



Bishop Bridgeman C.E. Primary School

Part of Archbishop Temple Multi Academy Trust

We Work, We Play, We Care, We Pray

“Love God, Love Yourself, Love Your Neighbour” Luke 10:27

Computing Skills Progression

Within the new EYFS curriculum the 'Technology' strand has been removed from 'Understanding the World' and has not been replaced with any updated guidance. However, computing and technology are still vitally important subjects to teach to even the youngest of pupils. Teaching computing within the curriculum ensures that children enter Year 1 with a strong foundation of knowledge. Despite being unplugged in classrooms in the Autumn term, Computing lessons in the EYFS ensure that children develop listening skills, problem-solving abilities and thoughtful questioning - as well as improving subject skills across the seven areas of learning.

We live in a technological world and there is no escape from the reality that technology is integrated into the lives of young children. Just as we ensure the children in our care are ready for the adult world by teaching them maths and literacy, we should also make sure that they are fluent in computer science, digital literacy, information technology and all-important online safety.

Development Matters

ELG

How this is achieved in EYFS

By the end of Reception, children will...

Computing in class

Nursery:

Personal, Social and Emotional Development:

- Remember the rules without needing an adult to remind them

Physical Development:

- Match their developing physical skills to tasks and activities in the setting.

Understanding the World

- Explore how things work

Reception:

Personal, Social and Emotional Development:

- Show resilience and perseverance in the face of a challenge.
- Know and talk about the different factors that support their overall health and wellbeing:
- sensible amounts of 'screen time'

Physical Development:

- Develop their small motor skills so that they can use a range of tools competently, safely and confidently.

Expressive Arts and Design:

- Explore, use and refine a variety of artistic effects to express their ideas and feelings.

Personal, Social and Emotional Development; Managing self:

- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.
- Explain the reasons for rules, know right from wrong and try to behave accordingly

Expressive Arts and Design: Creating with Materials:

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Understanding the World; Past and Present:

- Talk about the lives of people around them and their roles in society.
- Know some differences and similarities between things in the past and now, drawing on their experiences.

People, Culture and Communities:

- Describe their immediate environment using knowledge from observation, discussion, texts, maps.

Continuous Provision – available throughout the day for both focussed and self-chosen learning

A range of technology is available within the classroom for the children to access, both independently and with an adult.

- iPads with guided access/QR codes
- Computers (Chrome books) – games / activities linked to the topic or maths being covered each week.
- Remote control toys – cars.
- Battery operated toys
- Beebots and mats
- CD players
- Interactive white boards – Phonics Play/Topmarks
- Purple Mash (mini mash) – drawing, sorting, information gathering.
- Sound buttons – children can listen to a pre-recorded challenge or record their own answers.
- Exploring old typewriters / computers / mechanical toys (fixed areas in class and library loans)

Knowledge:

Personal, Social and Emotional Development

I can wait a short amount of time for something I want eg: a computer loading / an App to work..
I know how to complete a familiar task independently and with support will try new things. Eg: a computer programme / Beebot.
I can select tools and resources that I need to complete a task of my own choosing.
I know how to be safe online.
I know that a password is secret.

Physical Development

I know how to use an iPad or tablet appropriately.
I know how to use my fingers on a touch screen, and control a mouse/touchpad on a computer.

Understanding the World

I know how to use a camera i.e. on an iPad.
I know how to work a simple programable toy.
I can select and use technology for particular purposes.
I know how technology is used in my own home.
I know that technology has changed since my adults were young.

Expressive Art and Design

Children can safely use a range of technology for a purpose.

	Year 1	Year 2
Understand what algorithms are, how they are implemented on digital devices; and that programs execute by following precise and unambiguous instructions Create and debug simple programs	Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program	Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.
	Children can work out what is wrong with a simple algorithm when the steps are in the wrong order/not detailed enough. They can write their own simple algorithm. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code	Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors. Children's program designs display a growing awareness of the need for logical, programmable steps.
Use logical reasoning to predict the behaviour of simple programs	When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.	Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.
Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work	Children demonstrate an ability to organise data using, for example, a database and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound
Recognise common uses of information technology beyond school	Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not.	Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. Children make links between technology they see around them, coding and multimedia work they do in 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	Children understand the importance of keeping information, such as usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space.	Children know the implications of inappropriate online searches. Children begin to understand how things are shared online. Children know ways of reporting inappropriate behaviours and content to a trusted adult.

	Year 3	Year 4	Year 5	Year 6
Design and write programs that accomplish specific goals, including controlling or simulating a physical system. Solving problems by decomposing them into smaller parts	Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it.	When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.	Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code.	Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. Children test and debug their programs as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem
Use sequence, selection and repetition in programs; work with variables and various forms of input and output	Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. Children understand how variables can be used to store information while a program is executing.	Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'	Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design.	Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions.

<p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	<p>Children’s designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, ‘if’ statements, repetition and variables. They make good attempts to ‘step through’ more complex code in order to identify errors in algorithms and can correct this. They can read programs with several steps and predict the outcome accurately.</p>	<p>Children’s designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, ‘if’ statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. They can read programs with several steps and predict the outcome accurately.</p>	<p>When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later e.g. naming of variables</p>	<p>Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole.</p>
<p>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.</p>	<p>Children can list a range of ways that the internet can be used to provide different methods of communication. They can use some of these methods of communication. They can describe appropriate email conventions when communicating in this way.</p>	<p>Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.</p>	<p>Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this can be kept safe.</p>	<p>Children understand and can explain in some depth the difference between the internet and the world wide web. Children know what a WAN and LAN are and can describe how they access the internet in school.</p>
<p>Use search technologies effectively, appreciate how search results are ranked, and be discerning in evaluating digital content.</p>	<p>Children can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine</p>	<p>Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.</p>	<p>Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail how credible a web page is and the information it contains.</p>	<p>Children readily apply filters when searching for digital content. They are able to explain in detail how credible a web page is and the information it contains. They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication.</p>
<p>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</p>	<p>Children can collect, analyse, evaluate and present data and information using a selection of software e.g. databases, graphing software etc. Children can consider what software is most</p>	<p>Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data.</p>	<p>Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the</p>	<p>Children make clear connections to the audience when designing and creating digital content. Children are able to use criteria to evaluate the quality of digital solutions and are able to identify</p>

<p>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 concern about content or contact.</p>	<p>appropriate for a given task. They can create purposeful content</p>	<p>They create linked content using a range of software.</p>	<p>solution. They objectively review solutions from others.</p>	<p>improvements, making some refinements.</p>
	<p>Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools. They know more than one way to report unacceptable content and contact</p>	<p>Children can explore key concepts relating to online safety. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact</p>	<p>Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.</p>	<p>Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking. They recognise the value in preserving their privacy when online for their own and other people's safety.</p>