpret data in a spreadsheet. Create a graph on Google Sheets. Explain the purpose of visual representations of data.		Computing systems and networks- collaborative learning. Understand the need to be thoughtful when working on a collaborative document. Use comments to suggest changes to a document and understand how to resolve comments. Use a variety of different slide styles to convey information including images and transitions. Create a form with a range of different questions types that will provide different types of answers, e.g. text, multiple choice or numerical values. Export data to a spreadsheet, highlighting data, using conditional formatting and calculating averages and sums of numbers.
Main enquiry question	**How can Usain Bolt run so fast?**	**Why would you choose to live in London/Leicester?**	**How can we recreate the wonder of Ancient Egypt**	**Which wild animals and plants thrive in our local environment?**	**Why are most of the world's cities located by rivers?**	**How far can you throw your shadow?**

BISHOP ELLIS COMPUTING CURRICULUM PLAN

YEAR GROUP. UKS2 CYCLE A						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
NOVEL	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.		**Creating media-animation.** Create a toy with simple images with a single movement. Create a short stop motion with small changes between images. Think of a simple story idea for their animation then decompose it into smaller parts to create a storyboard with simple characters. Make small changes to the models to ensure a smooth animation and delete unnecessary frames. Add effects such as extending parts and titles. Provide helpful feedback to other groups about their animations.		**Computer systems and networks.** Explain what a search engine is, suggesting several search engines to use and explain how to use them to find websites and information. Suggest that things online aren't always true and recognise what to check for. Explain why keywords are important and what TASK stands for, using these strategies to search effectively. Recognise the terms 'copyright' and 'fair use' and combine text and images in a poster. Make parallels between book searching and internet searching, explaining the role of web crawlers and recognising that results are rated to decide rank.		**Data Handling** Understand why barcodes and QR codes were created. Create (and scan) their own QR code using a QR code generator website. Explain how infrared can be used to transmit a Boolean type signal. Explain how RFID works, recall a use of RFID chips, and type formulas into spreadsheets. Take real-time data and enter it effectively into a spreadsheet. Presenting the data collected as an answer to a question. Recognising the value of analysing real-time data. Analyse and evaluate transport data and consider how this provides a useful service to commuters.
Main enquiry question	**Why should the rainforests matter to all of us?**	**Why is your heart the most important pump you own?** **Are all changes irreversible?**	**Why was the Islamic civilization (AD900) known as the Golden Age?**	**Do we need to know where we've come from to know where we are going?**	**How do forces act upon us?**	**How can you light up your life?**

YEAR GROUP. UKS2 CYCLE B						
TERM	ADVENT 1	ADVENT 2	LENT 1	LENT 2	PENTECOST 1	PENTECOST 2
NOVEL	Jamie Drake Equation	War Horse Beowulf	The Silver Sword + WW2 poetry	The Nowhere Emporium – Ross McKenzie	The Tempest (including The Lighthouse)	Wonder – R. J. Palacio
Unit of work and key concepts.	Data Handling. Identify some of the types of data that the Mars Rover could collect (for example, photos). Explain how the Mars Rover transmits the data back to Earth and the challenges involved in this. Read any number in binary, up to eight bits. Identify input, processing and output on the Mars Rovers. Read binary numbers and grasp the concept of binary addition. Relate binary signals (Boolean) to a simple character-based language, ASCII.		Computer systems and networks. explain that codes can be used for a number of different reasons and decode messages. Explain how to ensure a password is secure and how this works. Create a simple website with information about Bletchley Park including the need to build electronic thinking machines to solve cipher codes. Explain the importance of historical figures and their contribution towards computer science.		Creating Media Explain how to record sounds and add in sound effects over the top. Produce a simple radio play with some special effects and simple edits which demonstrate an understanding of how to use the software. Create a document that includes correct date information and facts about the computers and how they made a difference. Demonstrate a clear understanding of their device and how it affected modern computers, including well-researched information with an understanding of the reliability of their sources. Describe all of the features that we'd expect a computer to have including RAM, ROM, hard drive and processor.	
Main enquiry question	**Is there anybody out there?**	**Where do we live and how has it changed? How have the Anglo-Saxons impacted life in Britain today?**	**War – what is it good for?**	**How do we change over time?**	**Is it okay to be angry?**	**Why should we celebrate our differences?**