Bishop Wood Junior School – Computing Curriculum

For further details see Purple Mash Curriculum planning.

Year Group	Area of Study	Key Skills	Knowledge	Vocabulary
Year 3	3.1 Coding	● Use 2Chart to represent a sequential program design. ● Use the design to write the code for the program ● Design and write a program that simulates a physical system. ● Use the 'if' command. ● Combine a timer in a program with selection. ● Use a variable to create a timer ● Create a program with an object that repeats actions indefinitely. ● Use a timer to make characters repeat actions.	● To understand what a flow chart is and how they are used in computer programming. ● To create a program that uses a timer. ● To use the repeat command. ● To run, test and debug simple programs. ● To design and create an interactive scene.	**Action, Algorithm, Background, Bug, Button, Code, Collision, Command, Debug, Event, Flowchart, Implement, Input, Interval, Nest, Object, Predict, Properties, Repeat, Run, Scene, Sequence.**
	3.2 Online Safety	● Make a safe password and keep passwords safe ● Understand how the Internet can be used to help us to communicate effectively. ● Understand how a blog can be used to help us communicate with a wider audience. ● Identify some 'spoof' websites. ● Check that the information is accurate. ● To discuss why PEGI restrictions exist.	● To know the importance of a safe password. ● To consider if what can be read on websites is always true. ● To learn about age restrictions and discuss why PEGI restrictions exist.	**Appropriate, Blog, inappropriate, Internet, Password, Personal information, Permission, Reliable Source, Spoof, verify, Vlogs, Website.**

		● To know where to turn for help if they see inappropriate content or have inappropriate contact from others.		
	3.3 Spreadsheets	● Add and edit in a spreadsheet ● Create pie charts and bar graphs. ● Use the 'more than', 'less than' and 'equals' tools. ● Use coordinates in advanced mode.	● To create a table of data on a spreadsheet ● To compare different numbers to find solutions to calculations. ● To describe cells using their addresses	**Advanced Mode, Bar Graph, Cell Address, Data, Equals, Less than, More than, Equal to, Pie chart, Quiz tool, Spinner tool, Table.**
	3.4 Touch-typing	● To introduce typing terminology. ● To learn how to use the home, top and bottom row keys. ● Keys typed with the left hand. ● Keys typed with the right hand.	● To understand the correct way to sit at the keyboard. ● To touch type the home, bottom and top rows ● To practise and improve touch typing ● To use two hands to type the letters on the keyboard	**Keys, Posture, Space Bar, Typing.**
	3.5 Email	● List a range of different ways to communicate. ● Open and respond to an email. ● Use email safely. ● Add an attachment to an email.	● To think about the different methods of communication ● To write an email to someone, using an address book. ● To write rules about how to stay safe using email. ● To learn how to use email safely. ● To add an attachment to an email. ● To explore a simulated email scenario.	**Address book, Attachment, BCC (Blind Carbon Copy) communication, Compose, Email, Inbox, Link, Node, Password, Personal Information, Save to draft, Trusted contact.**
	3.6 Branching Databases	● Use Yes/ no questioning.	● To sort objects using just YES/NO questions.	**Binary Tree, Branching database, Data, Database, Debugging.**

		• Explain why particular questions are used. • Edit and adapt branching databases • Use 'or more' and 'or less' questioning.	• To complete a branching database • To know how to use and debug their own and others branching databases.	
	3.7 Simulations	• Give examples of simulations • Suggest advantages and problems of simulations. • Use a simulation to try out different options and to test predictions.	• To know what a simulation is and understand the purpose of simulations. • To explore simulation, making choices and discussing their effects. • To recognise patterns within simulations	**Advantages, Analysis, Decision, Disadvantages, Evaluation, Modelling, Point-of-view, Realistic, Simulation, Solution, Unrealistic.**
	3.8 Graphing	• Set up a graph with a given number of fields. • Enter data for a graph. • Produce and share graphs made on the computer. • Present results in a range of graphical formats.	• To enter data into a graph and answer questions. • To solve an investigation and present the results in graphic form.	**Axis, Chart, Column, data, Graph, Investigation, Row, Sorting, Survey, Tally chart, Title.**
	3.9 Presenting with google slides	• Open Google Slides • Add text and format it • Change the design of the slides • Insert new slide • Insert pictures to slides • Add shapes and lines to slides • Add animations and transitions • Adding in timings to a presentation	• To create a page in a presentation • To add in media to a presentation • To add shapes and lines to a presentation • To add animations to a presentation • To design and present an effective presentation	**Animation, Audio, duration, editing, Fill colour, Font formatting, Layer, Media, Presentation, Preview, Review, Slide, Slideshow, Sound effect, Textbox, theme, Timing, transition, Video, WordArt.**

Year 4	4.1 Coding	● Use a sketch or storyboard to represent a program design and algorithm. ● Use the If/else statement ● Create a variable. ● Explore a flowchart design for a program with an if/else statement ● To create a program which responds to the If/else command, using the value of the variable ● Use repeat and repeat until actions. ● Program a character to respond to user keyboard input.	● To create a simple computer program ● To understand how an if statement works ● To understand how to use coordinates in computer programming ● To understand how an IF/ELSE statement works. ● To create and use variables ● To create a playable game	**Code blocks, Co-ordinates, Design, Execute, If/Else Statements, Implement, Predict, Repeat until, Properties, Selection, Variable**

		• Make timers and counting machines using variables to print a new number to the screen every second.		
	4.2 Online Safety	• Understand how children can protect themselves from online identity theft. • Identify the risks and benefits of installing software including apps. • Understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. • Identify appropriate behaviour when participating or contributing to collaborative online projects for learning. • Identify the positive and negative influences of technology on health and the environment. • Understand the importance of balancing game and screen time with other parts of their lives.	• To understand that information put online leaves a digital footprint or trail and that this can aid identity theft. • To identify the risks and benefits of installing software. • To consider the consequences of plagiarism. • To identify the positive and negative influences of technology on health and the environment.	**Adfly**, **Attachment, Citation, Collaborative database, Cookies, Copyright, Data analysis, Digital footprint, Malware, Phishing, Plagiarism, Ransomware, Report, SMART rules, Software, Virus, Watermark.**
	4.3 Spreadsheets	• Use the formula wizard in the advanced mode to add formulae and explore formatting cells • Explore Place Value with a spreadsheet • Use timer button • Use spin button • Use Random number button • Create and interpret line graphs	• To add formula to a cell to make an automatic calculation • To combine tools to make fun ways to explore number • To interpret a line graph to estimate values between data readings. • To use a spreadsheet to help plan actions. • To allocate values to images and use these to explore place value.	**Average, Budget, Calculations, Chart, Decimal place, Format Cell, Formula Wizard, Line Graph, Percentage, Place Value, Random number tool, Resize, Row, Set image, Timer.**

		• Allocate values to images • Use currency formatting		
	4.4. Writing for Different Audiences	• Use text formatting • Explain how font size and type are different depending on the purpose of text. • Interpret a variety of incoming communications. • Roleplay the job of a journalist in a newsroom. • Mind map ideas on 2Connect •	• To explore how font size and style can affect the impact of a text. • To use a simulated scenario to produce a news report. • To use a simulated scenario to write for a community campaign.	**Campaign, Format, font, Genre, Opinion, reporter, viewpoint.**
	4.5 Logo	• Learn the language of Logo: PU, PD commands. • To input simple instructions on Logo. • Use Logo to create letters. • Use the 'Repeat' function in Logo to create shapes. • Use the 'Build' feature in Logo.	• To input simple instructions in 2Logo. • To use 2Logo to create letter shapes. • To create shapes using the repeat command • To use the procedure feature.	**Debugging, Grid, Logo, Logo Commands, Multi Line Mode, Pendown, Pen up, Prediction, Procedure, Repeat, Run speed, SETPC, SETPS.**
	4.6 Animation	• Identify features of good animated films and cartoons. • Learn how animations are created by hand. • Onion skinning in animation. • Add backgrounds and sounds to animations. • Introduction to stop motion animation.	• To learn how animations are created by hand. • To add backgrounds and sounds to animations. • To share and blog animations.	**Animation, FPS (Frame per second), Frame, Onion skinning, Pause, Stop motion.**

	4.7 Effective Searching	• Structure search queries • Analyse contents of a web page. • Find clues about the credibility of information.	• To locate information on the search results page. • To use search effectively to find out information. • To assess whether an information source is true and reliable.	**Balanced view, Easter eggs, Internet, Keywords, Reliability, results page, Search engine.**
	4.8 Hardware investigators	• Understand the different parts that make up a computer. • Recall the different parts that make up a computer.	• To name the different parts that make up a desktop computer. • To describe the function of the different parts of a desktop computer.	**Components, CPU, graphics card, Hard drive, Hardware, Input, Motherboard, Network Card, Output, Peripherals, RAM, Software.**
	4.9 Making Music	• Explore Pulse, Rhythm, Tempo, Pitch, Texture. • Create a melodic phrase. • Use musical language to talk about a piece of music. • Identify sounds in a piece of music. • Explain how a piece of music makes them feel. • Identify and recall a simple rhythm. • Create their own simple rhythm using Busy Beats. • Create a simple melodic pattern using 2sequence and Busy Beats. • Use a variety of notes, experimenting with pitch.	• To identify and discuss the main elements of music. • To experiment with rhythm and tempo • To create a melodic phrase. • To compose a piece of electronic music.	**BPM, Dynamics, Harmonious, Melody, Pitch, Pulse, Rhythm, Tempo, texture, Synths.**
	4.10 Artificial Intelligence	• Identify examples of artificial intelligence.	• To understand the basic concept of artificial intelligence	

			• To explore how artificial intelligence can assist and benefit us in various aspects of daily life. • To understand the potential applications and impact of AI in the future. • To use artificial intelligence to create music and art.	
Year 5	5.1 Coding	• Review coding vocabulary. • Use a sketch or storyboard to represent a program design and algorithm. • Explore text variables. • Combine the use of variables, If/else statements and Repeats to achieve the desired effect in code. • Set/change the variable values appropriately. • Create a game which has a timer and score pad. • Use variables to control the objects in the game. • Create loops using the timer and If/else statements. • Include buttons and objects that launch windows to websites and programs. • Code a program that informs others.	• To begin to be able to simplify code. • To understand what simulation is. • To use decomposition to make a plan of a real life situation. • To begin to understand what a function is and how functions work in code. • To understand what the different variable types are and how they are used differently. • To use strings to produce a range of outputs.	**Abstraction, Concatenation, Decomposition, Efficient**, **Event, Friction, Function, Output, Physical system, Predict, Print to screen Simplify, Simulation, String, Value.**
	5.2 Online Safety	• Review sources of support when using technology.	• To review children's responsibility to one another in their online • behaviour.	**Avatar, Bibliography, Communication, Creative commons licence, Critical thinking, Encrypt, Identity theft, Image manipulation, Ownership,**

		● Know how to maintain secure passwords. ● Reference sources in their work. ● Check validity and understand the impact of incorrect information. ● Know what Childnet SMART CREW is and have thought critically about the information that they share online both about themselves and others. ● Know who to tell if they are upset by something that happens online. ● Use the SMART rules as a source of guidance when online.	● To be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. ● To learn about how to reference sources in their work. ● To learn about ensuring reliability through using different methods of communication.	**Password, PEGI ratings, Personal information, Reference, Reliability, Responsibility, Screen shot, Validity.**
	5.3 Spreadsheets	● Use of the count tool. ● Formulae including the advanced mode. ● Using text variables to perform calculations. ● Create a formula in a spreadsheet to convert measurements. ● Use a spreadsheet to work out which letters appear most often. ● Use the 'how many' tool. ● Use a spreadsheet to work out the area and perimeter of rectangles. ● Create simple formulae that use different variables. ● Create a formula that will work out how many days there are in x number of weeks or years.	● To use formulae within a spreadsheet to convert measurements of length and distance. ● To use the count tool to answer hypotheses about common letters in use. ● To use a spreadsheet to model a real-life problem. ● To create formulae that use text variables. ● To use a spreadsheet to help plan a school cake sale.	**Area, Computational Model, Formula Bar, How many?**, **Perimeter, Profit, Spreadsheet, Totalling tool, Variable.**

	5.4 Databases	• Search a database in order to answer questions correctly • Design an avatar for a class database. • Enter information into a class database. • Add records to their database. • Correctly add field information. • Word questions so that they can be effectively answered using a search of their database.	• To learn how to search for information on a database. • To contribute to a class database. • To create a database around a chosen topic.	**Arrange, Avatar, Field, Group, Record, Search, Sort, Statistics.**
	5.5 Game Creator	• Set the scene. • Create the game quest. • Review and analyse a computer game. • Describe some of the elements that make a successful game. • Design the setting for their game so that it fits with the selected theme. • Upload images or use the drawing tools to create the walls, floor and roof. • Design characters for their game. • Write informative instructions for their game so that other people can play it.	• To begin planning a game. • To design the game environment. • To design the game quest to make it a playable game. • To finish and share the game. • To self and peer evaluate.	**Evaluation, Feedback, Image, Instructions, Promotion, Quest, Scene, Screenshot, Texture, Theme.**
	5.6 3D Modelling	• Design for a purpose. • Explore the different viewpoints in 2Design and Make whilst designing a building.	• To be introduced to the 2Design and Make tool. • To explore the effect of moving points when designing. • To design a 3D model to fit a certain criteria. • To refine and print a model.	**2D, 3D, 3D printing, CAD-Computer Aided Design, Design brief, Net, Pattern fill, Points, Template.**

		• Adapt one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form. • Explore how to edit the polygon 3D models to design a 3D model for a purpose.		
	5.7 Concept Maps	• Use the correct vocabulary when creating a concept map. • Understand what is meant by 'concept maps', 'stage', 'nodes' and 'connections'. • Use 2Connect Story Mode to create an informative text. • Use 2Connect collaboratively to create a concept map. • Use Presentation Mode to present their concept maps to an audience.	• To understand the need for visual representation when generating and discussing complex ideas. • To create a concept map. • To understand how a concept map can be used to retell stories and information. • To create a collaborative concept map and present this to an audience.	**Concept, Concept map, Connection, Collaborative, Heading, Sub- heading, node, Presentation mode, Story mode.**
	5.8 Word processing (Google Docs)	• Make a document from a blank page • Insert Images: Considering Copyright • Editing Images in Google Docs. • Presenting information using tables • Use the correct way to search for images that they are permitted to reuse. • Know how to attribute the original artist of an image. • Understand wrapping of images and text.	• To know what a word processing tool is for. • To add images to a document and edit. • To know how to use word wrap with images and text. • To change the look of text within a document. • To add features to a document to enhance its look and usability. • To use sharing capabilities in Google docs.	**Attributing, Bulleted lists, Breaks, Copyright, Creative Commons, Cropping, Cursor, Distributing Columns, Editor, Font, Grammar check, Hyperlink, Image editing, Image Transparency, Numbered Lists, Page Orientation, readability, Selecting/highlighting, Styles, Template, TextBox, Text formatting, Zoom.**

		● Use bullet points and numbering. ● Add text boxes and shapes. ● Consider paragraph formatting such as line spacing, drop capitals. ● Use page breaks, headers and footers. ● Add hyperlinks to places in the document and to an external website. ● Add an automated contents page. ● Add tables to present information. ● Edit properties of tables including borders, colours, merging cells, adding and removing rows and columns.		

Year 6	6.1 Coding	● Design programs using a choice of objects. ● Use variables within a game to keep track of the properties of objects. ● Use functions ● Organise code into tabs. ● Organise code into functions and Call functions to eliminate surplus code in the program. ● Use flowcharts to test and debug a program. ● Debug when things do not run as expected. ● Code programs that take text input from the user and use this in the program. ● Attribute variables to user input. ● Code for all possibilities when using user input. ● Create flowcharts for algorithms.	● To design a playable game with a timer and a score. ● To plan and use selection and variables. ● To use functions and understand why they are useful. ● To create a simulation of a room in which devices can be controlled. ● To understand how user input can be used in a program. ● To understand how 2Code can be used to make a text-based adventure game.	**Launch command**, **Timer, Turtle object, X and Y properties.**
	6.2 Online Safety	● A clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour. ● Awareness of risks online including sharing location, secure websites, spoof websites, phishing and other email scams.	● To identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g., apps accessing location. ● To review the meaning of a digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user. ● To identify the positive and negative influences of technology on health and the environment.	**Inappropriate, Location sharing, Print Screen, Screen Time, Secure Websites.**

		● Understanding of the steps they can take to protect themselves including protecting their digital footprint, where to go for help, smart rules and security software. ● Understand how what they share impacts upon themselves and upon others in the long-term. ● Know about the consequences of promoting inappropriate content online and how to put a stop to such behaviour when they experience it or witness it as a bystander. ● Take more informed ownership of the way that they choose to use their free time. ● Recognise a need to find a balance between being active and digital activities. ● Give reasons for limiting screen time. ● Talk about the positives and negative aspects of technology and balance these opposing views.		
	6.3 Spreadsheets	● Exploring Probability using dice tool ● Create a computational model ● Create a spreadsheet to answer a mathematical question relating to probability. ● Problem solve using the count tool.	● To use a spreadsheet to investigate the probability of the results of throwing many dice. ● To use a spreadsheet to calculate the discount and final prices in a sale. Create a formula to help work out the prices of items in the sale. ● To use a spreadsheet to plan how to spend pocket money and the effect of saving money. ● To use a spreadsheet to plan a school charity day to maximise the money donated to charity.	**Dice Tool, Expense, , Formula Wizard, Move Cell Tool, Set image.**

		● Create a machine to help work out the price of different items in a sale. ● Use the formula wizard to create formulae. ● Use a spreadsheet to solve a problem. ● Use a spreadsheet to model a real-life situation and come up with solutions. ● Use a spreadsheet to model a real-life situation and come up with solutions that can be applied to real life.		
	6.4 Blogging	● Plan the theme and content for a blog. ● Consider the effect upon the audience of changing the visual properties of the blog. ● Contribute to an existing blog. ● Peer-assess blogs against the agreed success criteria. ● Identify the key features of a blog. ● Create a blog with a specific purpose. ● Post comments and blog posts to an existing class blog. ● Comment on and respond to other blogs.	● To identify the purpose and features of a blog. ● To plan the theme and content for a blog. ● To consider the effect upon the audience of changing the visual properties of the blog. ● To understand the importance of commenting on blogs.	**Approval, Archive, Blog, Blog Post, Collaborate, Commenting, Connections, Nodes, Vlog.**
	6.5 Text adventures	● Plan a story adventure. ● Map out a story-based adventure. ● Code a map-based text adventure. ● Use the full functionality of 2Create a Story Adventure mode to create, test and debug using their plan.	● To find out what a text-based adventure game is and explore examples. ● To use 2Connect to plan an adventure story. ● To make a story-based adventure game. ● To read and understand given code for a text adventure game. ● To debug a text adventure.	**Function, Link, QR Code, Sprite, Selection.**

		● Contrast a map-based game with a sequential story-based game. ● Use coding concepts of functions, two-way selection (if/else statements) and repetition in conjunction with one another to code their game. ● Make logical attempts to debug their code when it does not work correctly.		
	6.6 Networks	● Know what a LAN and a WAN are. ● Know the difference between the World Wide Web and the internet. ● Know about the school network. ● Identify some of the major changes in technology which have taken place during their lifetime and the lifetime of their teacher/another adult.	● To know the difference between the World Wide Web and the Internet. ● To find out how we access the internet in school. ● To research and find out about the age of the internet.	**DNS, Ethernet, Hosting, Hub/Switch, Internet, IP address, ISP, LAN, Network, Router, Search engine, WAN, Web Page, Web Server, Website, WLAN, Wi-fi, WWW.**
	6.7 Quizzing	● Use the different question types within 2Quiz. ● Use the 2DIY activities to create a picture based quiz. ● Use the different types of Text Toolkit grammar games. ● Choose an appropriate Text Toolkit tool to make their own grammar game.	● To create a picture-based quiz for young children. ● To learn how to use the question types within 2Quiz. ● To use appropriate tools to make grammar games. ● To make a quiz that requires the player to search a database. ● To create a quiz based on a curriculum area.	**Audience, clone, Cloze, Selfie, Statistics.**
	6.8 Understanding Binary	● Count in binary ● Convert numbers to binary ● Use a variable set to 0 or 1 to control game states.	● To examine how whole numbers are used as the basis for representing all types of data in digital systems. ● To represent whole numbers in binary. ● To convert from decimal to binary. ● To use binary values to represent the state of an object ina game.	**Binary, bit, Decimal, Denary, Digit, Game States, Integer, Microprocessor, Nanotechnology, Nibble, Byte, Kilobyte, Megabyte, Gigabyte, Tetrabyte, Switch, Transistor, Variable.**