



# 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

## YEAR GROUP. YEAR 1

| TERM                                             | ADVENT 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ADVENT 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | LENT 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | LENT 2 | PENTECOST 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PENTECOST 2 |
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| UNIT OF WORK, ENQUIRY QUESTIONS 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>Digital painting</p> <p>Creating media, Effective use of tools</p> <p>In this unit, pupils develop their understanding of how to manipulate digital devices by using painting tools. They practise by creating digital paintings, gaining inspiration from the work of artists whilst reflecting on their preferences when painting with and without the use of digital devices.</p> <p>Painting using computers</p> <p>Using lines and shapes to create digital pictures</p> <p>Creating digital pictures in the style of an artist</p> <p>Choosing the right digital painting tool</p> <p>Using the paintbrush tool to create digital pictures</p> <p>Comparing computer art and painting.</p> | <p>Digital writing</p> <p>Creating media Effective use of tools</p> <p>This unit covers various aspects of using a computer to create and manipulate text. Pupils will become familiar with using a keyboard and mouse to enter and remove text. They will consider how to change the look of their text, and will be able to justify their reasoning for making these changes.</p> <p>Exploring the keyboard</p> <p>Adding and removing text</p> <p>Make changes to text</p> <p>Exploring the toolbar</p> <p>Choosing formatting tools</p> <p>Comparing digital writing to using a pencil</p> |        | <p>Creating animations in programs</p> <p>Design and development Programming</p> <p>In this unit pupils are introduced to on-screen programming through ScratchJr. Pupils will explore the way a project looks onscreen by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs that move objects.</p> <p>Programming using command blocks</p> <p>Joining command blocks</p> <p>Changing values in a program</p> <p>Controlling sprites</p> <p>Designing an animated program</p> <p>Testing a program</p> |             |

BISHOP ELLIS COMPUTING CURRICULUM PLAN

| YEAR GROUP. YEAR 2                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |
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| TERM                                              | ADVENT 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ADVENT 2 | LENT 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | LENT 2 | PENTECOST 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PENTECOST 2 |
| UNIT OF WORK, ENQUIRY QUESTIONS and KEY CONCEPTS. | <p>Information technology in the world beyond school</p> <p>Computing systems<br/>Networks<br/>Safety and security</p> <p>In this unit pupils develop their understanding of what information technology is and will begin to identify examples. Pupils will discuss where they have seen IT in school and beyond. They will investigate how IT improves our world whilst also recognising the importance of using IT responsibly.</p> <p>Introduction to information technology<br/>Information technology in school<br/>Information technology in the world<br/>Benefits of information technology<br/>Using information technology safely<br/>Making choices when using information technology</p> |          | <p>Using IT to organise and present data</p> <p>Data and information<br/>Effective use of tools</p> <p>In this unit pupils will explore what the term data means and how data can be collected. They will explore how attributes can be used to organise data and how data can be presented in the form of pictograms and block diagrams. Pupils will use the data presented to answer questions.</p> <p>Counting and comparing data<br/>Entering data<br/>Creating pictograms<br/>Attributes in data<br/>Comparing data<br/>Presenting information clearly</p> |        | <p>Building sequences in programs</p> <p>Design and development<br/>Programming</p> <p>In this unit, pupils will begin to understand that sequences of commands have an outcome and will start to make predictions about what these outcomes may be. Pupils will use and modify designs to create their own quiz questions using sequences of code blocks.</p> <p>Programming sequences<br/>Outcomes of sequences<br/>Building blocks to create a sequence<br/>Programming multiple sprites and backgrounds<br/>Designing and creating a quiz program<br/>Evaluating and improving a program</p> |             |

BISHOP ELLIS COMPUTING CURRICULUM PLAN

| YEAR GROUP. YEAR 3                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            |
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| UNIT OF WORK, ENQUIRY QUESTIONS and KEY CONCEPTS. | <p>Computer networks</p> <p>Computing systems Networks</p> <p>In this unit pupils will explore digital devices, with an initial focus on inputs, processes, and outputs. Pupils will be introduced to computer networks, including devices that make up a network infrastructure and the benefits of connecting devices in a network.</p> <p>Digital devices<br/>Designing a digital device<br/>Digital devices for different activities<br/>Connecting digital devices<br/>Transferring information between devices<br/>Physical components of a computer network</p> | <p>Programming sequence using sound</p> <p>Design and development<br/>Programming</p> <p>This unit explores the concept of sequencing in programming. Pupils will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. Pupils will make a representation of a piano where they will explore sequence through sound.</p> <p>Programming in a block-based environment<br/>Programming sprites<br/>Sequences<br/>Ordering commands<br/>Combining code blocks in a sequence<br/>Creating a project using a block-based environment</p> | <p>Organising data using databases</p> <p>Data and information</p> <p>This unit develops pupils' knowledge of what a branching database is and how to create one. They will use yes/no questions to gain an understanding of what attributes are and how to use them to sort groups of objects. Pupils will create an identification tool using a branching database.</p> <p>Yes or no questions for data collection<br/>Making groups of data<br/>Creating a branching database<br/>Structuring a branching database<br/>Planning a branching database<br/>Creating identification tools</p> |        | <p>Events and actions in programs</p> <p>Programming</p> <p>In this unit, pupils explore the link between events and actions. Pupils begin by moving a sprite in four directions (up, down, left, and right) and then explore movement within the context of a maze. This unit also introduces programming extensions, through the use of Pen blocks.</p> <p>Moving a sprite<br/>Program a sprite to move around a maze<br/>Using the pen tool in a program<br/>Adding features to a program<br/>Debugging movement<br/>Creating a maze project</p> |            |

# BISHOP ELLIS COMPUTING CURRICULUM PLAN

| YEAR GROUP. YEAR 4                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |
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| TERM                                              | ADVENT 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ADVENT 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | LENT 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | LENT 2 | PENTECOST 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PENTECOST2 |
| UNIT OF WORK, ENQUIRY QUESTIONS and KEY CONCEPTS. | <p>The internet</p> <p>Networks</p> <p>Safety and security</p> <p>In this unit pupils will recognise the internet as a network of networks. They will learn that the World Wide Web is part of the internet. They will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.</p> <p>Connecting networks</p> <p>The internet and World Wide Web</p> <p>Sharing information</p> <p>Content on the World Wide Web</p> <p>Ownership and the World Wide Web</p> <p>Reliability of content on the World Wide Web</p> | <p>Repetition in programs</p> <p>Algorithms and data structures</p> <p>Programming</p> <p>In this unit pupils will create text-based programs which use repetition. They will plan, modify, and test commands to create shapes and patterns. They will explore the different types of loops that can be used to repeat commands in a program.</p> <p>Programming a screen turtle</p> <p>Creating an algorithm in a text-based programming language</p> <p>Patterns and repeats</p> <p>Count-controlled loops</p> <p>Procedures in programming</p> <p>Designing a program that uses loops</p> | <p>Organising data using databases</p> <p>Data and information</p> <p>This unit develops pupils' knowledge of what a branching database is and how to create one. They will use yes/no questions to gain an understanding of what attributes are and how to use them to sort groups of objects. Pupils will create an identification tool using a branching database.</p> <p>Yes or no questions for data collection</p> <p>Making groups of data</p> <p>Creating a branching database</p> <p>Structuring a branching database</p> <p>Planning a branching database</p> <p>Creating identification tools</p> |        | <p>Audio production</p> <p>Creating media</p> <p>Effective use of tools</p> <p>In this unit pupils will discover the input and output devices required to work with sound digitally. They will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. Pupils will develop skills in editing and track manipulation by creating a podcast.</p> <p>Recording sounds</p> <p>Editing audio</p> <p>Planning a podcast</p> <p>Creating a podcast</p> <p>Combining audio</p> <p>Evaluating podcasts</p> |            |

# BISHOP ELLIS COMPUTING CURRICULUM PLAN

## YEAR GROUP. YEAR 5 and 6

| TERM                                  | ADVENT 1                                                                                                                                                                                                                                                                                                                                     | ADVENT 2                                                                                                                                                                                                                                                                                                                               | LENT 1                                                                                                                                                                                                                                                                                                                                               | LENT 2 | PENTECOST 1                                                                                                                                                                                                                                                                                                                                          | PENTECOST 2 |
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| UNIT OF WORK,<br>and KEY<br>CONCEPTS. | <p>Communication and the internet</p> <p>In this unit pupils explore how data is transferred over the internet. They will examine addressing and the makeup and structure of data packets. They will investigate how the internet facilitates online communication and collaboration and how to communicate responsibly on the internet.</p> | <p>Web page creation</p> <p>In this unit pupils will discover how to create websites for a chosen purpose. They will identify what makes a good webpage and use this information to design and evaluate their own website. Pupils will consider copyright and fair use of media, the aesthetics of the site, and clear navigation.</p> | <p>Using variables in programming to develop a game</p> <p>This unit explores the concept of variables in programming through the development of games. Pupils will investigate what variables are and relate them to real-world examples of values that can be set and changed. Then they use variables to create a simulation of a scoreboard.</p> |        | <p>Introduction to spreadsheets</p> <p>This unit introduces pupils to how spreadsheets can be used to organise data and create their own data sets. They will discover the importance of formatting data to support calculations, while also examining how formulas can be used to produce calculated data and how graphs can present this data.</p> |             |